

USING TRADE TOOLS TO FIGHT CLIMATE CHANGE

Edited by Jennifer Hillman
& Loriane Damian



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Center on Inclusive Trade and Development
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Using Trade Tools to Fight Climate Change

Jennifer Hillman and Loriane Damian,
Editors



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The Center on Inclusive Trade and Development

Georgetown Law's Center on Inclusive Trade and Development (CITD) was established in 2022 to bring together scholars, students, practitioners, policymakers, NGOs, business and labor leaders, and international organizations to find solutions to the challenges facing the international trading system and develop global approaches to making trade rules more inclusive, sustainable, and supportive of development.

Directed by long-time trade practitioners and Georgetown Law professors Jennifer Hillman and Katrin Kuhlmann, the Center serves as the hub and coordinator for research, writing, teaching, events, and clinical work on critical aspects of inclusive trade and development. The CITD also draws on the breadth and depth of over a dozen Georgetown Law faculty formally affiliated with the Center who are focused on international trade, investment, finance, human rights, and development, as well as an Advisory Council that includes global experts with experience across academia, the private sector, NGOs and international organizations. The Center serves as a platform to disseminate cutting-edge research and the results of important field studies and initiatives, along with events showcasing leading thinkers in the trade and development space.

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PREFACE

When I was asked to teach a new course at the Georgetown University Law Center designed around a “hot topic” in international trade, I could think of nothing that would be more important or impactful than encouraging students to study the intersection between international trade and climate change law. The course began at a time when there was relatively limited scholarship or legal jurisprudence focused on the areas where trade law and climate change law either overlap or clash, with trade lawyers remaining firmly on Mars and climate lawyers on the proverbial Venus. And yet it was becoming increasingly clear that the world would not be able to achieve the speed and scale of decarbonization necessary unless climate mitigation and adaptation efforts were joined with the exchange of goods, services, ideas, technology and people that can be either facilitated or stymied by trade policies.

Yet climate change and international trade operate under different organizational structures, with trade law concentrated in the rules-based World Trade Organization (WTO), notwithstanding the recent demise of its Appellate Body, a binding dispute settlement system and decades of decisions from panels and the Appellate Body. Few changes had been made to the WTO’s basic rule book since its creation in 1995, or to the rules pulled in from the older 1947 General Agreement on Tariffs and Trade (GATT). Climate change law, on the other hand, has been ever evolving from its inception in the United Nations Framework Convention on Climate Change (UNFCCC), through the ill-fated Kyoto Protocol to the critically important Paris Agreement and its requirement for countries to make National Determined Commitments (NDCs) to reduce national emissions and adapt to the impacts of climate change. With each successive meeting of the Conference of the Parties (COP) to the UNFCCC, additional understandings are reached or pledges made, leaving climate change law more fluid and without a universal or static rule book.

So a major challenge for the course and for the students was to understand how both regimes operate and more importantly, where they could operate together to harness their collective power and incentives to fight climate change as well as how collisions between the two could be avoided. The class began with an examination of the basic rules, norms, and operations of the two systems before turning to a number of the specific issues and questions raised at their intersection: can a country impose border charges or tariffs such as the European Union’s Carbon Border Adjustment Mechanism (CBAM) without running afoul of the WTO rules on tariffs and non-discrimination? Can the WTO rules be used to, on the one hand, limit fossil fuel subsidies while, on the other, giving a green light to subsidies for renewable energy? Can a common methodology be developed to measure the amount of Greenhouse Gases (GHGs) associated with an individual traded good? Can countries impose labelling requirements on imports requiring them to disclose the amount of GHGs embedded within them? What defenses are available if a country’s climate change measures are challenged at the WTO? These and many more questions were the subject of further research and debate.

The beauty of an intensive seminar is the opportunity to quickly pivot to examining unexpected developments and we were faced with a number of them. Throughout the period when the class was meeting, we witnessed the nearly complete erasure of the line

that had traditionally separated national security disciplines from economic ones, with much of United States (U.S.) trade policy being increasingly looked at through, and justified on, the basis of a national security lens. That development invited much discussion of the pros and cons of designating climate change itself to be a threat to the national security of the countries of the world. It was also during the pendency of the class that the European Union (EU) finalized its plans for the imposition of its CBAM, the details of which prompted much additional debate over whether the EU had in fact achieved its stated goal of imposing border measures that were fully consistent with its WTO obligations. The somewhat surprising accord by WTO members on the Agreement on Fisheries Subsidies at its June 2022 Ministerial Conference opened many minds to the possibilities of applying lessons learned to other types of subsidies. And last but perhaps most significantly was the passage in the United States of the Inflation Reduction Act (IRA), with its billions in subsidies directed at climate mitigation and adaptation – the single largest investment in the fight against climate change ever undertaken by the U.S., but tainted by a number of provisions warranting much additional scrutiny for their apparent breach of basic WTO rules.

With a foundation in basic trade and climate change law and after research and debate of these and other issues, the students were then encouraged to do what they do best – to put their creative minds and eloquent pens to work writing papers focused on how trade policies could be harnessed for climate mitigation and adaptation or to foster climate resilience. And the results of their work were so compelling that I felt that they must be shared with those also interested in answering the question of how we can use trade tools in the fight against climate change. Hence the creation of this book, which includes the best of the papers from two classes (taught at Georgetown Law in the spring of 2022 and the spring of 2023). Each of the papers are presented in their entirety in this book, grouped broadly into those directed at pricing and measuring GHGs; those focused on specific carbon-intensive sectors such as steel, cement and plastics; those highlighting the good and bad roles played by subsidies and ways to discipline them; those examining new ways to use existing trade tools to underscore links to climate change; those focused on some of the critical overlaps with other legal disciplines such as human rights law, intellectual property, and finance; and those looking at the legal challenges, opportunities and defenses trade law presents for climate mitigation or adaptation measures.

The path to making this book a reality was substantially aided by the tireless work and superb writing skills of my co-editor, Loriane Damian. Ms. Damian shepherded each of the papers through the copy-editing process and wrote overview analyses tying them together and explaining their context and import. She also consistently kept track of the most useful and timely sources and materials directed at the legal issues arising at the intersection of trade and climate change law. Ms. Damian organized these sources into a roadmap to guide anyone interested in examining the tug and pull occurring when these two legal disciplines meet. I proudly present that roadmap as the final chapter of this book as a useful compilation of the key sources and materials outlining what is likely to happen when climate change meets trade law.

Jennifer Hillman

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The authors gratefully acknowledge the contributions to our understanding of the many ways in which environmental law, climate change, and international trade law are interwoven, beginning with our colleague, Professor Edith Brown Weiss, who pioneered the teaching of international environmental law and wrote pathbreaking books and articles connecting the dots between trade law, environmental law, water rights, human rights, and climate change. Our students benefited greatly from her work and her masterful classroom presentation drawn from the thought-provoking chapter, “Climate Change: A Wickedly Tough Global Commons Tragedy,” in *International Law for the Environment* (2nd ed.) (Edith Brown Weiss, Daniel Barstow Magraw, Stephen C. McCaffrey, Stephanie Tai & A. Dan Tarlock). We were so fortunate to have her presence in the classroom during her final year of full-time teaching at Georgetown Law.

The authors are also grateful to our guest lecturers, who graciously shared their expertise and ideas, including Christine McDaniel, an economist and Senior Research Fellow at the Mercatus Center, who aided greatly in helping us understand economics and the negative externalities of climate change; Inu Manak, Fellow for Trade at the Council on Foreign Relations, who shared her deep expertise on the workings of the WTO, particularly in the area of standards and technical regulations; and Maureen Hinman, Co-Founder and Executive Chair of Silverado Policy Accelerator and a leading policy expert on the environmental industry, who shared much on-the-ground knowledge of decarbonization technologies and the process for their transfer and adaptation.

This book would not have come together without the tireless work and tremendous copy-editing skills of Betsy Kuhn, Faculty Manuscript Editor at Georgetown Law. It also would not have its beautiful cover without the talent and dedication of Ines Hilde, Associate Director of Design in Georgetown Law’s Office of Communications.

The impetus to ensure that the innovative ideas embedded in the work of our students made it into the public domain has its roots in the mission of the book’s publisher, the Center on Inclusive Trade and Development (CITD). CITD was founded in April 2022 at Georgetown Law to bring together scholars, students, policymakers, NGOs, business and labor leaders, and international organizations to find solutions to the challenges facing the international trading system and to develop global approaches to making trade rules more inclusive, sustainable and supportive of development. The authors are grateful for the unwavering support for this project from CITD’s co-founder, Professor Katrin Kuhlmann, its Program Manager, Valeria Frigeri, and its Senior Fellow, Mario Osorio.

Last but certainly not least, the authors would like to thank and congratulate the Georgetown Law students who chose to take a course requiring them to master both trade law and climate change policy, and to research and write about novel areas at the intersection of the two. Their dedication to their research and to exploring new ways of thinking about climate change enlivened the debate, enriched the classroom, and crystallized our thinking about the many ways that trade tools can be used in support of climate mitigation and adaptation.

Jennifer Hillman
Loriane Damian

INTRODUCTION

For decades, the world witnessed explosive growth in the volume of international trade – mostly made possible by technological changes that have dramatically reduced the cost of transportation and communications, the development of far-flung supply chains, and the opening of new markets to trade and investment. Alongside that enormous expansion has been a parallel increase in the emission and accumulation of greenhouse gases (GHGs) that drive climate change because of the amount of warming they cause and the extensive amount of time they remain in the atmosphere. For many, these two trends have always been linked, with international trade’s rise contributing significantly to climate change. But more recently, many in the international trade and climate change communities have begun examining the flip-side of that coin – the ability for trade and trade policy to help solve the climate crisis. Governments around the world have begun enacting trade-related climate measures such as carbon border adjustments (CBAMs), green industrial policies, initiatives to decarbonize supply chains, and “buy green” procurement policies and the trading system, and the organization at its center, the World Trade Organization (WTO) have taken notice.

The recognition among WTO members and its Secretariat of the need to engage in both the substance and the process of ensuring that trade and climate policies work in harmony can be seen on many fronts. In the fall of 2022, the WTO released its annual World Trade Report, which is always focused on an issue of great concern or on which the WTO wants to shine a spotlight. In 2022, the spotlight was on climate change. The report, *Climate Change and International Trade*,¹ included four key messages: 1) that climate change is reshaping countries’ economic and trade prospects and is a major threat to future growth and prosperity; 2) that while climate shocks will remain costly and disruptive, trade can help countries better prepare and respond, mainly through access to technologies and critical goods and services; 3) that trade can reduce the cost of mitigation and speed up the low-carbon transition while creating green jobs; and 4) that international trade cooperation can make climate actions more effective and the low-carbon transition more just if trade frictions are minimized.

Those messages were drawn from years of work at the intersection of trade and climate policy, including at the WTO’s Committee on Trade and the Environment (CTE), which looks at climate change measures to ensure they do not pose unnecessary obstacles to international trade and has long included participation from representatives of the United Nations Framework Convention on Climate Change (UNFCCC). More recently, the WTO Trade and Environmental Sustainability Structured Discussions (TESSD), begun in 2020 by 50 countries who joined together to organize “structured discussions” among interested WTO members and external stakeholders. The TESSD participants issued a Ministerial Statement in December 2021 that included, among other things, the launch of dedicated discussions on how trade-related climate measures and policies can best contribute to climate goals and commitments while being consistent with WTO rules

¹ World Trade Organization. (2022). *World Trade Report 2022*. Available at: https://www.wto.org/english/res_e/booksp_e/wtr22_e/wtr22_e.pdf

and principles.² In December 2022, the WTO's Director General Okonjo-Iweala charged the TESSD with the creation of specific options and pathways, including trade-related climate measures, to achieve the goal of expanding sustainable trade, investment, and innovation in support of global environmental objectives in time for the WTO's next Ministerial Conference, scheduled to take place at the end of February 2024.³

Parallel dialogues have been intensifying on a number of climate-related WTO fronts including the Fossil Fuel Subsidy Reform (FFSR) initiative that seeks to rationalize and phase out inefficient fossil fuel subsidies that encourage wasteful consumption, and the Dialogue on Plastics Pollution and Environmentally Sustainable Plastics Trade, designed to explore ways the WTO can contribute to efforts to reduce plastics pollution, including through circular economy, and promote the transition to more environmentally sustainable trade in plastics. The world's trade ministers have similarly begun their own set of dialogues, with the creation in 2022 of the Coalition of Trade Ministers on Climate, led by the trade ministers from Ecuador, the European Union (EU), Kenya, and New Zealand. The Coalition is focused on identifying ways to ensure the multilateral trading system contributes to the global response to climate change, including specific ways to promote trade and investment that foster the diffusion, development, accessibility, and uptake of goods, services, and technologies that support climate mitigation and adaptation in both developed and developing countries.

As the steel sector is moving towards decarbonization, the private sector has also taken part in these climate dialogues. In March 2023, industry executives from the steel sector participated in the first-ever WTO forum on decarbonization standards where the world's largest steel-producers discussed the need to set coherent and transparent standards to low-carbon steel making.⁴

All of these initiatives and many others are centered on a recognition that the link between trade and climate change is an exorable one. Climate change presents a severe, pervasive, and potentially irreversible threat to people, ecosystems, biodiversity, public health, infrastructure, and the global economy. With climate change comes higher temperatures, rising sea levels, and more frequent extreme weather events, bringing with them the prospect of productivity losses, production shortages, damaged transport infrastructure, and supply disruptions – all of which impact trade.⁵

Understanding the nature of that link begins with an examination of the climate change and international trade regimes.

THE CLIMATE REGIME

Climate change is defined by Article 1.2 of the UNFCCC as “a change of climate ... that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over a comparable time periods.” Climate change is understood to be caused by the buildup of GHGs in the atmosphere, with three gases-carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (N₂O)-considered the primary drivers

² WTO Trade and Environmental Sustainability Structured Discussions (TESSD). Ministerial Statement On Trade And Environmental Sustainability, (WT/MIN(21)/6/Rev.2 14, December 2021). Available at: <https://docs.wto.org/dol2fe/Pages/SS/directdoc.aspx?filename=q:/WT/MIN21/6R2.pdf&Open=True>

³ Remarks by DG Okonjo-Iweala. (2022). *TESSD High-Level Stocktaking Event*. Available at: https://www.wto.org/english/news_e/spno_e/spno34_e.htm.

⁴ World Trade Organization. (2023). *Cooperation on standards at WTO could speed up steel sector decarbonization: Trade Forum*. Available at: https://www.wto.org/english/news_e/news23_e/clim_09mar23_e.htm

⁵ See World Trade Report 2022, *supra* note 1 at 8.

of climate change due to the length of time they remain in the atmosphere and the amount of warming they cause. Carbon dioxide emissions largely come from the burning of carbon-containing fuels; the majority of methane emissions are generated through the extraction of oil and gas, coal mining and waste landfills; and nitrous oxide emissions are mainly the result of agricultural practices. When compared to GHG emissions in 1990, which were approximately 35 billion tons, today we collectively generate 40 percent more emissions, around 50 billion tons of carbon dioxide equivalent (CO₂e) each year.⁶ As a result, the earth's temperature has risen an average of 0.08°C per decade since 1880.⁷

A. United Nations Framework Convention on Climate Change (UNFCCC)

The establishment of the global regime to address climate change began in 1979 with the First World Climate Congress, with its first major milestone being the adoption of the UNFCCC in 1992, negotiated as a framework agreement under the auspices of the Intergovernmental Negotiating Committee (a free-standing body established by the United Nations (UN)) but spurred on by assessments of effects of human activity on climate change done by the 35 countries that came together in 1988 to form the Intergovernmental Panel on Climate Change (IPCC), which now focuses on providing scientific information on climate change. The UNFCCC has almost universal membership (198 Parties as of July 2023), with the principal objective of preventing “dangerous anthropogenic interference with the climate system” (Article 2) by stabilizing GHG emissions through national inventories of sources and sinks of GHGs, and regular reporting of countries emissions levels (Article 4). This Convention covers six GHGs: carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulphur hexafluoride.

B. Kyoto Protocol

While lacking binding commitments or timetables for reducing GHGs, the UNFCCC is significant in part because it sets the stage for what was to follow – the Kyoto Protocol, the Paris Agreement, and the Glasgow Pact. Through the process of regular meetings, known as the Conference of the Parties (COP), government officials meeting at the third COP in Kyoto, Japan in 1997 adopted its first protocol, the Kyoto Protocol, which operationalized the UNFCCC by getting commitments from industrialized countries to limit and reduce GHG emissions in accordance with agreed individual targets. However, because developing countries, including large emitters such as China, India, and Brazil, did not have to commit to lowering their GHG emissions, and because the targets that were agreed to by the developed countries proved to be insufficient, the Kyoto Protocol did not achieve its goals. In 2001, the United States (U.S.) Senate voted against ratifying the Kyoto Protocol, citing potential damage to the U.S. economy and the fact that, by exempting China and other large emitters, the Kyoto Protocol was not fair and could not work because it exempted 80 percent of the world from GHG emission reductions.

⁶ Ritchie, H. & Roser, M. *Greenhouse Gas Emissions*. Our World in Data. Available at: <https://ourworldindata.org/greenhouse-gas-emissions>; CO₂e, or carbon dioxide equivalent, is a metric measure that is used to compare emissions from various greenhouse gases on the basis of their global warming potential by converting amounts of other gases to the equivalent amount of CO₂ that would cause the same amount of warming.

⁷ Lindsey, R. & Dahlman, L. (2023). *Climate Change: Global Temperature*. Available at: <https://www.climate.gov/news-features/understanding-climate/climate-change-global-temperature>

C. Paris Agreement

As a result of the Kyoto Protocol's shortcomings, the COP21 meeting in Paris in 2015 took a different approach – one in which all countries would be asked to contribute to the fight against climate change, but each could do so based on their own assessments of what was feasible for them. What emerged from those meetings was the Paris Agreement, superseding the Kyoto Protocol, and establishing an overarching goal to hold the increase in the global average temperature to well below 2°C above pre-industrial levels and pursue efforts to limit the temperature increase to 1.5°C above pre-industrial levels (Article 2.1(a), along with commitments to improve climate finance and adaptation efforts (Article 2.1(b)(c)). The Paris Agreement is a legally binding international treaty that works by asking all countries to submit National Determined Contributions (NDCs), indicating the actions they will take to both reduce their GHG emissions and build resilience to adapt to the impacts of climate change, with NDCs including not only specific time frames and the scope of coverage of their emissions reductions, but also indications of what support countries need from, or will provide to, other countries to adopt low-carbon pathways and build climate resilience. It is up to each country to determine how ambitious they will be in reducing emissions, but the Paris Agreement includes a process to seek deeper commitments every five years (Article 4.9). The biggest concern with the Paris Agreement is whether these self-determined commitments (and countries' willingness to abide by them) will be enough to achieve its goals.

D. Glasgow Pact

Six years after the adoption of the Paris Agreement, 190 countries gathered at COP26 agreed to implement the Glasgow Climate Pact, a non-binding instrument designed to accelerate implementation of the Paris Agreement. The Pact calls upon Paris Agreement parties to accelerate both the development and dissemination of low-emission energy technologies and the phasedown of unabated coal power, alongside the phase-out of inefficient fossil fuel subsidies. The Pact also seeks to advance climate finance efforts by setting a goal for developed countries to double the funding provided to developing countries for adaptation action by 2025. The Pact also included the adoption of the Paris Rulebook, which gives guidelines on how countries set out their NDCs, with enhanced transparency, common timeframes and mechanisms, standards for international carbon markets, and asked parties to submit a more ambitious set of NDCs. Significantly, the Glasgow Pact also incorporated a number of key side-agreements (sectoral initiatives) focused on deforestation, methane, car emissions, and private financing.

E. Common But Differentiated Responsibilities (CBDR)

The UNFCCC and the Paris Agreement also gave rise to and formalized the principle of Common But Differentiated Responsibilities (CBDR), which grew out of the 1992 Rio Declaration on Environment and Development's Article 7: “[i]n view of the different contributions to global environmental degradation, States have common but differentiated responsibilities. The developed countries acknowledge the responsibility that they bear in the international pursuit of sustainable development in view of the pressures their societies place on the global environment and of the technologies and financial resources they command.” The CBDR concept is grounded in equity considerations and the notion of sustainable development, often defined as development that addresses the needs of present generations without compromising the needs of future generations.

Specific provisions of the UNFCCC, the Kyoto Protocol and the Paris Agreement all reference CBDR, recognizing that countries have *common* responsibilities to take action to address climate change while these responsibilities are *differentiated* among countries based on their capabilities and the means at their disposal. The Preamble to the UNFCCC refers explicitly to CBDR, which is also incorporated as one of the principles that should guide the actions of the Parties (Article 3.2) and affirms that responses to climate change should avoid adverse impacts on social and economic development and should take fully into account the legitimate needs of developing countries to achieve sustained economic growth and eradicate poverty.⁸ The Paris Agreement builds on the UNFCCC by explicitly recognizing that States face different circumstances from one another and that these differences must be taken into account in assessing both their responsibilities and their capabilities (Article 2.2).

The trading system, for its part, also includes provisions addressing the special situation and needs of developing countries and least developed countries. The trading system's 'special and differential treatment' (SD&T) recognizes that developing countries may benefit from or require increased flexibilities in their trade regime to promote their development.

F. A Recognized Overlap

In a clear sign that the climate change community recognizes the need to leverage trade rules and tools in addressing climate change, for the first time in the history of COP meetings, COP28, to be held from November 30-December 12, 2023 in Dubai, will include a day devoted to discussions of the role of trade as a catalyst for climate-smart development, focusing on issues like value-chain decarbonization and resilience. The agenda for the day is being shaped by a coalition that includes the WTO, the United Nations Conference on Trade and Development (UNCTAD), and other global organizations like the World Economic Forum and the International Chamber of Commerce. The hope is that the alliance will build a collective understanding of how the trading system can support climate goals in a way that benefits all countries.

THE INTERNATIONAL TRADE REGIME

As long as the world remains dependent on high-carbon technologies, increasing economic production will almost inevitably lead to increasing GHG emissions.⁹ And trade itself, like most economic activities, leads to the emissions of GHGs, mostly in the form of export production and transport. In 2018, the world share of carbon emissions embodied in exports was estimated to account for around 30 percent of total emissions.¹⁰ Sectors such as energy and transportation, fundamental for the international trade of goods, are responsible for more than 75 percent of the GHGs embedded in this economic activity, with international transport estimated to account for over 10 percent of global carbon emissions. Furthermore, trade opening increases the level of production, transportation, and consumption of goods and services, thereby increasing GHG emissions. The fragmentation of production represented by global value chains (GVCs) also involves more transport and therefore more emissions. Trade may also be creating incentives to cut down forests that would otherwise act as carbon sinks in order to plant

⁸ Paragraphs 3, 6, 10, and 21 of the Preamble to the UNFCCC.

⁹ See World Trade Report 2022, *supra* note 1 at 8.

¹⁰ See World Trade Report 2022, *supra* note 1.

exportable crops or extract resources from forest land. So, trade and the trading system bear significant responsibility for contributing to climate change.

The good news, however, is that reductions in the emissions from the transport sector are already occurring, and, when accompanied by improvements in the sustainability of global supply chains and in the standards for measuring the carbon content of traded goods, these negative effects can be substantially and quickly reduced. Moreover, when combined with the positive contributions that trade policy can make to increasing the speed and scale at which decarbonization is taking place around the world, trade has the potential to make a significant net positive contribution to addressing the climate crisis.

A. Trade Rules and Climate Change

Unlike the hortatory or self-determined commitments in the climate change regime, international trade law is a binding, with a core set of rules under the WTO, along with additional rules under hundreds of bilateral, regional, plurilateral trade agreements, such as the U.S.-Canada-Mexico Agreement (USMCA), the EU, and the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP). The WTO rules have been widely recognized and adhered to by its broad membership (164 countries), in part because of the WTO's binding dispute settlement system which, until the recent demise of its Appellate Body, acted to hold countries accountable to their WTO commitments.

In the climate change realm, the WTO rules, on the one hand, recognize a sustainable development objective in the preamble to the Marrakesh Agreement and provide flexibilities permitting the adoption of policy measures necessary to protect human, animal, or plant life or health or the conservation of exhaustible natural resources in the General Agreement on Tariffs and Trade (GATT) and the General Agreement on Trade in Services (GATS). On the other hand, WTO Agreements include rules that constrain certain trade-related climate measures through their disciplines that govern when countries can treat "dirty" goods or "dirty producers" or even "dirty" countries differently than they treat "green" ones, and when and how they can provide government support in the form of subsidies to decarbonization efforts.¹¹ Additional rules, particularly the WTO's Technical Barriers to Trade Agreement (TBT Agreement), governs countries leeway in adopting climate-related regulations, labeling requirements or product standards. For those countries that are members of the WTO's Government Procurement Agreement, the WTO constrains how far they can go in adopting "buy green" policies. As such, countries have the right and the flexibility to adopt ambitious climate measures, even if such measures could have a negative impact on trade or on particular trading partners. But concerns over ensuring climate measures comply with the basic rules or fit within the exceptions exerts a cautionary blanket over some countries' climate actions.

B. Trade-Related Climate Measures

Notwithstanding concerns about compatibility with WTO rules, in the face of the urgent need to take action on the climate crisis, many governments are implementing or considering a range of trade-related climate policies – including green industrial policies, measures to promote the development and adaptation of clean energy technologies,

¹¹ The key non-discrimination provisions are GATT Article I (Most-Favored Nation) that prohibits discrimination between WTO member countries and GATT Article III (National Treatment) that prohibits discriminating against imported goods or services in favor of domestic production. The WTO Agreement on Subsidies and Countervailing Measures disciplines the use of subsidies.

carbon pricing schemes, bans on goods resulting from deforestation, and initiatives to decarbonize supply chains.

A prime example is the EU's recently adopted CBAM that seeks to impose a tariff on carbon-intensive goods imported from abroad. The CBAM is designed to mirror the charges imposed on European producers for their emissions from power generation and industrial production as part of the EU's cap-and-trade Emissions Trading System (ETS). The desire for CBAM is driven by demands from EU industry to 'level the playing field' by reducing the cost advantage that imports from countries that do not impose a price on carbon enjoy and by the need to discourage carbon leakage, whereby production in GHG-intensive goods simply moves out of the EU to less climate-stringent locales. A number of other countries, including the United Kingdom (U.K.), Canada, and Taiwan are also considering following the EU's lead to impose their own border adjustment systems.

On the opposite end of imposing carbon prices and border tariffs are the United States' efforts to address climate change through industrial policy and subsidies. Three pieces of legislation enacted in the last year, the Infrastructure Investment and Jobs Act, the CHIPS Act, and the Inflation Reduction Act (IRA), collectively mean that the U.S. federal government is set to triple its average annual spending on climate and clean energy this decade compared to the 2010s. The likely implications of all of the spending include the U.S. reducing its GHG emissions by more than 50% by 2030 relative to 2005 levels and the U.S. becoming a major global manufacturer of green-related products and materials. Of these three bills, the biggest and the one that is raising the most controversy in the geo-political context is the IRA, which contains over 60 provisions on climate and energy initiatives and provides hundreds of billions of dollars in clean energy incentives meant to spur trillions more in private low-emissions investment. But the IRA has raised the hackles of many U.S. trading partners both because the amount of money available may draw producers from around the world to invest and produce in the United States and because of the inclusion of tax breaks for Electric Vehicles (EVs) that are only available if the EV is built in North America using certain components and batteries from the U.S. or its trade partners. Concerns have arisen because of the consistency of these tax credits with WTO rules. In response, some EU Member States, such as France, are revising their current subsidy schemes for EVs, while China's large EV industry has been receiving government support for years.

Somewhere in between these divergent approaches to fighting climate change may lie a joint U.S.-EU initiative to create a Global Arrangement on Sustainable Steel and Aluminum, under which both the U.S. and the EU would impose tariffs on steel and aluminum imports tied to tiers of emissions intensity above the U.S. average for the relevant product.¹² The success of such a Global Arrangement rests heavily on whether common methodologies for measuring the emissions intensity of a given ton of steel or aluminum can be developed. If so, and if other major steel and aluminum producing countries join in, the Global Arrangement could serve as a model for taking sectoral approaches to wringing emissions out of major GHG-emitting industries.

¹² See Swanson, A. (2022). *U.S. Proposes Green Steel Club That Would Levy Tariffs On Outliers*, New York Times. Available at: <https://www.nytimes.com/2022/12/07/business/economy/steel-tariffs-climate-change.html>; *Joint EU-US Statement on a Global Arrangement on Sustainable Steel and Aluminum* (Nov. 1, 2021). Available at: https://ec.europa.eu/commission/presscorner/detail/en/IP_21_5724.

C. Transparency and Standards

As in the climate change regime, where a major function of the UNFCCC was and remains the cataloguing and reporting of countries' emissions, the WTO also asks its members to report on their environment-related measures. An examination of the WTO's Environmental Database (EDB), which contains all environment-related notifications submitted by WTO members as well as environmental measures and policies mentioned in the Trade Policy Reviews (TPRs) of WTO members, reveals a continuous increase in trade measures directed at achieving climate objectives. Between 2009 and 2019, 4,355 measures with a component to address climate change were notified to the WTO, an increase from the 220 measures notified in 2010, and more than 8,700 climate-related TPR entries have been notified to the EDB since 2009.¹³

Similarly, the WTO and its TBT Committee have been engaged in the trade-side of what the UNFCCC and the Paris Rulebook have focused on – the need to develop common standards and measurement tools around the many aspects of climate change that demand them. For the WTO, much of that work has focused on standards to measure the amount of GHGs associated with a traded product. Ever since the creation of the UNFCCC, countries have understood what they need to do to report their emissions at the national level, even if some concerns over double-counting of carbon sinks and other accounting issues remain. But when it comes to assessing the amount of GHGs in a particular ton of steel or sheet of glass, much less a finished automobile, the world is far from agreeing on measurement standards. Therefore, the WTO has begun the process of convening experts and hosting discussions with WTO members to encourage the development of such standards, consistent with the TBT Committee's principles that international standards be based on transparency, openness, impartiality and consensus, effectiveness and relevance, coherence, and the development dimension.¹⁴ The most progress has been made in developing standards in the steel sector, important because it accounts for 7% of all anthropogenic carbon emissions. The WTO was instrumental in convening WTO members, industry representatives, standards bodies, international organizations, and academic experts to discuss specific steel decarbonization standards and ways to promote international cooperation around their development and adoption.¹⁵

OPPORTUNITIES AT THE INTERSECTION OF THE CLIMATE AND TRADE REGIMES

The World Trade Report 2022 argues that trade is a force for good for climate and part of the solution for achieving a low carbon, resilient, and just transition. While trade itself does generate emissions from production and transport, trade and trade policies can accelerate the dissemination of cutting-edge technologies and best practices, and enhance incentives for further innovation while creating the jobs of tomorrow. Trade is instrumental for investments in clean energy to have the greatest reach and impacts at lowest cost and where they are needed the most.

Using the multilateral trading system to support decarbonization efforts, to encourage the adoption of clean-energy, to promote the diffusion and uptake of green technologies,

¹³ World Trade Organization. (2021). *Trade and Climate Change: Information Brief no. 1*. Available at: https://www.wto.org/english/news_e/news21_e/clim_03nov21-1_e.pdf

¹⁴ World Trade Organization. *Principles for the Development of International Standards, Guides and Recommendations*. Available at: https://www.wto.org/english/tratop_e/tbt_e/principles_standards_tbt_e.htm

¹⁵ World Trade Organization. *Cooperation on standards at WTO could speed up steel sector decarbonization: Trade Forum*. Available at: https://www.wto.org/english/news_e/news23_e/clim_09mar23_e.htm

to lessen the cost of environmental goods and services, to assist in the development of adaptation measures, to support and facilitate the efficient use of resources, and to achieve resilience, especially for developing countries, makes it all more possible. Key among the benefits of using the trading system in the fight against climate change are that it can:

- Set the tone for ambitious climate action by helping all 164 WTO members understand just how far the WTO rules allow them to go in adopting trade-related climate measures;
- Facilitate trade in the environmental goods and services necessary to support decarbonization efforts and a transition to green energy;
- Assist in the setting of common technical regulations and standards that would apply to a number of climate policies, including carbon pricing, eco-labeling, and achieving a circular economy;
- Serve as a transparency forum for sharing best practices and cooperating on the dissemination of cutting-edge technology;
- Strengthen the alliances with the UNFCCC and the climate change community to cooperate regularly and to keep defining how trade-related climate measures fit within international commitments and NDCs while supporting countries in their implementation of any trade-related climate measures;
- Promote agreements on sectoral initiatives in key decarbonization areas and industries, such plastics, steel standards, fossil fuel subsidies and forest preservation; and
- Provide a forum for the resolution of disputes over climate-related trade measures, notwithstanding the need to fix the WTO's dispute settlement system.

This book moves beyond the core conclusion of the WTO's report – that trade and climate change are deeply intertwined, and that more effective responses to mitigate and adapt to climate change will require stronger and better international trade cooperation – to focus on specific ideas of how to use trade tools to move faster and farther in decarbonizing the world while avoiding trade frictions along the way.

The broad subject of the intersection of trade and climate change is divided in this book into six parts. Part I begins with an examination of what must be the fundamental underpinning of any such GHG-based border measures – how to measure the amount of GHGs embedded in traded goods. It also includes four chapters exploring the notion of imposing tariffs on goods as they cross borders based on the GHG content of those goods, whether those tariffs are imposed as part of a CBAM, as the EU has done, or under a broader carbon club. Part II rests on the premise that because the amount of GHGs associated with the production of a product varies widely by product and sector, many of the most promising decarbonization efforts occur at the sectoral level. It includes chapters looking at the steel, cement, water, electricity, plastics, and critical minerals sectors. Part III turns to the good and bad impacts that government subsidies have played in the climate change arena and suggests new ways to approach disciplines on harmful fossil fuel subsidies while encouraging green ones. Part IV is devoted to ideas for using existing trade tools in new ways to tackle the climate crisis, including raising climate issues in the WTO's Trade Policy Review process, new approaches to food security concerns, a different use of a 'peace clause' to address concerns over the IRA, and the prospect of using domestic national security powers to take action on climate change. Part V moves beyond the traditional trade boundaries of non-discrimination and subsidy rules to look at the

intersection of trade-related climate measures with human rights, investment law, government procurement, finance, and intellectual property disciplines. The book concludes with Part VI, which focuses on the application of WTO rules to climate change measures and on defining the contours of the exceptions to those rules, thereby giving shape to the space in which policymakers should find room to take bold action to address the climate crisis.

The contributions to this volume all confirm that trade and climate change are intrinsically interconnected, but that the relationship between the international trade and climate regimes is complex and often needs to be looked at from a granular perspective. The range of challenges facing the global community as advances are made in decarbonization efforts calls for coordinated and imaginative steps, and a renewed dialogue about the importance of putting trade tools to work in combating climate change. With this book, we hope to stimulate that conversation.

PART I

GREENHOUSE GAS EMISSIONS: CARBON PRICING AND MEASURING

From the inception of the climate change regime, there has been a general recognition of the need for high-quality data assessing the amount of Greenhouse Gases (GHGs) emitted or removed from the atmosphere. For its part, the United Nations Framework Convention on Climate Change (UNFCCC) instituted annual reporting guidelines for countries to generate and share data about domestic GHG emissions, with the UNFCCC including the seven sets of gases included in Annex I to the Convention (carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), perfluorocarbons (PFCs), hydrofluorocarbons (HFCs), sulphur hexafluoride (SF₆), and nitrogen trifluoride (NF₃)) from five sectors (energy; industrial processes and product use; agriculture; land use, land-use change and forestry; and waste) in its required inventory.

Measurement Tools for Countries and Enterprises

Under the UNFCCC, all parties are required to submit national GHG inventories, and developed country parties are required to submit more detailed descriptions of mitigation policies and projections of the estimated impact of their policies on GHG emissions. Over the years, the UNFCCC guidelines on how to collect the data, what to report, and how to calculate various carbon dioxide equivalents have been updated. The work of assessing GHG emissions was furthered through the creation by the Intergovernmental Panel on Climate Change (IPCC) of its Guidelines for National Greenhouse Gas Inventories (2006 IPCC Guidelines). These too were updated and refined in 2019. Through all of the revisions, the UNFCCC and IPCC have remained focused on assessing national inventories and emissions of GHGs at the national level. But assessments at the national level were not sufficient to allow private companies or various public sector organizations to determine how well their operations were doing at reducing their GHG emissions. They needed assessment tools at the enterprise level. Building on a 20-year partnership between the World Resources Institute (WRI) and the World Business Council for Sustainable Development (WBCSD), the Greenhouse Gas Protocol Corporate Accounting and Reporting Standard (GHG Protocol) was promulgated in 2001 as an enterprise-level accounting and reporting standard for the greenhouse gases covered by the Kyoto Protocol. The GHG Protocol includes widely-used corporate standards, a protocol for cities for community-scale GHG accounting, and a corporate value chain standard.

The GHG Protocol developed the three-scope categorization of emissions so that companies and other organizations could report and understand the GHG emissions associated with their activities, both those under their direct control and those that were closely associated with their activities. Under the GHG Protocol, Scope 1 emissions are “direct” emissions – those that a company generates through the things that it owns or controls. These can be a result of running machinery to make products, driving vehicles, heating buildings or powering lights or computers. Scope 2 are “indirect” emissions created by the production of the energy that an organization buys to fuel its vehicles or

power its operations. Scope 3 emissions are also considered “indirect” emissions because they are not produced by the company itself. Instead, they cover upstream emissions generated by suppliers making input products used by the company and downstream emissions by customers using the company’s products. A number of the apparent reporting differences between enterprises in different countries or those reported for different reasons (*i.e.*, disclosures for shareholders vs. reporting to the Environmental Protection Agency) can be traced to decisions about whether to focus only on Scope 1 emissions or whether and how to include Scope 2 and, most problematic, Scope 3 emissions in any required calculations.

The International Standards Organization (ISO) also developed its own GHG accounting mechanism, known as ISO 14060 family of standards. ISO 14060 consists of guidelines for quantifying, monitoring, reporting, validating or verifying GHG emissions and removals. It offers a standardized framework for corporations for management risk, adherence to regulatory and government GHG programs, and guidance for managing and reporting responsibilities and verifications. It is thus a step-by-step process for comprehensive life-cycle assessments at the product level.

Measurement Tools for Traded Goods

But even the enterprise-level GHG Protocol standards and the ISO family standards are proving insufficient when it comes to the intersection of trade policy and climate change. Trade policy and trade rules – whether tariffs or quotas or rules on non-discrimination, apply to *products* not enterprises or nations. Therefore, as countries begin to implement carbon-pricing policies with border adjustments mechanisms or standards that let in or keep out goods depending on the amount of GHGs associated with that individual good, new ways of measuring GHGs that are tied to a specific product must be developed and agreed upon. As of mid-2023, 73 jurisdictions (including 39 national governments) have some form of carbon pricing regime in place, but the prices, coverage and methods for calculating the amounts of GHGs vary widely. And none of these pricing systems were designed to measure GHGs at the product-specific level. Chapter 2 of this Part (“Developing an International Standard Under TBT Article 2.5 to Measure Carbon in Traded Goods”) begins to address this thorny issue, suggesting ways to approach the development of a common system for such measurement, including through use of the World Trade Organization’s (WTO) Technical Barriers to Trade Agreement (TBT Agreement). This chapter provides important context for the work currently being undertaken by the WTO to facilitate the creation of product-specific GHG measurement standards, particularly for steel products.

Carbon Clubs and Carbon Border Adjustments

The urgency of the need for product-specific GHG measurement tools is underscored by the growing number of trade tools being developed to impose specific tariffs or fees on imports of carbon-intensive products as instruments of climate policy. A variety of approaches to carbon import fees are currently being considered or even implemented, including border adjustments of explicit carbon pricing, fees based on emissions intensity, punitive tariffs on high-GHG products, and carbon clubs that would assess common fees or emissions standards for goods to be traded within the club, which could be designed in a way that is consistent with WTO rules, as suggested in Chapter 3 (“The Case for a Climate Club”) of this Part. These measures are designed to address three main concerns arising from the imposition of GHG pricing or limiting schemes:

1) Competitiveness: the need to “level the playing field” between those domestic producers subject to carbon taxes that raise their costs and those producers elsewhere who are not subject to additional carbon-related costs;

2) Leakage avoidance: the need to discourage carbon-intensive industries from moving out of their home country to countries that do not have taxes or caps on carbon, as such moves would be both damaging to the carbon-taxing economy and its workers, and undermine the goal of reducing greenhouse gas emissions; and

3) Free riders: the need to encourage other countries to limit carbon emissions rather than benefiting from a system in which others tax or limit carbon usage but they do not.

The European Union’s (EU) Carbon Border Adjustment Mechanism (CBAM) is the most advanced of the initiatives designed to address these concerns, particularly that of leveling the playing field for EU producers that are already subject to the EU’s Emission Trading System (ETS) and required to purchase ETS certificates based on their level of GHG emissions. The EU CBAM will begin its transitional phase on October 1, 2023, requiring importers to report on the amount of emissions embedded in imports of cement, iron and steel, aluminum, fertilizers, electricity and hydrogen. On January 1, 2026, the permanent CBAM system will enter into force, with importers needing to both declare the amount of GHGs embedded in their imports of covered products and to purchase CBAM certificates for those emissions, with the price of the certificates based on the average price of EU ETS certificates purchased by European firms.

While there is (and no doubt will continue to be) much debate over the WTO-consistency and the consistency with the UNFCCC and Paris Agreement’s Common but Differentiated Responsibility (CBDR) principle of the EU CBAM or its climate club counterparts (and access to the potentially applicable exceptions to the WTO rules is addressed in Part VI of this book), the effectiveness and the fairness of carbon taxes and border measures is to a significant degree dependent on their design and scope. Chapters 4 and 5 (“The Challenges of Incorporating Transport Emissions in Carbon Pricing Initiatives” and “A Case for the Exemption of Least Developed Countries Under the European Union’s Carbon Border Adjustment Mechanism and Similar Measures”) of this Part address two such design features: whether and how to include transport emissions in any carbon pricing scheme and how to ensure that any such systems do not place an undue burden on least developed countries.

Collectively, the chapters included in Part I of this book highlight the potential of carbon pricing – or more appropriately GHG pricing – to serve as a critical tool for driving down emissions and incentivizing the move to a clean energy and green production future. And they note a number of ways in which such GHG pricing could be used to create those incentives, particularly through carbon clubs or CBAMs that level the playing field, eliminate incentives to shift production to places with laxer climate change policies and protect the effectiveness of GHG pricing schemes.

CHAPTER 2: DEVELOPING AN INTERNATIONAL STANDARD UNDER TBT ARTICLE 2.5 TO MEASURE CARBON IN TRADED GOODS

FANG-HUA WANG*

Starting October 1, 2023, CBAM will apply to EU imports of iron, steel, aluminum, electricity, certain fertilizers, cement, and hydrogen with the reporting obligation, and the obligation for importers to pay a levy will kick in as of 2026. This makes CBAM one of the first times that the amount of greenhouse gases in traded goods will be measured and reported internationally. There was some Greenhouse Gas (GHGs) measuring system for other purposes, such as financial reporting. However, there was no existing standard for measuring carbon in traded goods. But developing an international standard on carbon measuring is becoming urgent because of the potential increase in the use of carbon border adjustments, or the inclusion of “buy green” requirements in government procurement, or the increased use of ‘green’ subsidies. If there is an internationally agreed standard on measuring carbon, the TBT agreement could provide some level of safe harbor to those climate change measures, and that would make applying trade measures based on the amount of GHG emissions associated with a product more viable and less likely to invite WTO disputes over the fairness of the measures.

This paper will look into some different carbon-measuring methodologies proposed to date, how much they differ from each other, and how far they are from becoming international standards under the TBT agreement.

There are six principles for developing international standards under the TBT agreement. A methodology that meets more of the principles might also be a possible way to establish a building block on the carbon measuring standard, avoiding a further trade war between countries. Due to the fact that CBAM’s application is right around the corner, setting a measuring standard has become an urgent matter. This paper might provide some recommendations to overcome the coming tension.

I. INTRODUCTION

Carbon emissions are a critical concern for the global community, contributing to climate change. Climate change has become a global concern, and taking practical steps to mitigate its impact is essential. One way to do this is to reduce carbon emissions, which are one of the main drivers of climate change. Various carbon emission calculation methods are employed worldwide, which are often non-uniform and vary depending on the country or organization that employs them. In recent years, there has been a growing interest in measuring carbon emissions associated with traded goods so that some states can put on carbon border adjustments, such as the European Union’s Carbon Border Adjustment Mechanism (CBAM) or California’s Emission Trading System (CA ETS), or some states use it as internal corporate reporting.

The CBAM regulation would require importers of certain energy-intensive goods to pay a levy in respect of their imports that corresponds to the price of emissions allowances

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under the EU Emissions Trading System (EU ETS).¹ Reporting obligations under the CBAM will apply to start from October 1, 2023, while the obligation for importers to pay a levy will kick in as of 2026.² This makes CBAM one of the first times that the amount of greenhouse gases (GHGs) in traded goods will be measured and reported internationally. Due to the fact that this new regulation impacts international trade considerably and its launch is just around the corner, the potential challenges also rise accordingly. In fact, there currently needs to be an international standard for measuring carbon emissions in traded goods, which makes it difficult for policymakers to implement effective climate change measures without inviting disputes over the fairness of these measures. On top of that, in the rising need for subsidies for green goods and government procurement tied to green goods, there is increasing pressure to know how to measure GHGs at an individual product level.

This paper aims to explore the possibility of standardizing carbon measurement and its impact on international trade. Suppose the measurement is standardized or establishes a common international standard. In that case, it will make a significant and groundbreaking impact on the climate change policy's status and consistency under the international trade framework since under Article 2.5 of the Technical Barriers to Trade (TBT) Agreement, if a measure is in accordance with relevant international standards, it shall be rebuttably presumed not to create an unnecessary obstacle to international trade. Section II will overview the different carbon emission calculation methods used worldwide, including the so-called big three, IPCC, ISO, and GHG Protocol. In the same section, this paper will also highlight the advantages and disadvantages of each method and compare their consistency with the six principles for developing international standards under the TBT agreement. In section III, this paper will discuss what role WTO and the TBT Agreement play in this matter. Also, analysis of what would impact the global community when an international standard is established in carbon measurement. Lastly, section IV will be the conclusion of this paper, discussing the recommendation of the WTO and what the world could do to facilitate the standardizing process.

A. Introduction of the six principles for developing international standards under the TBT Agreement³

The World Trade Organization (WTO) has established six principles for developing international standards under the Technical Barriers to Trade (TBT) Agreement. These principles aim to ensure that international standards do not create unnecessary barriers to trade and are consistent with the principles of the TBT agreement.

The first principle is transparency. It requires that all essential information regarding work programs, proposals for standards, and final results should be made easily accessible to all interested parties in the territories of at least all WTO members. Procedures should also be established to provide adequate time and opportunities for written comments.

¹ European Commission (2021). Commission welcomes provisional agreement on the European Climate Law. https://ec.europa.eu/commission/presscorner/detail/en/ip_21_1828.

² See European Commission. 2021. Proposal for a Regulation of the European Parliament and of the Council Establishing a Carbon Border Adjustment Mechanism. Brussels: European Commission. https://ec.europa.eu/info/sites/default/files/carbon_border_adjustment_mechanism_0.pdf.

³ WTO report, What yardstick for net-zero? How WTO TBT disciplines can contribute to effective policies on carbon emission standards and climate change mitigation, Trade and Climate Change.

The second principle is openness. It requires that members of an international standardizing body should be open on a non-discriminatory basis to relevant bodies of at least all WTO members.

The third principle is impartiality and consensus. It requires that all relevant bodies of WTO members should be provided with meaningful opportunities to contribute to the elaboration of an international standard so that the standard development process will not give privilege to, or favor the interests of, a particular supplier/s, country(ies), or region(s). Consensus procedures should also be established to take into account the views of all parties concerned and to reconcile any conflicting arguments.

The fourth principle is effectiveness and relevance. It requires that international standards be relevant and effectively respond to regulatory and market needs, as well as scientific and technological developments in various countries. Whenever possible, international standards should be performance-based rather than based on design or descriptive characteristics. They should not distort the global market, adversely affect fair competition, or stifle innovation and technological development.

The fifth principle is coherence. It requires that international standardizing bodies refrain from duplication or overlapping with the work of other international standardizing bodies. Cooperation and coordination with other relevant international bodies are essential.

The sixth principle is the development dimension. It requires considering the constraints on developing countries to participate in standards development effectively. Tangible ways of facilitating developing countries' participation in international standards development should be sought. In this context, provisions for capacity building and technical assistance within international standardizing bodies are essential.

In sum, these principles aim to ensure that international standards are developed in a transparent, open, impartial, and consensus-based manner while also being effective, relevant, coherent, and considerate of the needs of developing countries.

II. OVERVIEW OF DIFFERENT CARBON EMISSIONS CALCULATION METHODS

Carbon measurement is a crucial aspect of mitigating climate change. As the world realizes the gravity of climate change, efforts are being made to reduce carbon emissions. However, to accurately measure carbon emissions and set reduction goals, standardization of carbon measurement is necessary.⁴ Carbon reporting is an essential climate change mitigation approach that identifies commercial activities' contribution to climate change. It captures and reports outputs from processes such as gas flaring, burning of fossil fuels, deforestation, and industrial processes.⁵ Standardization of carbon measurement is significant as it would enable organizations to consistently measure the amount of greenhouse gas emissions and compare performance across industries. However, as this paper mentioned above, there is no common standard for measuring GHGs or Carbon accountability. On top of that, there are hundreds of different carbon measurement systems around the world.⁶

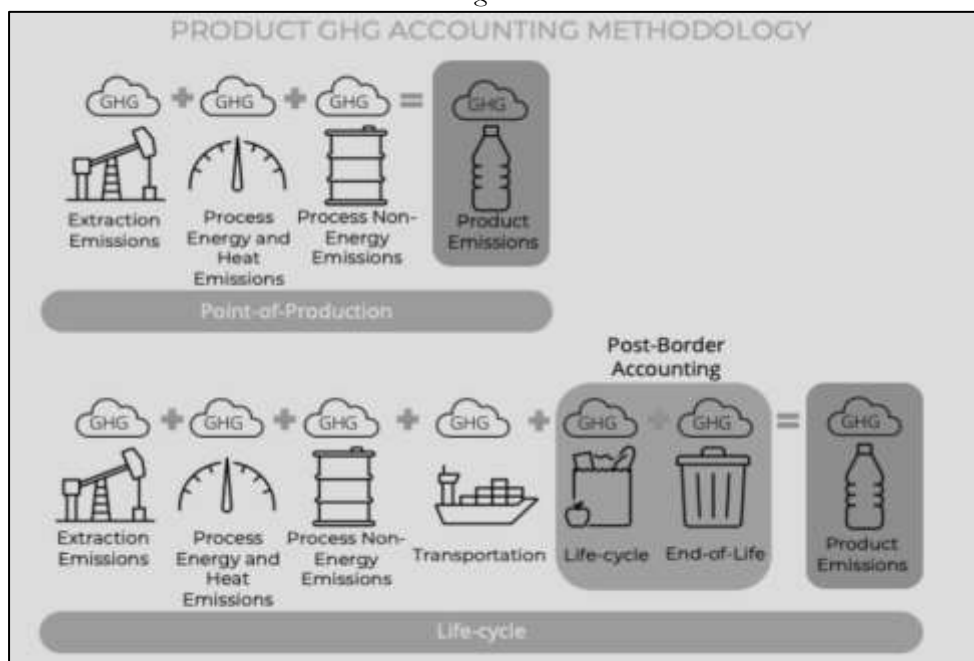
⁴ Condon, Bradley J., and Tapen Sinha, *The Role of Climate Change in Global Economic Governance* (Oxford, 2013; online edn, Oxford Academic, 26 Sept. 2013), chapter 2, at 21-51. <https://doi-org.proxygt-law.wrlc.org/10.1093/acprof:oso/9780199654550.001.0001>

⁵ *Id.* at 52-91.

⁶ Oni, O. T., Exploring the Potential Benefits of Carbon Risk Assessment and Reporting for the Development of Business Strategy in the Nigerian Oil and Gas Industry: A Case Study of Oando Plc, 10(6) *The International*

The main difference between various carbon accounting frameworks is in two parts. One is their aggregation level or the level at which the GHG emissions are reported. In general, carbon accounting frameworks use one of four aggregation levels: product/project level (emissions for a specific product), facility level (the total emission in an individual producing entity), corporate (firm) level (all producing entities within a corporation, including multinational companies producing in different countries), and national level (the total emissions for a whole country).⁷ And the other main difference is product GHG Accounting methodology.⁸ Two major schools of thought govern carbon content calculations: point-of-production analyses (also known as ‘gate-to-gate’ or ‘cradle-to-gate’ analysis) and life-cycle analyses. (See Figure 1)⁹

Figure 1



Source: Silverado Policy Accelerator, *Technical Note: Carbon Accounting for Traded Goods*

Life-cycle analysis (LCA) methodologies exhibit significant variations among different international jurisdictions, rendering equitable accounting of greenhouse gas (GHG) values for finished products and components across national borders void. The differences in starting points and inclusion of inputs within each methodology also hinder a meaningful comparison of carbon emissions between countries, making it impractical to achieve an 'apples-to-apples' assessment.¹⁰ Consider a complex product consisting of

Journal of Business & Management 191, 195-99 (2022) <https://doi.org/10.24940/theijbm/2022/v10/i6/BM2206-030>

⁷ Silverado Policy Accelerator, White Paper: Counting Carbon, at 2 (2022).

⁸ Silverado Policy Accelerator, TECHNICAL NOTE: CARBON ACCOUNTING FOR TRADED GOOD, 1-2 (2023) available at <https://silverado.org/news/counting-carbon-Silverado/>.

⁹ *Id.*

¹⁰ See UNEP, *Towards a Life Cycle sustainability assessment*, 5-22 (2012)

multiple foreign inputs assembled through a global supply chain; the possibilities for exploiting tax disparities stemming from diverse accounting systems are limitless.¹¹

Moreover, implementing life-cycle approaches poses challenges for customs agencies, as product utilization and end-of-life emissions occur after the border transaction. Accounting for end-of-life impacts would likely entail duplication, given existing circular economy policies at both border and domestic levels, including the imposition of end-of-life border fees by several importing markets. Although UNFCCC scope analysis provides an expanded form of LCA suitable for corporate and national emissions accounting, its application at the product level is technically infeasible due to the difficulties in acquiring and normalizing data across various corporate entities and jurisdictions.¹²

In contrast, point-of-production analyses offer an equitable and transparent approach to international trade. These analyses assign statistical values to the manufacturing processes and locations of products and components throughout global supply chains.¹³ This type of accounting serves as the foundation for the Harmonized System (HS) and trade agreement rules-of-origin, which currently facilitate international commerce.¹⁴

Apart from variances in aggregation level and accounting methodology, accounting frameworks exhibit disparities in their scope of coverage pertaining to gas types, voluntary or mandatory nature of the program, program classification, and the distinction between direct and indirect emissions. Presently, predominant accounting frameworks encompass the Intergovernmental Panel on Climate Change (IPCC), the GHG Protocol Corporate Standard, and the International Standards Organization (ISO) 14060 suite of standards. Nonetheless, a substantial diversity of carbon accounting frameworks and greenhouse gas (GHG) programs has emerged, deriving their foundations from these aforementioned frameworks. Some of these differences stem from the fact that these accounting systems were designed for different purposes—some to assess national outputs of GHGs, others to focus on corporate-wide, life-cycle analysis, and others for financial and risk assessments. The following sub-section will cover these three major carbon accounting frameworks and then compare them.

A. IPCC¹⁵

The Intergovernmental Panel on Climate Change (IPCC) has developed a methodology for calculating carbon emissions that has gained widespread recognition and adoption. The IPCC methodology is based on the principle of calculating the carbon emissions associated with a product or activity over its entire life cycle, from raw material extraction to end-of-life disposal.

The IPCC methodology includes three main steps: inventory, impact assessment, and interpretation. The inventory step involves compiling data on the materials, energy, and other resources used in producing a product or activity, as well as the resulting emissions

¹¹ *Id.* at 34-35.

¹² Dias A. C., & Arroja L. (2014). A model for estimating carbon accumulation in cork products. *Forest Systems*, 23(2), 236-246. <https://doi.org/10.5424/fs/2014232-04100>.

¹³ Silverado Policy Accelerator, *supra* note 8, at 1-2.

¹⁴ List of Contracting Parties to the HS Convention and countries using the HS". World Customs Organizations. Accessed 11-27-2022. <http://www.wcoomd.org/en/topics/nomenclature/overview/list-of-contracting-parties-to-the-hs-convention-and-countries-using-the-hs.aspx>

¹⁵ 2006 IPCC Guidelines for National Greenhouse Gas Inventories." IPCC, <https://www.ipcc-nggip.iges.or.jp/public/2006gl/index.html>.

of greenhouse gases. The impact assessment step involves estimating the environmental impact of the emissions, including their contribution to climate change. Finally, the interpretation step consists of presenting the carbon footprint analysis results in a meaningful and actionable way for stakeholders.

The IPCC methodology is recognized for its comprehensiveness and its ability to capture the full life cycle of a product or activity. It is widely used in corporate sustainability reporting, where companies report on their carbon emissions and environmental impact. The methodology is also used by governments and international organizations to track progress toward greenhouse gas emissions reduction targets and to inform climate change policies.

Despite its widespread adoption, the IPCC methodology has some limitations. For example, implementing it can be complex and time-consuming, particularly for small and medium-sized enterprises. There are also limitations in the availability and accuracy of data, particularly for products with complex supply chains that involve multiple countries and stakeholders. These limitations have led to ongoing efforts to refine the methodology and to develop alternative approaches for calculating carbon emissions.

Overall, the IPCC methodology is a widely recognized and accepted approach for calculating carbon emissions associated with a product or activity. Its comprehensive life cycle approach has helped to raise awareness of the environmental impact of products and activities, and it continues to be an essential tool for tracking progress towards greenhouse gas emissions reduction targets and informing climate change policies.

IPCC Guidelines¹⁶ offer a choice of three tiers of equations that can be used to calculate a national GHG inventory. The tiers range in complexity from Tier 1 to Tier 3, with the third tier being the most complex form of the base equation and, therefore, the most accurate. Where possible, the IPCC's good practices are to follow the highest tier.

- Tier 1 equations are typically based on input (e.g., fuel) data multiplied by a predetermined emissions factor, usually the Global Warming Potential (GWP) of the input being studied. The multiplication of the GWP will convert emissions outputs into CO₂ equivalent units.
- Tier 2 is similar to Tier 1 but uses country-specific emissions factors. It allows for a more specific estimation by controlling for the estimated efficiency of processes by country.
- Tier 3 estimations include country-specific factors, technology-specific factors (i.e., what type of technology is being used), and maintenance factors, in addition to accounting for the age of the equipment being used. It allows for very accurate estimations of emissions outputs but is the most difficult to calculate.

B. GHG Protocol¹⁷

The GHG Protocol is a widely recognized and influential framework for accounting for and reporting greenhouse gas emissions. The World Resources Institute (WRI) and the World Business Council for Sustainable Development (WBCSD) developed the protocol jointly. It provides guidance for companies and organizations to measure and manage their greenhouse gas emissions.

The GHG Protocol has two primary standards: the Corporate Accounting and Reporting Standard and the Project Accounting Standard. The Corporate Accounting and

¹⁶ *Id.*

¹⁷ The Greenhouse Gas Protocol website (www.ghgprotocol.org)

Reporting Standard provides a methodology for companies and organizations to measure and report their greenhouse gas emissions across their operations and supply chains. In contrast, the Project Accounting Standard provides guidance for estimating emissions from specific projects or activities.

The GHG Protocol's carbon measurement method is based on the principles of transparency, completeness, consistency, and accuracy. The method covers a wide range of emissions sources, including direct emissions from operations, emissions from purchased electricity, and emissions from the supply chain.

The GHG Protocol's carbon measurement method consists of three scopes. Scope 1 covers direct emissions from sources owned or controlled by the reporting organization, such as emissions from the combustion of fossil fuels or emissions from chemical processes. Scope 2 covers indirect emissions from the consumption of purchased electricity, steam, or other energy sources.¹⁸ Scope 3 covers all other indirect emissions that occur in the reporting organization's value chain, such as emissions from transportation, waste disposal, and purchased goods and services.

Companies, governments, and organizations worldwide widely use the GHG Protocol's carbon measurement method. The method is considered a best practice for greenhouse gas accounting and reporting. Leading sustainability initiatives recognize it, such as the Carbon Disclosure Project (CDP) and the Science Based Targets Initiative (SBTi).¹⁹

Overall, the GHG Protocol's carbon measurement method is an important tool for companies and organizations to understand and manage their greenhouse gas emissions. By providing a transparent and consistent methodology for measuring emissions, the GHG Protocol helps to promote accountability and accelerate progress towards a low-carbon economy.

The GHG Protocol has set up its own system to understand the embedded emissions in a product from the cradle to the grave. While the IPCC tiers primarily focus on the accuracy and detail of emissions estimation, progressing from more generalized approximations to highly specific and localized measurements.

The GHG Protocol's categorization of emissions into three scopes allows organizations to prioritize their efforts to reduce greenhouse gas emissions by focusing on the most significant sources of emissions.²⁰ By accounting for both direct and indirect emissions, organizations can develop a more holistic understanding of their environmental impact. Therefore, the GHG protocol has been widely accepted by private corporations.²¹

C. ISO²²

The ISO 14060 family of standards is a set of internationally recognized standards for measuring and reporting greenhouse gas emissions. The standards were developed by the International Organization for Standardization (ISO) and provide guidance for organizations to measure, monitor, report, and verify their greenhouse gas emissions.

¹⁸ GHG Protocol Scope 2 Guidance Table 6.2 "Location-based method emission factor hierarchy" and Table 6.3 "Market-based scope 2 data hierarchy examples"

¹⁹ Handbook of Business and Climate Change. United Kingdom: Edward Elgar Publishing, 292, (2023).

²⁰ Wang, C.-K., X.-Z. Luo, and H. Zhang, 2013: Shares differences of greenhouse gas emissions calculated with GTP and GWP for major countries. *Adv. Clim. Change Res.*, 4(2), doi: 10.3724/SP.J.1248.2013.127.

²¹ Thomä, J., Dupré, S. and Hayne, J. M. (2018) "A Taxonomy of Climate Accounting Principles for Financial Portfolios," *Sustainability*, 10(2), p. 328. Available at: <https://doi.org/10.3390/su10020328>.

²² ISO website, <https://www.iso.org/standard/60804.html>

The ISO 14060 family of standards includes four parts: ISO 14060-1, ISO 14060-2, ISO 14060-3, and ISO 14060-4. Each piece covers a different aspect of greenhouse gas measurement and reporting.

ISO 14060-1 provides an overview of the ISO 14060 family of standards and outlines the general principles and requirements for greenhouse gas measurement and reporting.²³ ISO 14060-2 provides guidance for quantifying and reporting greenhouse gas emissions from projects, while ISO 14060-3 provides guidance for quantifying and reporting greenhouse gas emissions from organizations.²⁴

ISO 14060-4 provides guidance for the validation and verification of greenhouse gas emissions reports. This part of the standard outlines the requirements for independent third-party verification of greenhouse gas reports and guides the development of verification procedures.

The ISO 14060 family of standards is based on the principles of transparency, accuracy, and completeness. The standards provide a consistent and transparent methodology for measuring and reporting greenhouse gas emissions, which helps to promote accountability and enables organizations to track their progress towards emission reduction targets.

The ISO 14060 family of standards is widely recognized as a best practice for greenhouse gas measurement and reporting. The standards are used by governments, companies, and organizations around the world to measure and report their greenhouse gas emissions. They are recognized by leading sustainability initiatives such as the Carbon Disclosure Project (CDP) and the Science Based Targets Initiative (SBTi).²⁵

D. Comparison

Silverado Policy Accelerator²⁶ made a Venn diagram to compare the big three (see Figure 2).²⁷

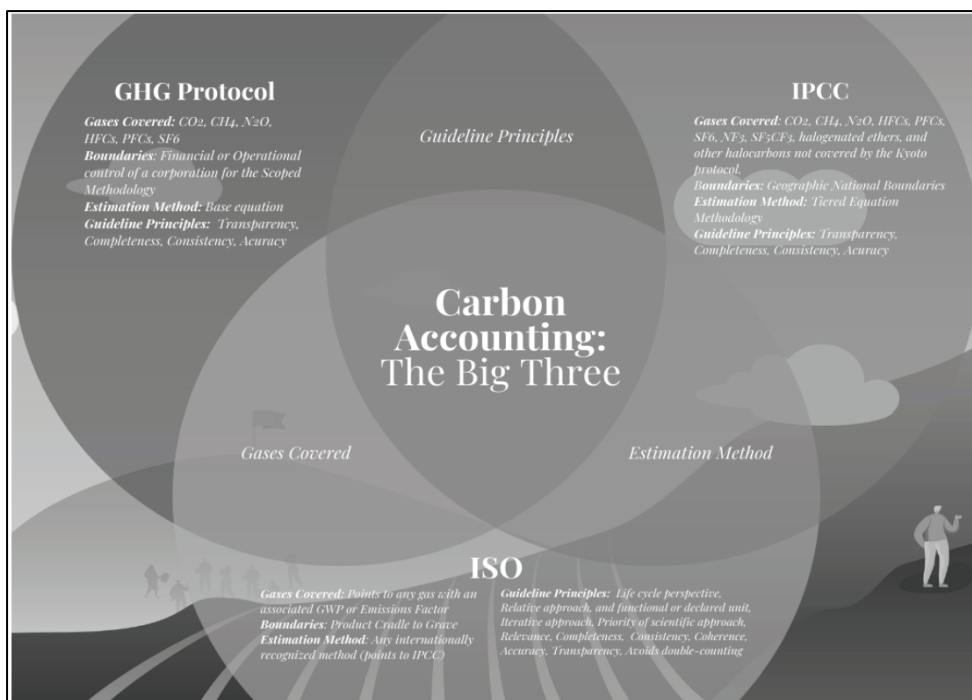
²³ ISO 14064-1:2018, Greenhouse gases — Part 1: Specification with guidance at the organization level for quantification and reporting of greenhouse gas emissions and removals. <https://www.iso.org/standard/66453.html>

²⁴ ISO 14064-2:2019, Greenhouse gases — Part 2: Specification with guidance at the project level for quantification, monitoring and reporting of greenhouse gas emission reductions or removal enhancements. <https://www.iso.org/standard/66454.html>; ISO 14064-3:2019, Greenhouse gases — Part 3: Specification with guidance for the verification and validation of greenhouse gas statements. <https://www.iso.org/standard/66455.html>

²⁵ Anant K. Sundaram, Robert G. Hansen, *Handbook of Business and Climate Change*, pp292, 2023.

²⁶ Silverado Policy Accelerator is a think tank in Washington DC, addressing policy challenges in the related fields of cybersecurity, trade and industrial security, ecological and economic security, and great power competition, available at <https://silverado.org/>.

²⁷ Silverado Policy Accelerator, *supra* note 8, at 1-2.

Figure 2. *The Big Three*

Source: Silverado Policy Accelerator, *Technical Note: Carbon Accounting for Traded Good*

From the diagram, it is evident that these frameworks are not exhibiting complete compatibility with one another. The IPCC and ISO share similarities solely in their estimation methods, while the GHG Protocol and ISO cover the same gases. On the other hand, the GHG Protocol and IPCC overlap only in terms of their guideline principles. Therefore, if different carbon accounting applies different methodologies, there is no way for different carbon accounting frameworks to make an accurate and helpful comparison, which might cause more inefficiency in carbon accounting.

The same article also compares the three methodologies with a regular coffee cup-producing process case.²⁸ The result came out that in the same process using different systems, the amount of carbon emission varies hugely. The lack of interoperability across frameworks can lead to “apples-to-oranges” comparisons, particularly when measuring the emissions content of similar products that use different carbon accounting frameworks.

III. POSSIBILITY OF STANDARDIZATION OF CARBON EMISSIONS CALCULATION

A. *Importance of Standardization*

The current discourse on climate change mitigation has prompted members of the international community to adopt a diverse range of policies, encompassing both market and non-market-based approaches, to curb their carbon emissions. In conformity with the architecture of the Paris Agreement and their nationally determined contributions (NDCs), these policies involve a suite of measures, including carbon taxes, emissions

²⁸ *Id.*

trading systems, and life cycle carbon footprint labeling.²⁹ Moreover, governments are increasingly implementing sustainability criteria for fuels or enforcing energy efficiency mandates for buildings.³⁰

A noticeable feature of these policies is the inclusion of carbon emission measurement requirements. These measurements may pertain to the carbon content of products, or the emissions generated by facilities or organizations. As a corollary, the accuracy and reliability of such measurements are contingent upon adherence to established standards. Similarly, regulations for energy or fuel efficiency, as they apply to appliances, electronics, or vehicles, rely on standards for the measurement and comparison of performance.³¹

Nevertheless, if different standards are applied for measuring carbon emissions, the comparability and monitoring of such measurements at a global level become an arduous undertaking. This, in turn, engenders uncertainty and imposes high costs on producers, mainly when climate change mitigation policies are anchored in disparate standards, necessitating various carbon accounting methodologies for products. Regulatory divergences across members of the World Trade Organization (WTO), mainly when predicated on divergent standards, may impede international trade.³² Under such circumstances, producers may encounter the need to tailor their carbon measurements to multiple methodologies in case they export their products to diverse markets.³³

Furthermore, regulatory divergences may arise concerning the scope of the measurement process, specifically regarding the inclusion of different parts of a product's production cycle in its carbon footprint and the GHG emissions, including CO₂ or methane, that should be counted. In this regard, harmonizing standards could prove instrumental in ensuring comparability in these areas.³⁴

B. Comparison of EU's ETS and California's ETS

In reality, it actually impacts hugely between different carbon accounting systems. Silverado also provides a comparison in the annex in the same article in EU's ETS and California's ETS (See figure 3).³⁵ This is important because, just as this paper mentioned in the introduction part, the upcoming Carbon Border Adjustment Mechanism (CBAM) is using the same EU's ETS mechanism.

²⁹ Shawkat Alam, "Trade and the Environment: Perspectives from the Global South," pp. 303-05, in *International Environmental Law and the Global South* Cambridge University Press 2015.

³⁰ European Commission, Energy performance of buildings directive (2018), available at https://energy.ec.europa.eu/topics/energy-efficiency/energy-efficient-buildings/energy-performance-buildings-directive_en.

³¹ World Trade Organization (WTO) (2022c), "What Yardstick for Net-Zero? How WTO TBT Disciplines Can Contribute to Effective Policies on Carbon Emission Standards and Climate Change Mitigation", Trade and Climate Change Information Brief No. 6, Geneva: WTO.

³² Gheewala, S. H. and Mungkung, R. (2013), "Product Carbon Footprinting and Labeling in Thailand: Experiences From an Exporting Nation", *Carbon Management* 4(5):547-554.

³³ Shapiro, J. S. (2016), "Trade Costs, CO₂, and the Environment", *American Economic Journal: Economic Policy* 8(4):220-254.

³⁴ World Trade Organization (WTO) (2022c), "What Yardstick for Net-Zero? How WTO TBT Disciplines Can Contribute to Effective Policies on Carbon Emission Standards and Climate Change Mitigation", Trade and Climate Change Information Brief No. 6, Geneva: WTO.

³⁵ Silverado Policy Accelerator, *supra* note 8, annex II.

Figure 3. the comparison

 California ETS EU ETS	
<p>Scope: Covers the State of California and certain suppliers to entities in California.</p> <p>Gasses Covered: Carbon Dioxide (CO₂), Methane (CH₄), Nitrous Oxide (N₂O), Sulfur Hexafluoride (SF₆), Hydrofluorocarbons (HFCs), Perfluorochemicals (PFCs), Nitrous Trifluoride (NF₃), and other fluorinated GHGs.</p> <p>Industries Covered: Large industrial facilities, electricity generation, electricity imports, CO₂ suppliers, other stationary combustion, suppliers of natural gas, reformulated blendstock for oxygenated blending (gas livestock), distillate fuel oil, suppliers of liquid petroleum gas and liquified natural gas in California.</p> <p>Point of Regulation: Downstream for entities in California; Upstream for suppliers</p> <p>Price of Carbon Credit: \$28.26 USD - November 16, 2021</p> <p>Linkages: Direct linkages with Quebec ETS</p> <p>Year Implemented: 2012</p>	<p>Scope: Covers the 27 EU member states and three EU Economic and Free Trade Association States of Iceland, Liechtenstein, and Norway.</p> <p>Gasses Covered: Carbon Dioxide (CO₂), Nitrous Oxide (N₂O), Perfluorochemicals (PFCs)</p> <p>Industries Covered: Energy, Industrial Processes, Agriculture, Waste, International Aviation</p> <p>Point of Regulation: Downstream</p> <p>Price per Carbon Credit: \$89.99 USD - December 30, 2021</p> <p>Linkages: Indirect through Kyoto Protocol, Direct with Swiss ETS</p> <p>Year Implemented: 2005</p>

Source: Silverado Policy Accelerator, Technical Note: Carbon Accounting for Traded Good

The European Union (EU) has developed a new carbon measurement method pursuant to its Emissions Trading System that will soon be applied to imports under its Carbon Border Adjustment Mechanism (CBAM).

The CBAM system works by requiring importers of certain goods, including iron and steel, aluminum, cement, electricity, certain fertilizers, and hydrogen, to purchase carbon allowances to cover the emissions associated with the production of those goods.³⁶ The carbon allowance is calculated based on the difference between the carbon emissions associated with the production of imported goods and the emissions associated with producing those goods in the EU, which is the EU's ETS and based on a facility level.³⁷

The California Emissions Trading System (CA ETS) is a market-based mechanism designed to reduce greenhouse gas emissions from regulated entities in the state of California. The program was established in 2012 under the California Global Warming Solutions Act (AB 32) and is administered by the California Air Resources Board (CARB).³⁸

Within the purview of the California Emissions Trading System (CA ETS), the governmental body of the state imposes a ceiling on the aggregate volume (cap) of

³⁶ "Guidance Document: The Monitoring and Reporting Regulation – General guidance for installations," European Commission, February 10, 2022, MRR Guidance Document #1, https://climate.ec.europa.eu/system/files/2022-02/gd1_guidance_installations_en_0.pdf, at 33-37.

³⁷ *Id.*

³⁸ California Emissions Trading System (ET, <https://ww2.arb.ca.gov/our-work/programs/cap-and-trade-program>)

greenhouse gas (GHG) emissions that must be adhered to by entities subject to regulation, including power plants, industrial facilities, and fuel distributors. Subsequently, the state allocates allowances to said entities, which embody the entitlement to emit a specified quantum of GHGs. Over time, the cumulative tally of allowances undergoes a gradual reduction, designed to attain the emissions reduction objectives delineated by the state.³⁹

As Figure 3 showed, both ETS covers different GHGs. Also, the EU's ETS covers fewer industries than CA's ETS. The EU ETS calculates using basic emissions (i.e., GHG emitted during manufacturing, so call, 'end-of-pipe' emissions) and oxidation factors (i.e., the actual amount of fuel combusted during industrial processes). The California ETS uses a complex formula that multiplies inputs by their carbon content, including specifications for the molecular weight and volume of gas inputs. The EU's simplified carbon accounting system does not consider as many factors as the California ETS, which, as one might expect, will lead to different results when each system is applied to the same product.

The different results when each system is applied to the same product are actually creating more problems for international trade. For instance, imagine steel is either imported into the U.S. from the EU or vice versa. As international trade law has been implemented traditionally, defining identical or like products is essential to the international trade system to determine whether there is discrimination. However, when the like product was treated differently due to the application of different systems would be a completely different case. Take importing steel to the EU and California as an example. The system covers different GHGs; therefore, the identical product might come out into different carbon levels accountable. It would create more hedgerows to international trade and probably would reform the global supply chain since people might game the difference of the carbon accountability system and might completely get away from the carbon accountability for good, just like the tax evasion and transfer pricing strategies that multinational enterprises did.⁴⁰ These divergences could eventually undermine the original purpose and functionality of carbon accounting.

On top of that, the various administrative processes will paralyze the custom, which fails to facilitate the trade and is overwhelmed by the verification process. Needless to say, it will crowd out more than ever the participation of developing countries and least-developed countries (LDCs), as well as micro, small, and medium-sized enterprises (MSMEs) across the globe, in the transition to a low-emission global economy.

If more states launch more and more climate change measures, the aligning measurement becomes urgent so that they do not create more delays in international trade and an unreasonable burden on global supply chains. An ETS intended to develop a market to reduce carbon emissions, not track and tax products as they move along a global supply chain. Indeed, the EU recognizes this as it has proposed a CBAM for purposes of traded goods rather than using its ETS system. However, the EU's proposal still does not

³⁹ *Id.*

⁴⁰ Transfer pricing, an accounting methodology, encompasses the determination of prices levied by one division within a corporate entity upon another division, vis-à-vis the provision of goods and services. This mechanism facilitates the establishment of prices governing the exchange of goods and services among subsidiaries, affiliates, or entities under common control, forming constituent parts of a larger enterprise. Corporations may accrue tax benefits through transfer pricing arrangements, albeit tax authorities retain the prerogative to challenge such assertions. Available at <https://www.investopedia.com/terms/t/transfer-pricing.asp>.

fundamentally address the interoperability issue since it is not scaled to the ETS and does not provide a common measure on which to base border fees.⁴¹

C. Role of WTO TBT Agreement 2.5

In the endeavor to address the challenges posed by climate change, sovereign states may adopt a diverse array of policy measures. Within this milieu, the establishment of internationally recognized benchmarks for quantifying carbon emissions and the carbon content of goods assumes paramount significance, as these standards play a pivotal role in expediting the transition towards low-carbon economies while concurrently averting impediments to international trade. The optimal approach to measuring emissions ought to be predicated upon international standards forged through a consensus-based process, affording a comprehensive framework applicable to both public and private entities for the computation of carbon emissions or the embedded carbon content in products. However, setting a general international standard for all international trade products might be impossible to achieve since products specific standards could be time-consuming and inefficient to trade facilitate purposes. Also, accounting for the amount of GHGs in traded goods is different from accounting for GHGs for national reporting or for financial reporting purposes. Accounting for the amount of GHGs in traded goods is a totally different level where the GHG emission might need to account for across the border through the diverse global supply chains, which approaches might require a more detailed reporting obligation, techniques, and complex administrative process that could overwhelm the customs.⁴² As CBAM came to be the first carbon accountability into the internationally traded product system, how to set up a standard and in what kind of form should be considered in no time.

The TBT Agreement strongly encourages using relevant international standards when drafting technical regulations.

Article 2.5 of TBT the agreement provides that:

“A Member preparing, adopting or applying a technical regulation which may have a significant effect on trade of other Members shall, upon the request of another Member, explain the justification for that technical regulation in terms of the provisions of paragraphs 2 to 4. Whenever a technical regulation is prepared, adopted, or applied for one of the legitimate objectives explicitly mentioned in paragraph 2, and is in accordance with relevant international standards, it shall be rebuttably presumed not to create an unnecessary obstacle to international trade.”⁴³

The Agreement on Technical Barriers to Trade (TBT Agreement) confers a presumption of conformity upon governmental measures that adhere to internationally recognized standards. Regulations that align with pertinent international standards are presumed, *prima facie*, to refrain from generating superfluous impediments to global commerce (as articulated in Article 2.5). This inherent provision serves as a persuasive

⁴¹ See European Commission. 2021. Proposal for a Regulation of the European Parliament and of the Council Establishing a Carbon Border Adjustment Mechanism. Brussels: European Commission. https://ec.europa.eu/info/sites/default/files/carbon_border_adjustment_mechanism_0.pdf.

⁴² Matt Porterfield, Daniel Hoening, Joel Martin, Margaret McCallister, Holly Rooper, Michael Sussman, COUNTING CARBON VOLUNTARY AND MANDATORY EMISSIONS REPORTING PROGRAMS, 22-23 (2023).

⁴³ Agreement on Technical barrier to Trade, Article 2.5.

impetus to adopt international standards as the fundamental framework for carbon measurement methodologies.⁴⁴

The formulation of international standards for carbon measurement will significantly affect the degree to which such standards are employed for convergence. The World Trade Organization (WTO) actively supports endeavors aimed at fostering a cohesive approach to carbon measurement and verification. It achieves this by establishing a set of rules that advocate for convergence around common standards and verification procedures, as well as by providing a platform for member countries to collaborate in ensuring the availability of adequate quality infrastructure for carbon measurement and verification at a global level.

The establishment of international standards for measuring carbon emissions will profoundly influence their application. In this regard, the WTO endorses international cooperation in order to promote the use of relevant international standards. The Agreement on Technical Barriers to Trade (TBT) particularly emphasizes the utilization of such standards, and the TBT Committee has devised "Six Principles for the Development of International Standards, Guides and Recommendations."⁴⁵ These principles mentioned in the Introduction encompass transparency, openness, impartiality and consensus, effectiveness and relevance, coherence, and the development dimension. They address essential aspects of international standard-setting and are highly relevant to formulating new standards for quantifying carbon emissions.

Adherence to these six principles plays a vital role in ensuring that pertinent information is made accessible to all interested parties. Moreover, they guarantee that sufficient opportunities for written comments are provided, prevent the adoption of conflicting international standards, and, importantly, take into account the constraints developing countries face. By considering these principles, the development of international standards related to the quantification of carbon emissions can proceed in a fair, inclusive, and comprehensive manner.⁴⁶

Furthermore, WTO can potentially function as a beneficial forum for conducting targeted deliberations, on a multilateral scale, concerning the trade-related facets encompassing carbon measurement methodologies and verification protocols. Additionally, it offers a platform to explore potential avenues for extending support to developing nations in this domain.⁴⁷ There were successful cases in digital trade. In the digital trade field, there has been long-disputed use of digital solutions for conformity certificates and quality infrastructure activities, etc., states are using their own different standards at the national level, and no international standards have been established; the WTO TBT committee played an essential role in this.⁴⁸ They first established a platform

⁴⁴ WTO Analytical Index TBT Agreement Article 2.4 & Article 2.5.

⁴⁵ See Decisions and Recommendations Adopted by the WTO Committee on Technical Barriers to Trade since 1 January 1995, WTO document G/TBT/1/Rev.14, 24 September 2019.

⁴⁶ Andrea Barrios Villarreal, *International Standardization and the Agreement on Technical Barriers to Trade*, chapter IV., at 246-68.

⁴⁷ *Id.* at 115-17.

⁴⁸ The G7 Trade Ministers' Digital Trade Principles states that "International standards for information and communication technologies should be developed in a way that complies with the six principles of the WTO Technical Barriers to Trade Committee, namely transparency, openness, impartiality and consensus, effectiveness and relevance, coherence, and the development dimension. Such standards must continue to play an important role in supporting an open, free, and fair environment in the digital age." (see <https://www.gov.uk/government/news/g7-trade-ministers-digital-trade-principles>).

(e-Ping) specifically focusing on digital and the TBT agreement at an international level.⁴⁹ This platform offers all members more transparent information on covered products purchased through e-commerce and their requirements on conformity process in different states. On top of that, it provides some alert services which inform stakeholders on regulations or approaches changes or additions. Following the instruction of the G7 Trade Ministers' Digital Trade Principles, the global community establish more and more fora to discuss conformity and harmonize each national conformity certificate.⁵⁰

Except for the implementation of the six principles of the TBT agreement committee into the international standard establishment process, whether a single international standard covering all traded products can serve the purpose might also be an issue to think about. Literature has shown that there are difficulties to established a single standard which is a product-specific standard since different kinds of the product would apply different global supply chain and whether use a point-of-product measurement or the Lifecycle calculation method might create enormous variables that makes the establishment of the international standard unfeasible.⁵¹

A probable method would be using separate sectoral approaches instead of creating a product-specific standard plus with continued use of averaging data per sector.⁵² The most updated and the most progressive sector would be the steel area. In November of last year, a coalition comprised of steelmakers and industry stakeholders hailing from 79 countries joined forces to establish the Global Steel Climate Council.⁵³ This council was created with the express purpose of promoting the adoption of eco-friendly steel production methods and advocating for the U.S. and EU to adopt a universally accepted standard for measuring carbon emissions.⁵⁴ Such a standard would incentivize the use of sustainable production techniques in the steel industry.⁵⁵ Establishing an international standard in sector-specific carbon calculation would probably need not start from zero. Instead, referencing the current guild regulation or withdrawing from an international industry association can be a promising beginning.

When applying the carbon calculation method, it is essential for the importers/complaints to have some flexibility. That is also why the GHG protocol is widely accepted since the traded products are enormous with dramatic diversity into their categories.⁵⁶ It is impossible to identify each of them and establish an updated standard for them. In several GHG accountability programs no matter volunteer or mandatary, there are quite a lot of examples using average industry value on specific sectors such as GHG Protocol, The Aluminum Stewardship Initiative (ASI), The National System of Emissions (NSE) in Germany, etc.⁵⁷ It can provide some up to date, and convincing

⁴⁹ e-Ping available at <https://epingalert.org/>.

⁵⁰ Thematic Session on Digital Solutions for Conformity Assessment Procedures, available at https://www.wto.org/english/tratop_e/tbt_e/tbts_e/tbts080322pm_e.htm.

⁵¹ Porterfield et al, *supra note 42*, at 22-23; *See also* generally Maureen Hinman, White Paper: "Remaking the World Trade Organization: Environmental Goods" SILVERADO POLICY ACCELERATOR (2022).

⁵² *See* generally Porterfield et al, *supra note 41*.

⁵³ Margaret Spiegelman, Steelmaker coalition proposes 'global standard' for carbon Emissions, Inside US Trade's World Trade News, April 26, 2023, available at <https://insidetrade.com/daily-news/steelmaker-coalition-proposes-global-standard-carbon-emissions>.

⁵⁴ *Id.*

⁵⁵ *Id.*

⁵⁶ Silverado Policy Accelerator, White Paper: Counting Carbon, at 2 (2022).

⁵⁷ Porterfield et al, *supra note 42*, at 13-14, 20-21, 27-28.

standard for compiling parties, providing a feasible procedure for customs to supervise the compliance.⁵⁸

D. Impact of Standardization on international environmental policy

As the impact of climate change becomes ever more apparent, governments around the globe are exploring new ways to limit greenhouse gas emissions. One promising approach emerging from this effort is adopting international standards for measuring carbon emissions, which could facilitate more effective trade measures aimed at reducing such emissions. Once an internationally agreed standard for measuring carbon is established, it would provide a safe harbor for climate change measures and make applying trade measures based on greenhouse gas emissions associated with a product more viable. Trade measures based on a standardized method of carbon measurement would be less likely to invite disputes under the WTO as it would help demonstrate the fairness of such measures.

This notion is supported by the TBT Agreement, which outlines guidelines for international product standards and technical regulations. Therefore, adopting a carbon measurement standard would provide a solid foundation for incorporating climate change considerations into trade measures.

Moreover, standardization of carbon measurement would enable the Carbon Border Adjustment Mechanism to become more efficient. With a uniform and reliable carbon measurement standard in place, the Carbon Border Adjustment Mechanism could be applied more effectively to imported goods from countries with weaker environmental standards in order to prevent carbon leakage. In addition to trade measures, adopting a standardized method for measuring carbon emissions could also facilitate other climate change policies such as "Buy Green" requirements in government procurement and "green" subsidies.⁵⁹ From a government perspective, precision in calculations and measurements is critical to the governance process for controlling greenhouse gas emissions and deciding what is so-called "a greener product."⁶⁰

IV. CONCLUSION

If there is an internationally agreed standard on measuring carbon, the TBT agreement could provide some level of safe harbor to those climate change measures, and that would make applying trade measures based on the amount of GHG emissions associated with a product more viable and less likely to invite WTO disputes over the fairness of the measures. Therefore, an international standard on carbon measurement can benefit international trade, and climate-change-related future measures are more likely to be launched.

Establishing an international standard would need an international standardizing body to become the main fora for parties to the discussion. The WTO TBT committee can play this role. Also, under the six principles of international standards, providing transparent and well-functioned consultation for all the interested parties usually matters the most.

⁵⁸ Silverado Policy Accelerator, *supra* note 8.

⁵⁹ Maureen Hinman, White Paper: "Remaking the World Trade Organization: Environmental Goods" SILVERADO POLICY ACCELERATOR, 15-18 (2022) available at <https://silverado.org/news/paper-remaking-the-world-trade-organization-environmental-goods/>.

⁶⁰ Maureen Hinman, Green Goods Market Access is Key To Biden's Build Back Better Agenda, SILVERADO POLICY ACCELERATOR, (2021) available at <https://silverado.org/news/green-goods-market-access-is-key-to-bidens-build-back-better-agenda/>.

However, as mentioned above, a single international standard to cover all the products would require more work to establish and even functionally apply to the traded products. Accounting for the amount of GHGs in traded goods differs from accounting for GHGs for national or financial reporting purposes. Traded product reporting system means more details and complex administrative procedures, which put the carbon calculation at a novel and challenging level. Instead of creating a single international standard covering all traded products, this paper also recognizes multiple international standards addressing sector-specific calculation methods using average value might be a more probable approach when creating a well-accepted standard. Although there were criticisms about GHG protocols as being the least accurate and covering not enough gases, this paper still recognizes it as the best current approach. It provides enough flexibility, which could increase willingness to apply and comply. Also, the entry-level does not cost corporate too much burden to comply since non-technical documents are required, which can reduce the possibility of pushing away the developing countries and SMEs' entry into the new system. This paper values active participation and general application on a global scale as more important in the initial phase.

While the World Trade Organization (WTO) serves as the core framework governing global trade, there has been a growing proliferation of regional and bilateral trade agreements, many of which are modeled on the multilateral system. However, it is essential to acknowledge that establishing a widely accepted international standard(s) is time-consuming. Consequently, this paper recognizes the need to address the interim period and explore potential actions parties can undertake during this transitional phase.

The ascending prevalence of regional trade agreements (RTAs) manifests as comprehensive instruments that encompass economic and societal considerations, advocating for the advancement of sustainable development within the realm of trade frameworks. In addition to their fundamental trade-related functions, RTAs possess the capacity to expand the ambit of the trade agenda by instituting regulations pertaining to matters that have yet to be comprehensively deliberated within the framework of the World Trade Organization (WTO). These encompass multifarious areas such as environmental preservation, competition policy, digital trade, gender equality, and labor standards. (these are often referred to as "WTO beyond," "WTO extra," or "WTO-x" issues and agreements).⁶¹ Due to the unique characteristic and expanded flexibility of RTAs, this paper believe RTAs can play a good role during the interim period, becoming the bridge between different GHG program. In order to enhance compatibility and coordination between different systems, fostering interoperability can play a significant role during the interim period. RTAs can prove particularly valuable in facilitating this transition. Take a specific kind of RTA, bilateral tax treaties, for example. Tax treaties enhanced the common understanding of signing parties in the different tax systems. When international business activities occur, the recognition of the income source usually becomes an issue.⁶² Therefore, intending to facilitate and reduce the cost of commercial activities between signing parties, in the context of bilateral tax treaties, both parties involved invest efforts in acknowledging and adapting the other party's system into their

⁶¹ See Kimberly Ann Elliott, *The WTO and Regional/Bilateral Trade Agreements*, in *HANDBOOK OF INTERNATIONAL TRADE AGREEMENTS: COUNTRY, REGIONAL AND GLOBAL APPROACHES* 17, 25 (Robert E. Looney ed., 2018); See also *Deep Trade Agreements: Data, Tools and Analysis*, WORLD BANK, <https://datatopics.worldbank.org/dta/about-the-project.html>.

⁶² See Lilian V. Faulhaber, *The Trouble with Tax Competition: From Practice to Theory*, 71 *Tax L. Rev.* 311, 312 (2018).

respective domestic frameworks.⁶³ Drawing from this example, this paper suggests that similar approaches could be employed to navigate the interim period while awaiting the formulation of a beneficial international standard.

By fostering cooperation and alignment between different trade systems and adopting a pragmatic approach, parties can actively work towards establishing a shared understanding and framework that bridges the gap until universally accepted international standards emerge.

⁶³ See Genschel, P., & Rixen, T., *Settling and Unsettling the Transnational Legal Order of International Taxation*, in TRANSNATIONAL LEGAL ORDERS 1, 185 (T. Halliday et al. eds., 2015).

CHAPTER 3: THE CASE FOR A CLIMATE CLUB

CORINNE ELISE COOK*

This essay argues a World Trade Organization (“WTO”) compliant Climate Club, that devotes the majority of its revenue to developing countries and countries most affected by climate change, is the best way to structure the type of international, social coordination necessary to combat climate change. There are three key elements of the club 1) how to become a member, 2) the external tariff applied to nonmembers, and 3) revenue allocation. Countries can join the club by meeting certain carbon emissions reduction requirements. It is worth noting that, while this article focuses on carbon emissions, methane and other greenhouse gases should be included as soon as possible. Next, an external tariff will be applied to nonmembers that accounts for the carbon intensity of production in their territories. Lastly, the revenue produced from the external tariff’s will be put into a climate emergency fund. The remainder of the essay examines the legality of the Climate Club, justifying it via Article XX and Article XXI of the General Agreement on Tariffs and Trade (“GATT”). The goal of this essay is to demonstrate the drastic need for a Climate Club and how to viably implement one.

I. INTRODUCTION

If greenhouse gas emissions remain unabated, the rise in land surface temperatures will reach such levels that vast portions of the Earth will become unsuitable for human habitation. Throughout the majority of history, human populations have primarily resided within limited climate ranges, predominantly inhabiting regions with average annual temperatures ranging from approximately 11-15°C (52-59°F).¹ Places considered nearly uninhabitable have an average temperature above 29°C (84.2°F).² Currently, “nearly unlivable” climates span 0.8% of the Earth’s land area, mostly concentrated in the Sahara Desert.³ In just 50 years these conditions will spread to 19% of the global land surface, affecting upwards of 3 billion people, which is projected to be approximately 30% of the human population.⁴ As a result, climate change will instigate massive migration, exacerbating inequality as those of lower socioeconomic status struggle to afford the costs of relocation.⁵ Moreover, climate change will cause rising sea-levels, increased droughts,

* J.D., Georgetown University Law Center (2023); B.S., UC Davis (2018).

¹ ‘Near-Unlivable’ Heat for One-Third of Humans Within 50 years if Greenhouse Gas Emissions are Not Cut, WSU INSIDER (2020), <https://news.wsu.edu/press-release/2020/05/04/near-unlivable-heat-one-third-humans-within-50-years-greenhouse-gas-emissions-not-cut/>.

² *Id.*

³ Doyle Rice, *Unsuitable for ‘Human Life to Flourish’: Up to 3B Will Live in Extreme Heat by 2070, Study Warns Climate Change: Heat ‘Nearly Unlivable’ for Up to 3 Billion by 2070*, USA TODAY (2020), <https://www.usatoday.com/story/news/world/2020/05/04/world-heat-conditions-unlivable-global-warming-unabated/3063849001/>.

⁴ Deanna Conners, *Will Large Parts Of The Earth Be Too Hot For People In 50 Years?*, EARTHSKY (2020), <https://earthsky.org/earth/global-warming-areas-of-earth-too-hot-for-people/>; ‘Near-Unlivable’ Heat for One-Third of Humans Within 50 years if Greenhouse Gas Emissions are Not Cut, WSU INSIDER (2020), <https://news.wsu.edu/press-release/2020/05/04/near-unlivable-heat-one-third-humans-within-50-years-greenhouse-gas-emissions-not-cut/>.

⁵ “Twenty-four countries, including the UK and UAE (popular destinations for those fleeing India’s Covid-19 crisis) have Citizenship Investment programs. Those who invest a certain amount—usually around

floods, and severe natural disasters.⁶ As sobering as these findings are, “the good news is that these impacts can be greatly reduced if humanity succeeds in curbing global warming.”⁷ Rapid and coordinated emission cuts are crucial. Rapid – because calculations demonstrate that approximately one billion people will be displaced for every degree of warming reached beyond present levels. And, coordinated – because no single country, corporation or individual can combat climate change alone.

This essay argues a World Trade Organization (WTO) compliant Climate Club, that devotes the majority of its revenue to developing countries and countries most affected by climate change, is the best way to structure the type of international, social coordination necessary to combat climate change. The article briefly discusses why we need a Climate Club, addressing carbon leakage and the free rider dilemma. It then discusses the formation of a Climate Club; how to join the club, external tariffs for nonmembers and revenue allocation. A substantial portion of the essay will turn to defending the Climate Club’s existence within the WTO. First, the club will be characterized as a customs union. Next, it will be justified as an exception under Article XX, paragraphs (b) and (g). Finally, as a last resort, the note will justify tariffs by couching the climate crisis in national security terms.

II. WHY DO WE NEED A CLIMATE CLUB?

Although the international community generally agrees on the science behind climate change, it has “proven difficult to induce countries to join in an international agreement with significant reductions in emissions.”⁸ Despite being the first legally binding climate treaty, the Kyoto Protocol is widely regarded as a failure.⁹ Developing countries were exempt from the treaty, including China and India who are top global greenhouse gas emitters.¹⁰ This distinction rests largely on the fact that developed countries are, on average, disproportionately responsible for climate change.¹¹ Still, this distinction came at the cost of the United States’ support, who refused to ratify the treaty, and withdrew its initial signature in response.¹² Another factor contributing to the treaties ineffectiveness was the fact that emissions generally grew more rapidly in undeveloped countries than in

\$200,000—can, depending on the country, enjoy long-term residency or eventually become citizens.” Alexandra Ossola, *How the Wealthy Seem to Migrate as They Please*, QUARTZ (2021),

<https://qz.com/2004229/how-the-wealthy-seem-to-migrate-as-they-please/>; Wealthy people are also more likely to have dual citizenship enabling them to move nimbly between more than one country. Youyou Zhou, *Citizens from Rich Countries Are More Likely to Get US Visas*, QUARTZ (2020), <https://qz.com/1814238/people-from-rich-countries-are-more-likely-to-get-us-visas/>.

⁶ Lindsay Maizland, *Global Climate Agreements: Successes and Failures*, COUNCIL ON FOREIGN RELATIONS (2021), <https://www.cfr.org/background/paris-global-climate-change-agreements>.

⁷ Conners, *supra* note 4.

⁸ William Nordhaus, *Climate Clubs: Overcoming Free-Riding in International Climate Policy*, 105 AM. ECON. REV. 1339, 1339 (2015).

⁹ *Id.*

¹⁰ Maizland, *supra* note 6.

¹¹ Nadja Popovich & Brad Plumer, *Who Has The Most Historical Responsibility for Climate Change?*, THE NEW YORK TIMES (2021), <https://www.nytimes.com/interactive/2021/11/12/climate/cop26-emissions-compensation.html>.

¹² Maizland, *supra* note 6.

developed countries.¹³ Thus, while the Protocol initially covered 63% of global emissions, it barely covered 20% of emissions by 2012.¹⁴

The Paris Agreement recognized the Kyoto Protocol's flaws and attempted to remedy them. It characterized climate change as a collective problem, requiring all countries party to the agreement to set emissions-reduction pledges regardless of their level of development.¹⁵ The central objective of the Paris Agreement is to limit the rise in global average temperatures to below 1.5°C, with the ultimate aim of achieving worldwide net-zero emissions.¹⁶ Countries determine their own emissions targets in pursuit of these goals, without any enforcement mechanisms for accountability.¹⁷ Despite its non-binding nature, several countries, including Eritrea, Iran, Iraq, Libya, and Yemen, have chosen not to participate in the agreement.¹⁸ The United States has also exhibited a vacillating commitment, withdrawing when Trump was President and reentering when Biden took office.¹⁹ Still, over 189 countries have joined the Paris Climate Agreement,²⁰ accounting for at least 81% of global greenhouse gas emissions and 93% once the United States rejoins.²¹ Unfortunately, neither of these agreements has proved fruitful and “[t]he Earth’s average temperature has already increased approximately 1.1°C above preindustrial levels, according to a 2021 assessment by the [Intergovernmental Panel on Climate Change] IPCC.”²² The cause of this abysmal result can be attributed to the fact that only two countries, Morocco and the Gambia, are meeting their climate pledges.

So why did these international agreements fail? According to renowned climate economist William Nordhaus, “[t]he fundamental reason is the strong incentives for free-riding in current international climate agreements.”²³ This occurs when a country enjoys the advantages of a public good without bearing the associated costs.²⁴ Commodities are classified as public goods if they are non-excludable and non-rivalrous.²⁵ Non-rivalry means that the consumption of a public good by one person does not prevent others from consuming it.²⁶ Non-excludability implies that individuals cannot be excluded from

¹³ Peter C. Cramton, et. al., William Nordhaus, 7: *Climate Clubs and Carbon Pricing*, in GLOBAL CARBON PRICING THE PATH TO CLIMATE COOPERATION 109 (2017).

¹⁴ *Id.*

¹⁵ *The Paris Agreement*, UNITED NATIONS: CLIMATE CHANGE, <https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement> (last visited June 5, 2023).

¹⁶ *Id.*

¹⁷ John McCloy, *Kyoto Protocol vs Paris Agreement: Key Differences to Know*, GREEN COAST (2020), <https://greencoast.org/kyoto-protocol-vs-paris-agreement/>.

¹⁸ *Id.*

¹⁹ *Id.*

²⁰ *The Paris Agreement*, UNITED NATIONS: CLIMATE CHANGE, <https://unfccc.int/process-and-meetings/the-paris-agreement#:~:text=The%20Paris%20Agreement%20is%20a,force%20on%204%20November%202016>.

²¹ See *The Top 10 GHG Emitters Contributed Over Two-Thirds of Global Emissions*, CLEANTECHNICA, <https://cleantechnica.com/2020/12/15/this-interactive-chart-shows-changes-in-the-worlds-top-10-emitters/> (last visited June 15, 2023); see also Nsikan Akpan, *Only 2 Countries are Meeting their Climate Pledges. Here's How the 10 Worst Could Improve*, PBS (2019), <https://www.pbs.org/newshour/science/only-2-countries-are-meeting-their-climate-pledges-heres-how-the-10-worst-could-improve>.

²² McCloy, *supra* note 17.

²³ Nordhaus, *supra* note 8.

²⁴ *The Free Rider Problem*, STAN. ENCY. OF PHIL. (2003), <https://plato.stanford.edu/entries/free-rider/>.

²⁵ *Public Goods*, STAN. ENCY. OF PHIL. (2021), <https://plato.stanford.edu/entries/public-goods/>.

²⁶ *Id.*

benefiting from the good.²⁷ Emissions reduction qualifies as a public good since cleaner air quality benefits everyone, and no one can be excluded from this benefit.²⁸

In the context of climate change, a specific form of free-riding, known as "temporal free-riding," emerges.²⁹ This refers to the present generation reaping the consumption benefits of high carbon emissions while future generations bear the consequences through reduced consumption or a degraded environment.³⁰ This challenge pervades all environmental initiatives as the general population struggles to grasp the urgency required to avert irreversible climate change. As demonstrated by the failures of the Kyoto Protocol and the Paris Agreement, countries have an incentive to rely on other nations' costly emission reductions instead of implementing their own reduction systems.

It is especially difficult to circumvent free riding when the public goods in question are global goods. This is because the impact of these goods is indivisibly spread across the globe, and no mechanism exists to control them.³¹ When a national market failure occurs involving domestic public goods, the government can interject,³² "internaliz[ing] externalities within their boundaries and provid[ing] for national public goods."³³ For example, governments can raise taxes or impose pollution limitations for corporations. There is no parallel means of control for global public goods.³⁴ This is further cemented by the Westphalian Dilemma which defines the core principles of modern international law, stressing the importance of state sovereignty, equality, and political self-determination.³⁵ Thus, states are not bound by international agreements unless they give their explicit consent. Without international consensus very little is accomplished and where "there are strong asymmetries in the costs and benefits ..., the requirement of reaching unanimity means that it is extremely difficult to reach universal, binding, and effective international agreements."³⁶ Thus, international norms fail to incentivize the type of social coordination necessary to combat climate change.

Despite the difficulties that face international cooperation, many stable international agreements have been reached through the mechanism of clubs. For example, alliances have been used to prevent war and promote peace for countries privy to the compromise.³⁷ Trade agreements, like the WTO, produce reciprocal trade liberalizing arrangements by allowing access to other countries' markets.³⁸ Each of these examples are "clubs" which economists define as "a voluntary group deriving mutual benefit from

²⁷ *Id.*

²⁸ Nordhaus, *supra* note 8 at 1339-40.

²⁹ Nordhaus, *supra* note 8.

³⁰ *Id.*

³¹ Nordhaus, *supra* note 13 at 110-111.

³² Nordhaus, *supra* note 8 at 1340.

³³ Nordhaus, *supra* note 13 at 112.

³⁴ Nordhaus, *supra* note 8 at 1340.

³⁵ See generally Stephen D. Krasner, *Westphalia Compromising*, 20 INT'L SECURITY 115, 115 (1995), https://www-jstor-org.proxy.library.georgetown.edu/stable/pdf/2539141.pdf?refreqid=excelsior%3A2007a9f699c5f1df4d6a6b3bddbcaa1a&cab_segments=&origin=; Dabova E.L., *The Westphalian Principles: Dead of Transformed and Adapted to New Reality?*, INT J HUMANIT SOC SCI. (2014), [http://www.ijhssi.org/papers/v3\(7\)/Version-1/H0371043054.pdf](http://www.ijhssi.org/papers/v3(7)/Version-1/H0371043054.pdf).

³⁶ Nordhaus, William. *Climate Clubs to Overcome Free-Riding*. ISSUES IN SCI. & TECH. 31, NO. 4 (2015), <https://issues.org/climate-clubs-overcome-free-riding-climate-agreement-policy/>.

³⁷ Nordhaus, *supra* note 8 at 1340.

³⁸ See generally WORLD TRADE REPORT, SIX DECADES OF MULTILATERAL TRADE, THE DESIGN OF INTERNATIONAL TRADE AGREEMENTS (2007), https://www.wto.org/english/res_e/booksp_e/anrep_e/wtr07-2c_e.pdf.

sharing one or more of the following: production costs, the members' characteristics, or a good characterized by excludable benefits."³⁹ The basic idea is that clubs will function properly if this shared benefit outweighs the cost of membership and the burden of adhering to club rules. This reduces the likelihood of free-riding because clubs, if correctly designed, will create a strategic situation where countries are induced to join either by fear of penalty or allure of benefits.

A club structure could also be used to counteract climate change's second biggest obstacle – carbon leakage. Carbon leakage is “defined as the increase in CO₂ emissions outside the countries taking domestic mitigation action divided by the reduction in the emissions of these countries.”⁴⁰ If production costs within the regulating country increase substantially due to costs related to climate policies, domestic competitiveness and global market share may flounder.⁴¹ As these costs get passed on to consumers, both domestically and abroad, consumers will pursue other avenues, switching instead to foreign goods and services.⁴² This phenomenon incentivizes companies to take the plunge and move production overseas to countries with little to no environmental restrictions.⁴³ While domestic emissions of the home country might decrease as a result of these policies, global emissions will remain the same.⁴⁴ It is estimated that leakage rates occurring under the Kyoto Protocol range from 5% to 20% as a result of a loss in price competitiveness.⁴⁵ Thus, carbon leakage is of particular concern for policymakers working in the international climate space because it undermines the efficiency of unilateral climate initiatives, obfuscating an already delicate and politically fraught issue.⁴⁶

Later discussions in this paper will demonstrate how a Climate Club would discourage carbon leakage by removing the incentive do so in the first place. Corporations within member states will be discouraged from moving offshore because of the external tariffs they will face when attempting to trade with member states. Thus, if the club correctly prices external tariffs and sufficiently entices membership, the likelihood of carbon leakage – and free-riding for that matter – will diminish.

III. CLUB SIZE AND MEMBERSHIP

In forming a club, the size and composition of club members matters just as much, if not more, than the club's specific structure.⁴⁷ In fact, as observed by Buchanan, a renowned economist, “the theory of clubs is, in one sense, a theory of optimal exclusion, as well as one of inclusion.”⁴⁸ It follows that the “central question in a theory of clubs is that of determining the membership margin, so to speak, the size of the most desirable

³⁹ Todd Sandler & John T. Tschirhart, *The Economic Theory of Clubs: An Evaluative Survey*, 18 J. ECON. LIT. 1481, 1482 (1980), https://www-jstor-org.proxy.library.georgetown.edu/stable/pdf/2724059.pdf?refreqid=excelsior%3A1c551e94ead1f03b012a66c9244f26ec&tab_segments=&origin=

⁴⁰ 11.7.2 *Carbon leakage*, in IPCC FOURTH ASSESSMENT REPORT: CLIMATE CHANGE 2007 (2007), https://archive.ipcc.ch/publications_and_data/ar4/wg3/en/ch11-ens11-7-2.html (last visited June 5, 2023).

⁴¹ *Id.*

⁴² *Id.*

⁴³ *Id.*

⁴⁴ *Id.*

⁴⁵ *Climate Change 2007*, *supra* note 41.

⁴⁶ See generally Florian Misch & Philippe Wingender, *Revisiting Carbon Leakage*, IMF WORKING PAPER (2021), [file:///Users/corinnecook/Downloads/wpica2021207-print-pdf%20\(1\).pdf](file:///Users/corinnecook/Downloads/wpica2021207-print-pdf%20(1).pdf).

⁴⁷ James M. Buchanan, *An Economic Theory of Clubs*, 32 ECONOMICA 1, 1 (1965).

⁴⁸ *Id.*

cost and consumption sharing arrangement.”⁴⁹ This has led some to suggest that constructing smaller climate clubs will result in more stable and effective coalitions.⁵⁰ Because of the urgency of climate change and the transactional costs associated with lengthy negotiations, efforts should be made to form a coalition sooner rather than later. Small groups of countries generally find it easier to reach agreements than larger groups because fewer interests and circumstances need to be considered.⁵¹ Moreover, it is easier to build trust amongst smaller groups when the bargaining environment is exclusive because the urge to “pander and posture” diminishes.⁵² Thus, as an initial goal, we should try to find a “magic number,” which would be the smallest possible number of countries necessary to have the largest possible impact on emissions reductions.⁵³

Understanding bargaining power is essential for identifying countries that will have the largest possible impact on emissions reductions. High-emitting countries who possess significant economic power and political influence will have the upper hand in these negotiations and therefore quasi-veto power. Unfortunately, given the burden of climate mitigation efforts and the lack of instantaneous economic gains produced from these efforts, high emitters will likely be disincentivized to join. This is amplified by the fact that any mitigation efforts will burden high emitters the most, as they will have to undergo significant alterations to their domestic policies. Still, without their allegiance to the club, significantly more members will need to join in order to have the same emissions reduction. Moreover, countries with large economies are beneficial members. Their participation will generate interest in the club because, if nonmembers want to trade with them, they will need to pay an external tariff. Lastly, given the political volatility of environmental policies, the participation of politically influential members will lead to landfall gains by emboldening leaders of other countries to follow suit.⁵⁴

In order to get a better understanding of which countries should be included in the initial formation of the club it is important to understand the relative influence of the global superpowers. The European Union, the United States and China are the main world traders.⁵⁵ In 2020, they accounted for the most international trade, adding up to approximately 45% of global imports and exports.⁵⁶ The United States, China, the European Union, Japan, and the United Kingdom accounted for 16.9%, 14.5%, 13.8%, 4.5%, and 4.4% of imports, respectively.⁵⁷ China, the European Union, the United States, Japan, and the United Kingdom, accounted for 18.8%, 16.0%, 10.4%, 4.7%, and 2.9% of exports, respectively.⁵⁸ When looking at the percent of global gross domestic product,

⁴⁹ *Id.*

⁵⁰ Todd Stern and William J. Antholis, *Climate Change: Creating an E8*, BROOKINGS (2007), <https://www.brookings.edu/articles/climate-change-creating-an-e8/>.

⁵¹ Robert Falkner, *A Minilateral Solution for Global Climate Change? On Bargaining Efficiency, Club Benefits and International Legitimacy*, CTR. FOR CLIMATE CHANGE ECON. & POL'Y 1, 9 (2016), https://www.lse.ac.uk/GranthamInstitute/wp-content/uploads/2015/07/Working_Paper_197_Falkner.pdf.

⁵² *Id.*

⁵³ *Id.*

⁵⁴ Still, it is worth noting the strong correlation between countries that are high emitters and economic and political giants which complicates the analysis.

⁵⁵ *EU and Main World Traders*, EUROSTAT (2021), https://ec.europa.eu/eurostat/statistics-explained/index.php?title=EU_and_main_world_traders#Main_world_traders:EU.2C_USA_and_China (last visited June 5, 2023).

⁵⁶ *Id.*

⁵⁷ *Id.*

⁵⁸ *Id.*

these rankings are only moderately shaken up: the United States (24%), the European Union (18%), China (15%), Japan (6%), India (3%), and the United Kingdom (3%).⁵⁹ Lastly, the highest emitters of carbon dioxide are China (26%), the United States (13%), the European Union (8%), India (7%), Russia (5%), and Japan (2.5%).⁶⁰ Based on this conglomerate of data, it is clear that the most powerful and effective Climate Club would include the United States, the European Union and China. Still, the political feasibility of this coalition is another discussion entirely; however, as this essay will later detail, the Climate Club is designed to allow for a variety of climate policies, hopefully incentivizing broad participation.

The size of the club is just one of several important factors. When the interests of potential members are too diverse or domestic support for climate initiatives is too weak, small numbers alone cannot overcome these obstacles. Finding a coalition of players whose domestic policy preferences converge towards strong international action is just as important.⁶¹ This could mean finding countries who are already undertaking investments in low-carbon solutions. Membership costs for these countries would likely be lower because they are already reducing their carbon output. It could also mean galvanizing support from countries who are most vulnerable to the effects of climate change. Since combatting climate change is high on the European Union's agenda, it would be a beneficial member to include.⁶² The European Union could then partner with similarly environmentally friendly countries.⁶³ However, these countries are often lower emitters with less economic power, suggesting the club would need higher membership participation in order to combat climate change.⁶⁴ Still, by reducing veto players, and constructing the club as a coalition of willing participants might ultimately lead to the speediest climate mitigation agreement.

Lastly, it is worth mention the possibility that non-country entities could join the club.⁶⁵ For instance, if the United States is not willing to join the club, California could. This would allow for increased participation when national governments are inflexible. Corporations could also potentially become members, diversifying the policy conduits to decarbonization. Given the severity and imminence of the climate crisis, it is worth being creative and flexible in membership admission, so long as the necessary emissions reduction requirements are met.

⁵⁹ *GDP by Country*, WORLDOMETER, <https://www.worldometers.info/gdp/gdp-by-country/> (of these top countries China's GDP is growing fastest) (last visited June 5, 2023).

⁶⁰ Johannes Friedrich, Mengpin Ge & Andrew Pickens, *This Interactive Chart Shows Changes in the World's Top 10 Emitters*, WORLD RES. INST. (2020), <https://www.wri.org/insights/interactive-chart-shows-changes-worlds-top-10-emitters>; *CO2 Emissions by Country 2022*, WORLD POPULATION REV., <https://worldpopulationreview.com/country-rankings/co2-emissions-by-country>.

⁶¹ Falkner, *supra* note 52.

⁶² *13 Take Urgent Action to Combat Climate Change and Its Impacts*, COUNCIL OF EUROPE, <https://www.coe.int/en/web/un-agenda-2030/goal-13>.

⁶³ *See generally* Hai-Anh H. Dang, Haishan Fu & Umar Serajuddin, *Does GDP Growth Necessitate Environmental Degradation?*, WORLD BANK (2020), <https://blogs.worldbank.org/opendata/does-gdp-growth-necessitate-environmental-degradation>.

⁶⁴ *Id.*; *see also* Tristan Bove, *How GDP Negatively Affects Climate Change Policy*, EARTH.ORG (2021), <https://earth.org/gdp-climate-change/>.

⁶⁵ The precise legal implications of allowing for non-state entity participation requires a closer look and is beyond the scope of this essay.

IV. HOW TO JOIN THE CLUB?

Ultimately, the goal of the Climate Club is to combat climate change by creating a concerted effort among nations to reduce their emissions output, eventually reaching net-zero. Net-zero involves achieving a state where greenhouse gas emissions are offset by an equal amount of absorption from the atmosphere.⁶⁶ Since the criterion for acquiring club membership should reflect this ambition, membership will be conditioned on two requirements: 1) a member's carbon emissions should be below a pre-set baseline ("baseline requirement") and 2) its carbon intensity should decrease every two years by a certain percentage ("biennial reduction requirement").⁶⁷ These two measurements complement each other and act as policy reinforcements. The baseline requirement acts as a barrier, preventing countries from entering the club simply because they were able to decrease their emissions by a certain percentage – while still emitting copious amounts of carbon. With that being said, it should not be prohibitively high, precluding an excessive number of potential members. Moreover, the baseline value should be lowered gradually as club members progress in their emissions reduction goals, eventually reaching net-zero. Next, the biennial reduction requirement ensures countries continuously work towards decarbonization, rather than sitting inactively below the baseline requirement. If a country fails to reach their reduction requirement, they are removed from the club. Ultimately, the goal of the club is to incentivize countries to continue making progress towards developing net-zero economies.

There are a few important clarifications regarding the calculations underlying these two requirements. First, the emissions for a country will be measured using "production-based accounting, which aggregates all [carbon] emissions of goods and services produced domestically in a country" – including those that are later exported.⁶⁸ The other approach is "consumption-based accounting, which looks at domestically produced carbon emissions in combination with the net imports of carbon emissions of goods and services."⁶⁹ The former approach is taken over the latter because the focus of the club is on the emissions that each country has direct control over. Lastly, the Climate Club still accounts for the carbon cost of imports via the external tariff mechanism imposed on nonmembers.

Second, emissions are generally calculated using a standardizing denominator, i.e., per capita or per gross domestic product ("GDP"). This makes it possible to compare countries of varying size and economic strength. For the baseline requirement we will take the per capita approach. By using this approach, countries of varying sizes can be fairly evaluated and compared. If we considered carbon emissions per GDP instead, we would be favoring wealthier countries because the higher a country's GDP, the more they can pollute while remaining below the baseline, effectively giving wealthier countries a larger "right to pollute."⁷⁰ Thus, the baseline requirement should feature the per capita approach.

⁶⁶ Maxime Pontoire, *The Race to Zero Emissions, and Why the World Depends on It*, UNITED NATIONS (2020), <https://news.un.org/en/story/2020/12/1078612>.

⁶⁷ The purpose of this essay is not to determine the precise numerical values for these requirements – this will need to be determined by qualified scientists and economists. Instead, the objective is to develop a detailed enough proposal that can be later implemented with more detail.

⁶⁸ Kawtar Ed-Dahmani, *Measuring a Country's Carbon Emissions: A Debate with High Stakes*, BARINGS (2021), https://www.barings.com/globalassets/1-perspectives/viewpoints-article-files/10.2021_measuringacountrys.pdf.

⁶⁹ *Id.*

⁷⁰ *Id.*

On the other hand, the emissions per GDP metric should be used to measure the biennial reduction requirement. This is because, with this requirement, countries are essentially competing against themselves in reducing their own emissions. The benefit of using GDP as a control is it incentivizes countries to decouple economic growth from greenhouse gas emissions. Historically, greenhouse gas emissions were strongly correlated with a country's wealth.⁷¹ The richer the country, the more greenhouse gas they emit.⁷² This is because robust economies tend to use more energy – which often comes from burning fossil fuels.⁷³ Decoupling happens when a country achieves economic growth alongside emission reductions.⁷⁴ One of the reasons this can occur is when a country replaces its fossil fuels with low-carbon.⁷⁵ Essentially, this metric motivates countries to invest in sustainable technologies while rewarding economic growth.

V. WHY SHOULD COUNTRIES JOIN THE CLUB?

A key ingredient in constructing a successful Climate Club is making it attractive to potential members. Thus, there are several built-in incentives for joining the club. First, members of the club will agree to engage in technology transfer. The benefit of technology transfer is two-fold: 1) “since technology is a source of greenhouse gas (GHG) emissions, achieving global reduction of GHGs requires innovation to make current technologies cleaner and climate-resilient” and 2) countries will incur enormous savings by not having to independently fund expensive research in the pursuit of clean-tech. Relatedly, members will share climate data, also saving on research expenses. Through this free flow of information countries will be able to learn about and share best practices.

There are also several incidental benefits for joining the club. For example, club membership will signal to investors that a member-country's economy is green. This will incentivize investors seeking to strengthen their green portfolios to shift their focus and investments towards club members which has the potential to significantly impact member-countries' economies, particularly developing countries. There has been tremendous growth in the amount of investment capital directed towards sustainable investing. For example, the Global Sustainable Investment Association determined “ESG assets surpassed \$35 trillion in 2020, up from \$30.6 trillion in 2018 and \$22.8 trillion in 2016, to become a third of the total global assets under management.”⁷⁶ Furthermore, according to this report, ESG assets could grow to \$41 trillion by 2022 and \$50 trillion by 2025.⁷⁷ For developing countries, “the rapid growth of green sectors – including renewables, energy storage, electric vehicles, green buildings, and waste recycling – present

⁷¹ Hannah Ritchie, *Many Countries Have Decoupled Economic Growth From CO₂ Emissions, Even If We Take Offshored Production Into Account*, OUR WORLD IN DATA, <https://ourworldindata.org/co2-gdp-decoupling>.

⁷² *Id.*

⁷³ *Id.*

⁷⁴ OECD, *Climate Change, in ENVIRONMENT AT A GLANCE INDICATORS*, OECD Publishing, Paris, <https://doi.org/10.1787/5584ad47-en> (last visited June 5, 2023).

⁷⁵ Another reason countries succeed in decoupling their economies is because they offshore high emitting industries, thus growing their economy while appearing to decrease their emissions. However, within the design of the Club, countries will have to pay the price for this offshoring via the external tax imposed on nonmembers. Thus, the country being offshored too will likely have to increase their costs to combat the external tariff, thus disincentivizing this behavior.

⁷⁶ Press Release, Bloomberg, ESG May Surpass \$41 Trillion Assets in 2022, But Not Without Challenges, Finds Bloomberg Intelligence (Jan. 24, 2022), <https://www.bloomberg.com/company/press/esg-may-surpass-41-trillion-assets-in-2022-but-not-without-challenges-finds-bloomberg-intelligence/>.

⁷⁷ *Id.*

opportunities for skilled jobs, productivity growth, and economic transformation.” Thus, being a member of the Climate Club gives countries a competitive advantage in capitalizing on the green investment “mega trend.”⁷⁸

Lastly, a huge benefit of this approach is its flexibility. Countries are free to choose which policy approach best suits their needs when meeting the club’s requirements. This is essential since there is no current consensus on which approach is best, with countries implementing myriad options. Approaches might range from: emissions trading systems, carbon taxes, or regulation. Thus, the European Union can continue with its emissions trading system while the United States continues with its regulatory approach. This flexibility also allows for changes in public acceptance and perception of various climate policies so long as members retain the required emissions reductions. Consequently, the foundation of the club centers appropriately on emissions reductions rather than policy preferences.

VI. NONMEMBER EXTERNAL TARIFF

Arguably the most important feature of the Climate Club is the external tariff imposed on nonmembers. Tariffs can take several forms. The most common, however, “is an ad valorem tariff, which means that the customs duty is calculated as a percentage of the value of the product.”⁷⁹ But, an ad valorem tariff would not work for the purposes of a Climate Club because it would be hugely inflationary. For instance, if the import is an expensive work of art it will have an expensive ad valorem tariff, even though it has a negligible carbon footprint – other than the carbon cost of shipping.⁸⁰ On the other hand, palm oil is an inexpensive import that has an exceptionally high carbon footprint.⁸¹ Consequently, an ad valorem tariff would not produce the desired result of incentivizing private industries and governments to decarbonize. Furthermore, justifying this kind of tariff under the GATT’s environmental exceptions would be challenging if the external tariff is entirely disconnected from its emissions impact, as it could be perceived as punitive.

Another type of tariff is a carbon duty. This approach imposes tariffs on imported goods proportional to their carbon content.⁸² Essentially, this method places a carbon price on imports that reflects the domestic price of carbon or – in the case of a Climate Club – a pre-determined international target carbon price.⁸³ The primary benefit of this approach is that the tariff imposed on nonparticipants is directly linked to the environmental impact of these imports, thus proportionally impacting the highest emitters. Furthermore, this approach will likely face less scrutiny under the WTO because it is clearly linked to an environmental purpose thus fitting within either subparagraph (b) or (g) of GATT Article XX.

⁷⁸ Elliot Smith, *The Numbers Suggest the Green Investing ‘Mega Trend’ Is Here to Stay*, CNBC (2020), <https://www.cnbc.com/2020/02/14/esg-investing-numbers-suggest-green-investing-mega-trend-is-here.html>.

⁷⁹ *Forms of Import Tariffs*, WITS (2010), https://wits.worldbank.org/wits/wits/witshelp/content/data_retrieval/p/intro/C2.Forms_of_Import_Tariffs.htm.

⁸⁰ Kate Brown, *The Art Industry Is Grappling with How to Shrink Its Carbon Footprint. But Will Collectors Do Their Part?*, ARTNET (2019), <https://news.artnet.com/art-world/art-shipping-carbon-emissions-collectors-1719063>.

⁸¹ *Sustainable Agriculture: Palm Oil*, WORLD WILDLIFE, <https://www.worldwildlife.org/industries/palm-oil>.

⁸² Maizland, *supra* note 6.

⁸³ *Id.*

Still, there are three important downsides of carbon duties. First, studies show they can be difficult to design and cost-consuming.⁸⁴ Second, critics argue that existing carbon prices are too low to effectively reduce emissions.⁸⁵ This is illustrated by the World Bank Carbon Pricing Dashboard, which shows prices variations from \$0.30 per ton in Ukraine to almost \$75 per ton in the European Union.⁸⁶ Thus, the international community could benefit greatly from an effective and more uniform carbon price. Lastly, and most importantly, carbon duties may struggle to incentivize club participation if the tariff matches or is lower than membership dues, i.e., the domestic costs of decarbonization. Consequently, the most important aspect of a carbon duty styled tariff is its design and implementation.

This essay proposes a type of carbon duty tariff conditioned on a country's national carbon emissions average per "regulated" imports. To start off, the Climate Club will define "regulated" imports as high emitting industries, namely iron, steel, chemical, pulp, paper, fertilizer, cement, ceramics, aluminum, glass, fossil fuels, and electricity.⁸⁷ Essentially, the Climate Club will calculate the tariff by looking at the average amount of carbon burned in the production of a "regulated" product for each nonmember state. Then, a predetermined price per ton of carbon will be applied to this average. For example, hypothetically, if every ton of steel produced in "State A" burned on average 2 tons of carbon – with a price of \$50 per ton of carbon – then "State A" would need to pay a tariff of \$100 per ton of steel imports. Thus, the external tariff applied to nonmember imports will vary based off the average carbon intensity of their "regulated" industries.

Determining the "right" price of carbon is particularly challenging and beyond the scope of this essay. So, this article will simply lay out the dominating principals in determining this price. A common argument is that carbon prices should be linked to the social cost of carbon, which estimates "the total economic damages associated with each ton of carbon emissions."⁸⁸ For example, William Nordhaus, estimated the social cost of carbon to be \$31 per ton in 2015, growing to \$52 per ton by 2030.⁸⁹ In a similar vein, during the Obama administration, the EPA calculated the social cost of carbon to be \$36 per ton in 2015, projected to increase to "\$46 per ton by 2025 and \$50 per ton by 2030."⁹⁰ On the other hand, "the High Level Commission on Carbon Prices – drafted by the UN Framework Convention on Climate Change – estimated that achieving the Paris Agreement's goal of limiting warming to two degrees would require a universal carbon price of \$40-80 per ton by 2020 and \$50-100 by 2030 to achieve."⁹¹ Ultimately, the purpose of the external tariff is not to raise revenue but to incentivize the government

⁸⁴ *Id.*

⁸⁵ Sanjay Patnaik & Kelly Kennedy, *Why the US Should Establish a Carbon Price Either Through Reconciliation or Other Legislation*, BROOKINGS (2021), <https://www.brookings.edu/research/why-the-us-should-establish-a-carbon-price-either-through-reconciliation-or-other-legislation/>.

⁸⁶ *Carbon Pricing Dashboard*, THE WORLD BANK, <https://carbonpricingdashboard.worldbank.org> (last visited June 5, 2023).

⁸⁷ Kristin Hayes & Marc Hafstead, *Carbon Pricing 103: Effects Across Sectors*, RESOURCES FOR THE FUTURE (2020), <https://www.rff.org/publications/explainers/carbon-pricing-103-effects-across-sectors/>.

⁸⁸ Sanjay Patnaik & Kelly Kennedy, *supra* note 86.

⁸⁹ William Nordhaus, *Revisiting the Social Cost of Carbon*, 114 PNAS 1518, 1520 (2016), <https://www.pnas.org/doi/pdf/10.1073/pnas.1609244114>.

⁹⁰ Sanjay Patnaik & Kelly Kennedy, *supra* note 86.

⁹¹ *Id.*

and the private sector to decarbonize. Thus, the price of carbon should be increased only so much as to counteract carbon leakage and induce participation in the Climate Club.

VII. REVENUE REDISTRIBUTION

A significant amount of revenue will accumulate from the tariff imposed on nonmembers. The revenue amount depends on the “tax rates, scope, and other design options, as well as the degree to which market actors decide to pay the carbon tax instead of changing their behavior.”⁹² Moreover, as the Climate Club gets closer to its goal of zero emissions, the amount of taxable carbon emissions will predictably decline, reducing revenue.⁹³ One way to combat this is to raise tax rates proportional to emissions reductions, creating a more stable revenue flow.⁹⁴ Nevertheless, whatever revenue is raised should be distributed in a way that shields the Carbon Club from protectionist claims and furthers the club’s climate agenda.

A portion of the revenue should be recycled, making the Climate Club more attractive to would-be members. This recycled revenue should be returned to individual consumers, addressing the concern that some climate policies can disproportionately impact the poor. Consumers with lower incomes spend on average a higher fraction of their incomes on necessities – i.e., transportation, heating, and cooling – so as corporations pass off costs to consumers causing price hikes, lower income consumers will feel a greater effect than high-income consumers.⁹⁵ The government should also keep a portion of the revenue to help industry and corporations adjust to a more sustainable world, i.e., buying out fossil fuel contracts, etc. Still, this revenue recycling should be limited to reduce the legitimacy of potential protectionist accusations leveled at club members.

Thus, the lion’s share of revenue should go towards a climate emergency fund. This fund can be used to provide aid in the event of natural disasters which will only increase in frequency as global warming continues. Additionally, the fund can serve the purpose of fulfilling the \$100 billion commitment made by developed countries to support developing nations in their efforts to mitigate and adapt to climate change.⁹⁶ As of 2019 only \$79 billion of the pledged \$100 was donated.⁹⁷ Developed countries now project they will not “meet that pledge until 2023 – three years [later than promised] and still woefully short of the real need.”⁹⁸ These funds are crucial because the effects of climate change are not equally distributed.⁹⁹ Island states and coastal areas are losing land to rising seas.¹⁰⁰

⁹² *What You Need to Know About a Federal Carbon Tax in the United States*, COLUMBIA: SIPA, <https://www.energypolicy.columbia.edu/what-you-need-know-about-federal-carbon-tax-united-states> (last visited June 5, 2023).

⁹³ *Id.*

⁹⁴ *Id.*

⁹⁵ Tabitha M. Benney, *The Challenge of Putting a Price on Carbon Emissions in the United States*, SCHOLARS: STRATEGY NETWORK, <https://scholars.org/page/challenge-putting-price-carbon-emissions-united-states>.

⁹⁶ Choy Yee Keong, *The United Nations' Journey to Global Environmental Sustainability Since Stockholm: An Assessment*, GLOBAL ENVTL. SUSTAINABILITY (2021), <https://www.sciencedirect.com/topics/earth-and-planetary-sciences/kyoto-protocol>; Rishikesh Ram Bhandary, *Wealthy Countries Still Haven't Met Their \$100 Billion Pledge To Help Poor Countries Face Climate Change, And The Risks Are Rising*, THE CONVERSATION (2022), <https://theconversation.com/wealthy-countries-still-havent-met-their-100-billion-pledge-to-help-poor-countries-face-climate-change-and-the-risks-are-rising-173229>.

⁹⁷ Rishikesh Ram Bhandary, *supra* note 97.

⁹⁸ *Id.*

⁹⁹ *Id.*

¹⁰⁰ *Id.*

Severe storms are devastating whole communities in Africa and Asia.¹⁰¹ Heat waves are killing people without access to shelter or cooling.¹⁰² The creation of a climate emergency fund acknowledges the disproportionate contribution developed countries have made towards global warming and reflects the responsibility born by high emitters.

Countries that should receive funds are those with 1) low per capita gross domestic product and 2) high vulnerability to environmental degradation. Thus, countries encompassing regions too hot to survive, countries going under water or countries experiencing heightened national disasters – such as hurricanes, fires and floods – should be at the top of the list. The goal of this approach is to provide relief to the communities who are most at risk of severe human rights violations. Countries with small economies and poor populations will be less equipped to undertake adaptation efforts. Moreover, their citizens will likely have less opportunity to migrate if living conditions further deteriorate given the subsequent economic disadvantage. Thus, the Climate Club should recognize the interdependent nature of climate change by providing relief to those that need it most.

VIII. WTO COMPLIANCE

Customs Union

From the start, Climate Clubs will run into issues with WTO compliance because they violate a principal tenant of the trading system: the most-favored-nation rule (“MFN”). This rule states that countries cannot discriminate between their trading partners.¹⁰³ Generally, if one country lowers trade barriers for another country, it must do so for all other WTO members.¹⁰⁴ So, how can a Carbon Club, as structured in this article, survive this preeminent principle? The answer lies in a customs union configured in accordance with Article XXIV of the GATT. Customs unions are a departure from MFN principles. They are agreements between two or more countries to 1) remove trade barriers and lower or eliminate tariffs within the customs union and 2) they generally apply a common external tariff on imports from nonmember countries.¹⁰⁵ This mirrors the structure of the Climate Club which imposes an external tariff on nonmembers.

Where a Climate Club runs into trouble, however, is with the conditions set forth in section 5(a) of Article XXIV. This requirement states that

the duties and other regulations of commerce imposed at the institution of any such union or interim agreement in respect of trade with contracting parties not parties to such union or agreement shall not on the whole be higher or more restrictive than the general incidence of the duties and regulations of commerce applicable in the constituent territories prior to the formation of such union or the adoption of such interim agreement, as the case may be.¹⁰⁶

Essentially, this requires customs unions to remain trade liberalizing. But, for the Climate Club to truly be effective the external tariff will likely be higher than the domestic costs of decarbonization that members undertake. Otherwise, there is no incentive to join the

¹⁰¹ *Id.*

¹⁰² *Id.*

¹⁰³ *Principles of the Trading System*, WTO, https://www.wto.org/english/thewto_e/whatis_e/tif_e/fact2_e.htm (last visited June 5, 2023).

¹⁰⁴ *Id.*

¹⁰⁵ *Id.*

¹⁰⁶ *Id.*

club and emissions will continue to increase. Thus, this essay turns to Article XX of the GATT to justify the Climate Club's failure to meet this trade liberalizing condition, arguing there is still a place for the club within the WTO's pre-existing parameters.

GATT Article XX Exception

The last portion of this essay explores the various GATT general exceptions to justify the creation of a Climate Club in the eyes of the international trade world. These general exceptions were created to empower WTO members in developing domestic policy objectives.¹⁰⁷ Thus, these exceptions provide a balancing mechanism where important considerations, like the health of the environment, can gain traction against the overarching goal of trade liberalization.¹⁰⁸

Article XX of the GATT contains an introductory clause, known as the "chapeau," and ten succeeding clauses, known as the "subparagraphs." Article XX says in relevant part:

Article XX

General Exceptions

Subject to the requirement that such measures are not applied in a manner which would constitute a means of arbitrary or unjustifiable discrimination between countries where the same conditions prevail, or a disguised restriction on international trade, nothing in this Agreement shall be construed to prevent the adoption or enforcement by any contracting party of measures:

- a) ...
- (b) necessary to protect human, animal or plant life or health;
- (c) ...
- (d) ...
- (e) ...
- (f) ...
- (g) relating to the conservation of exhaustible natural resources if such measures are made effective in conjunction with restrictions on domestic production or consumption; ...

We can apply these exceptions to customs unions because the chapeau's phrase, "nothing in this Agreement shall be construed to prevent," clarifies that the exceptions in Article XX apply to every obligation in the GATT.¹⁰⁹ The two climate-relevant exceptions are subparagraph (b) "measures necessary to protect human, animal or plant life or health" and subparagraph (g) "measures relating to the conservation of exhaustible natural resources if such measures are made effective in conjunction with restriction on domestic production or consumption."¹¹⁰ So, first the measure must satisfy the following requirements – it must be "necessary" to achieve its purported objective in the case of subparagraphs (b), or it must "relate" to this objective in the case of subparagraph (g). If

¹⁰⁷ Andrew D. Mitchell & Glyn Ayres, *General and Security Exceptions Under the GATTs and the GATS*, INT'L TRADE LAW AND WTO (2011), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1951549.

¹⁰⁸ *Id.*

¹⁰⁹ GATT Arts. XX.

¹¹⁰ GATT Arts. XX(a) & (g).

it does not, the implementing country must revise the measures.¹¹¹ Second, and most importantly, the chapeau of Article XX demands these exceptions are not “a means of arbitrary or unjustifiable discrimination” between WTO members or “a disguised restriction on international trade.”¹¹² For measures that fail to meet the requirements in the chapeau, but do meet the requirements of either subparagraph (b) or (g), the implementing country is only required to reconsider its application of them.¹¹³ Ultimately, a prevailing measure must be effective and applied in good faith.

GATT Article XX(b)

First, GATT Article XX(b) requires that the policy objective of the measure 1) protect human, animal or plant life or health and 2) that the measure is “necessary” in achieving this goal.¹¹⁴ In determining whether the measure is “necessary” the following factors must be weighed. First, “consider the *importance* of the objective that the measure is designed to achieve.”¹¹⁵ Second, in light of this deliberation, consider “the contribution made by the measure to the policy objective” and “the impact of the measure on international trade.”¹¹⁶ If the measure survives this initial analysis, the “result must be confirmed by comparing the measure with its possible alternatives.”¹¹⁷

A Climate Club is clearly designed to protect human, animal or plant life or health. Determining whether a measure is designed to achieve this objective is relatively straightforward and, in many cases, the Appellate Body accepts the explanation that the measure’s policy objective falls under subparagraph (b).¹¹⁸ For instance, measures that seek to reduce air pollution,¹¹⁹ eliminate cancer risks¹²⁰ or prevent malaria and dengue fever¹²¹ fall within its scope. Thus, a Climate Club designed to reduce carbon emissions falls under subparagraph (b).

The first step of the “necessary” analysis involves determining the importance of the “common interests or values” that the measure pursues. This is not an inquiry into the importance of the policy objectives animating Article XX.¹²² Instead, this is an inquiry that evaluates the “particular objective pursued by the measure at issue.”¹²³ In *EC – Asbestos*, the Appellate Body held that “the preservation of human life and health ... is both vital and important in the highest degree.”¹²⁴ It stressed that the “more vital or important” the

¹¹¹ Ministry Of Economy, *Part II WTO Rules and Major Case: Chapter 4 Justifiable Reasons*, in 2015 REPORT ON COMPLIANCE BY MAJOR TRADING PARTNERS WITH TRADE AGREEMENTS 328 (2015), https://www.meti.go.jp/english/report/data/2016WTO/pdf/02_06.pdf.

¹¹² GATT Arts. XX.

¹¹³ Ministry Of Economy, *supra* note 112.

¹¹⁴ GATT Arts. XX(b).

¹¹⁵ Andrew D. Mitchell & Glyn Ayres, *supra* note 96.

¹¹⁶ *WTO Rules and Environmental Policies: GATT Exceptions*, WTO, https://www.wto.org/english/tratop_e/envir_e/envt_rules_exceptions_e.htm.

¹¹⁷ *Id.*

¹¹⁸ Ministry Of Economy, *supra* note 112.

¹¹⁹ *See, e.g.*, Appellate Body Report, *United States – Standards for Reformulated and Conventional Gasoline*, WTO Doc WT/DS2/AB/R (Apr. 29, 1996) (“Appellate Body US – Gasoline”).

¹²⁰ *See, e.g.*, Appellate Body Report, *European Communities – Measures Affecting Asbestos and Asbestos-Containing Products*, WTO Doc WT/DS135/AB/R (Mar. 12, 2001) (“Appellate Body EC – Asbestos”).

¹²¹ *See, e.g.*, Appellate Body Report, *Brazil – Measures Affecting Imports of Retreaded Tyres*, WTO Doc. WT/DS332/AB/R (Dec. 3, 2007) (“Appellate Body Brazil – Retreaded Tyres”).

¹²² Andrew D. Mitchell & Glyn Ayres, *supra* note 96 at 17.

¹²³ *Id.*

¹²⁴ *Appellate Body EC – Asbestos*, *supra* note 121 at ¶ 172.

objective, “the easier it was to accept as necessary measures designed to achieve those ends.”¹²⁵ Thus, “a measure designed to protect human life from a serious and pervasive risk would be considered to pursue a more important objective” and, thus be deemed “necessary,” as opposed to “a measure designed to protect plant health from a moderate and limited risk.”¹²⁶ Like *EC – Asbestos*, a Climate Club also protects human life and health by combatting the detrimental effects of climate change through emission reduction. However, the “importance of the common interest” is even broader than this, encompassing the preservation of the Earth. Thus, the goal is not just to protect human health but also entire ecosystems – i.e., plants and animals.

The next step in the analysis is to look at the measure’s contribution to the achievement of its objective and its trade restrictiveness. In *Brazil – Retreaded Tyres*, the Appellate Body upheld the Panel’s finding that the retreaded tyres import ban was “apt to produce a material contribution to the achievement of its objective”,¹²⁷ i.e. “to reduce waste tyre volumes, and by so doing, to reduce the incidence of cancer, dengue, reproductive problems, environmental contamination, and other associated risks.”¹²⁸ In coming to this conclusion the Appellate Body stated:

[A]n import ban is “by design as trade-restrictive as can be.” We agree with the Panel that there may be circumstances where such a measure can nevertheless be necessary, within the meaning of Article XX(b). We also recall that, in *Korea – Various Measures on Beef*, the Appellate Body indicated that “the word “necessary” is not limited to that which is “indispensable””. Having said that, when a measure produces restrictive effects on international trade as severe as those resulting from an import ban, ... it would be difficult for a panel to find that measure necessary unless it is satisfied that the measure is apt to make a material contribution to the achievement of its objective.¹²⁹

This illustrates that the more trade restrictive the measure, the less likely it is to be characterized as “necessary.” Therefore, if a country implements a highly stringent measure, it must ensure that the measure is thoughtfully crafted to make a meaningful contribution towards achieving its objective, thereby outweighing its restrictive impacts.¹³⁰ The Climate Club, as proposed in this essay, is not an import ban like in *Brazil – Retreaded Tyres*. Instead, the only trade restrictive aspect is the external tariff on nonmembers. This tariff is material to achieving the Climate Club’s objective by preventing carbon leakage and free riding. The goal of the tariff is not to raise revenue but to create incentives for the governments and private industries to decarbonize. So, it will be set only as high as necessary to achieve these goals. Moreover, countries can circumvent the tariff at any time by joining the Climate Club, thus the external tariff is by design ideally temporary.

Still, even the most trade restrictive measure, does not require a definitive showing that the measure will make an actual contribution, just that the measure will likely contribute. In fact, in *Brazil – Retreaded Tyres*, the Appellate Body said:

¹²⁵ *European Communities – Asbestos*, WTO, https://www.wto.org/english/tratop_e/envir_e/edis09_e.htm.

¹²⁶ Andrew D. Mitchell & Glyn Ayres, *supra* note 96 at 17.

¹²⁷ *WTO Rules and Environmental Policies: GATT Exceptions*, *supra* note 117.

¹²⁸ Panel Report, *Brazil – Measures Affecting Imports of Retreaded Tyres*, ¶ 4.11, WTO Doc. WT/DS332/R (June 12, 2007).

¹²⁹ *Appellate Body Brazil – Retreaded Tyres*, *supra* note 122 at ¶ 150.

¹³⁰ Appellate Body Report, *China – Publications and Audiovisual Products*, ¶ 310, WTO Doc. WT/DS363/AB/R (adopted Dec. 21, 2009).

the results obtained from certain actions – for instance, measures adopted in order to attenuate global warming and climate change, or certain preventative actions to reduce the incidence of diseases that may manifest themselves only after a short period of time – can only be evaluated with the benefit of time... Thus, a panel might conclude that an import ban is necessary on the basis of a demonstration that the import ban at issue is apt to produce a material contribution to the achievement of its objective. This demonstration could consist of quantitative projections in the future, or qualitative reasoning based on a set of hypotheses that are tested and supported by sufficient evidence.¹³¹

This proclamation is encouraging for all measures aimed at reducing greenhouse gas emissions, especially a Climate Club, because it gives them a fighting chance rather than preemptively disqualifying them.

The question then turns to whether there exists an alternative measure, consistent with the GATT provisions, that is less trade restrictive. In *Brazil – Retreaded Tyres*, the Appellate Body explained that 1) “[i]t rests upon the complaining Member to identify possible alternatives to the measure at issue that the responding Member could have taken” and 2) the alternative measure must “preserve for the responding Member its right to achieve its desired level of protection with respect to the objective pursued.”¹³² In fact, in *EC – Asbestos*, they “confirmed Members are entitled to select an absolute level of protection, which in that case meant zero tolerance for the health risks associated with asbestos.”¹³³ Moreover, in proposing an alternative, the complaining member must, in addition to abiding by the desired level of protection, propose a measure that is not “prohibitively expensive or technically difficult.”¹³⁴

Critics of the Climate Club are likely to argue for a less restrictive trade alternative, suggesting that the tariff should be equal to or lower than the domestic costs incurred by Climate Club members. However, this will not achieve the same level of protection because if the external tariff is less than domestic costs, there is still an incentive to engage in acts that will lead to carbon leakage. Moreover, a lesser or matching external tariff will not incentivize participation in the Climate Club. This is problematic because the ultimate goal is to reduce emissions and fulfill the net-zero objectives of previous international climate agreements – rather than merely tax these emissions with no parallel decarbonization efforts. Additionally, calculating precise domestic costs to precisely match external tariffs is both cost-prohibitive and technically challenging. This is because each Club member will have different decarbonization methods and thus varying domestic costs. Consequently, the Climate Club, as currently designed, is necessary for achieving its objective.

GATT Article XX(g)

The Climate Club could also fit under GATT Article XX(g). Subparagraph (g) requires the measure “relate to the conservation of exhaustible natural resources.”¹³⁵ Under this approach the means must be reasonably related to the ends.¹³⁶ Additionally,

¹³¹ *Appellate Body Brazil – Retreaded Tyres*, *supra* note 122 at ¶ 151.

¹³² *Id.* at ¶ 156.

¹³³ Andrew D. Mitchell & Glyn Ayres, *supra* note 96 at 22.

¹³⁴ *Id.* at 21.

¹³⁵ GATT Arts. XX(g).

¹³⁶ *WTO Rules and Environmental Policies: GATT Exceptions*, *supra* note 117.

the environmental initiative restricting imports must be “made effective in conjunction with restrictions on domestic production or consumption.”¹³⁷

Fortunately, “exhaustible natural resources” has been interpreted broadly to include clean air.¹³⁸ In *US – Gasoline*, the Panel held that clean air is an “exhaustible natural resource” because it has value, is natural, and can be depleted.¹³⁹ Next, the measure must relate to these conservation efforts.¹⁴⁰ The Appellate Body held that the word “relating” does not require “the same kind or degree of connection or relationship between the measure under appraisal and the state interest ... sought to be promoted” as the word “necessary.”¹⁴¹ Instead, the measure will “relate” to conservation when it is “primarily aimed at” that objective.¹⁴² Consequently, the Appellate Body held the Gasoline rule, which permitted only gasoline of a specified cleanliness, was “related” to the goal of conserving clean air.¹⁴³ It follows that the Climate Club should be considered a measure relating to the conservation of an exhaustible natural resource, because its entire design is aimed at reducing carbon emissions.

Second, the measure affecting imports must be applied “in conjunction with restrictions on domestic production or consumption.”¹⁴⁴ Regarding these conditions the Appellate Body stated:

There is, of course, no textual basis for requiring identical treatment of domestic and imported products. Indeed, where there is identity of treatment - constituting real, not merely formal, equality of treatment - it is difficult to see how inconsistency with Article III:4 would have arisen in the first place. On the other hand, if *no* restrictions on domestically-produced like products are imposed at all, and all limitations are placed upon imported products *alone*, the measure cannot be accepted as primarily or even substantially designed for implementing conservationist goals. The measure would simply be naked discrimination for protecting locally-produced goods.¹⁴⁵

Thus, because the Climate Club’s external tariff is applied in conjunction with restrictions on domestic production, i.e. the domestic costs associated with member-state abatement efforts. While there might not be identical treatment of domestic and imported products, this is not required.

The Chapeau

The last, and most difficult, hurdle to clear is the Chapeau. The chapeau examines the way the measure is applied, requiring that it not constitute “arbitrary or unjustifiable discrimination” or a “disguised restriction on international trade.”¹⁴⁶ The Appellate Body has stated that the purpose of the chapeau is “a delicate one of locating and making out a line of equilibrium between the right of a [country] to invoke an exception under Article

¹³⁷ Appellate Body Report *European Communities – Conditions for The Granting Of Tariff Preferences To Developing Countries*, ¶ 95, WTO Doc. WT/DS246/AB/R (Apr. 7, 2004).

¹³⁸ Andrew D. Mitchell & Glyn Ayres, *supra* note 96 at 8.

¹³⁹ See generally Appellate Body *US – Gasoline*, *supra* note 120.

¹⁴⁰ *Id.* at 14.

¹⁴¹ *Id.* at 17.

¹⁴² *WTO Rules and Environmental Policies: GATT Exceptions*, *supra* note 117.

¹⁴³ *Id.*

¹⁴⁴ GATT Arts. XX(g).

¹⁴⁵ Appellate Body *US – Gasoline*, *supra* note 120 at 21.

¹⁴⁶ *WTO Rules and Environmental Policies: GATT Exceptions*, *supra* note 117.

XX and the rights of the other [countries] under varying substantive provisions of the GATT.”¹⁴⁷ Thus, the goal is to prevent abuse of the exceptions of Article XX¹⁴⁸ and ensure they are applied in good faith.

Arbitrary and Unjustifiable Discrimination

A measure violates the chapeau of Article XX when it is applied in a manner which constitutes “arbitrary and unjustifiable discrimination” between countries where the same conditions prevail.¹⁴⁹ It is worth noting “by modifying the word ‘discrimination’ with the words ‘arbitrary’ or ‘unjustifiable,’ the chapeau makes it clear that not all discrimination is prohibited.”¹⁵⁰ Additionally, the measure must be rationally connected to the objective stipulated in the general exception under which the measure is provisionally justified.¹⁵¹

The *US – Shrimp* case provides a useful example of permissible versus impermissible discrimination. To start, the measure at issue was a United States ban on imports of shrimp from countries that did not require commercial shrimp trawlers to use “Turtle Excluder Devices” (“TEDs”) which prevent sea turtles from getting caught in nets.¹⁵² The Appellate Body determined this to be “unjustifiable discrimination” because the measure was rigid and inflexible in that it forced other countries to adopt “essentially the same comprehensive regulatory program” as the United States, without allowing for sufficient flexibility to account for the various conditions of other member states.¹⁵³ Moreover, the fact that the United States had “‘treated WTO members differently’ by adopting a cooperative approach regarding the protection of sea turtles with some members but not with others also showed that the measure was arbitrary and unjustifiable.”¹⁵⁴ For instance, the United States provided some countries with longer transition-compliance periods, and with others, it engaged in exclusive negotiations.¹⁵⁵ Thus, the measure was deemed arbitrary and unjustifiable as applied in this manner.

In response to the Appellate Body’s holding, the United States revised its measure so that it required only the adoption of a program that was “comparably effective” to that of the United States program, rather than a program that necessarily required the use of TEDs.¹⁵⁶ After a complaint was brought claiming this modification still violated the chapeau, the Appellate Body upheld the measure because it provided “sufficient latitude” to exporting countries in adopting a “regulatory programme that is suitable to the specific conditions prevailing in its territory.”¹⁵⁷

The Climate Club, as designed, is not arbitrary or unjustifiable because 1) it allows for flexibility in only requiring climate policies that are “comparably effective” and 2) it treats all countries the same. To join the Climate Club countries simply need to demonstrate that they have met the mandatory emissions reduction criteria. They can do so in any way they choose, whether its regulation, a carbon tax, an emissions trading system, etc. This

¹⁴⁷ *Appellate Body Brazil – Retreaded Tyres*, *supra* note 122 at ¶ 150-58.

¹⁴⁸ *Appellate Body US – Gasoline*, *supra* note 120 at 22.

¹⁴⁹ Ministry Of Economy, *supra* note 112.

¹⁵⁰ Andrew D. Mitchell & Glyn Ayres, *supra* note 96 at 24.

¹⁵¹ *Appellate Body Brazil – Retreaded Tyres*, *supra* note 122 at ¶ 226-227.

¹⁵² Appellate Body Report, *United States – Import Prohibition of Certain Shrimp and Shrimp Products*, ¶ 2, WTO Doc. WT/DS58/AB/R (adopted Oct. 12, 1998).

¹⁵³ *Id.* at ¶ 3-5.

¹⁵⁴ *WTO Rules and Environmental Policies: GATT Exceptions*, *supra* note 117.

¹⁵⁵ Ministry Of Economy, *supra* note 112.

¹⁵⁶ *WTO Rules and Environmental Policies: GATT Exceptions*, *supra* note 117.

¹⁵⁷ Andrew D. Mitchell & Glyn Ayres, *supra* note 96 at 25.

structure mirrors that of the modified measure in *US – Shrimp* and provides “sufficient latitude” to countries in adopting climate policies suitable to their politics and economies.¹⁵⁸ Lastly, the external tariff is not impermissibly discriminatory because it is applied equally to all nonmember states. Consequently, the external tariff should be permitted for the same reasons the Appellate Body permitted the import ban on shrimp from countries that failed to adopt “comparably effective” programs. Thus, the Climate Club does not apply in an arbitrary or discriminatory manner.

Disguised Restriction on Trade

The prohibitions on “arbitrary discrimination,” “unjustifiable discrimination” and “disguised restrictions on international trade,” stipulated in the chapeau, are not mutually exclusive.¹⁵⁹ In *EC – Asbestos*, the Panel reasoned that

the key to understanding what is covered by “disguised restriction on international trade” is not so much the word “restriction,” in as much as, in essence, any measure falling within Article XX is a restriction on international trade, but the word “disguised.” ... [A]s ordinarily understood, the verb “to disguise” implies an *intention*. Thus, ‘to disguise’ (*déguiser*) means, in particular, “conceal beneath deceptive appearances, counterfeit,” “alter so as to deceive,” “misrepresent,” “dissimulate.” Accordingly, a restriction which formally meets the requirements of Article XX(b) will constitute an abuse if such compliance is in fact only a disguise to conceal the pursuit of trade-restrictive objectives.¹⁶⁰

Thus, the fact that a measure has the effect of slightly favoring domestic producers does not amount to a “disguised restriction on international trade.”¹⁶¹

It follows that the Climate Club is not a “disguised restriction on international trade.” The factor most indicative of this finding is the club’s revenue allocation. As previously mentioned, the lion’s share of the revenue goes towards climate emergency funds and decarbonization efforts. Thus, the Climate Club is clearly not designed to be a protectionist measure, nor is its purpose to raise revenue for Climate Club members. Every restriction is closely tailored to its express objective: combatting climate change by reaching net-zero emissions. The pathway to membership is transparent and obtainable. It follows that the Climate Club does not violate the chapeau of GATT Article XX and is thus compliant with the obligations set forth in the WTO.

National Security

Finally, the Climate Club could invoke GATT Article XXI, the national security exception, as an alternative justification. In relevant part Article XXI of the GATT 1994 provides: “Nothing in this agreement shall be construed ... (b) to prevent any contracting party from taking any action which it considers necessary for the protection of its essential security interests ... (iii) taken in time of war or other emergency in international

¹⁵⁸ *Id.* at 26.

¹⁵⁹ *Id.* at 27.

¹⁶⁰ Panel Report, *European Communities – Measures Affecting Asbestos and Asbestos-Containing Products*, ¶ 8.236, WTO Doc WT/DS135/R (Sept. 18, 2000) (“Panel Report *EC – Asbestos*”).

¹⁶¹ *Id.* at ¶ 8.239.

relations.”¹⁶² Thus, although a Climate Club is preferably justified under Article XX as an environmental exception, it “also squarely fits within Article XXI.”¹⁶³

In particular, the threat posed by global warming is an “emergency in international relations.”¹⁶⁴ Climate change poses security risks by exacerbating resource scarcity (such as water, food, land, and other natural resources) and increasing displacement and migration.¹⁶⁵ These impacts can result in political instability and violent conflicts.¹⁶⁶ Even the Pentagon has acknowledged that climate change is “amplifying existing risks for the U.S.”¹⁶⁷ For instance, in 2020, the US military spent \$67 million on repairing environmental damages to military facilities.¹⁶⁸ Given these risks, climate change is not only an environmental threat but also a national security threat. Thus, the Climate Club can be justified under Article XXI if the chapeau of Article XX precludes it from the environmental exceptions. Ultimately, increasing implementation of international climate policies might act as a catalyst for broadening the chapeau’s grip on Article XX exceptions, “according national regulators greater deference than the AB historically recognized under the chapeau,” otherwise forcing them to analyze climate policies under Article XXI, “which lacks an analog to article XX’s chapeau.”¹⁶⁹

VIV. CONCLUSION

This essay has stressed the urgency of climate change while providing an effective and legally feasible solution. The time for unilateral action has come and gone. Now, only well-executed multilateral action will bring about the amount of emissions reduction necessary to preserve the world as we know it. We have the opportunity to save jobs because climate change will drastically impact numerous economic sectors.¹⁷⁰ We have the opportunity to save lives because climate change is expected to cause approximately 250,000 additional deaths per year between 2030 and 2050.¹⁷¹ And, we have the opportunity to save cultures because over 200 million people are likely to migrate over the next few decades to escape environmental degradation.¹⁷² This rare convergence of economic, health, and social interests should be galvanized and used as a catalyst for the creation of a Climate Club.

¹⁶² GATT Arts. XXI.

¹⁶³ Timothy Meyer & Todd N. Tucker, *A Pragmatic Approach to Carbon Border Measures*, 21 WORLD TRADE REVIEW 109, 120 (2021), <https://www.cambridge.org/core/services/aop-cambridge-core/content/view/B0D224B3A59E9433D10E74DE6D40A0FD/S1474745621000409a.pdf/a-pragmatic-approach-to-carbon-border-measures.pdf>.

¹⁶⁴ *Id.*

¹⁶⁵ *Climate Change and Human Rights*, UNEP at 8 (2015), https://wedocs.unep.org/bitstream/handle/20.500.11822/9530/-Climate_Change_and_Human_Rights-human-rights-climate-change.pdf.pdf?sequence=2&camp%3BisAllowed=.

¹⁶⁶ *Id.*

¹⁶⁷ Noel King, *Climate Change is a Risk to National Security, the Pentagon Says*, NPR (2021), <https://www.npr.org/2021/10/26/1049222045/the-pentagon-says-climate-change-is-having-a-negative-impact-on-national-security>.

¹⁶⁸ Timothy Meyer & Todd N. Tucker, *supra* note 164.

¹⁶⁹ *Id.*

¹⁷⁰ *Climate Change And Its Impact On Global Jobs, And The Economy: Which Sectors Will Be Hit?*, FILEUNEMPLOYMENT.ORG (2021), <https://fileunemployment.org/jobs-2/climate-change-and-its-impact-on-global-jobs-and-the-economy-which-sectors-will-be-hit>.

¹⁷¹ *Climate Change and Health*, WORLD HEALTH ORG. (2021), <https://www.who.int/news-room/fact-sheets/detail/climate-change-and-health>.

¹⁷² Moira Lavelle, *By 2050, 200 Million Climate Refugees May Have Fled Their Homes. But International Laws Offer Them Little Protection*, INSIDE CLIMATE NEWS (2021), <https://insideclimatenews.org/news/02112021/climate-refugees-international-law-cop26/>.

Ultimately, a Climate Club represents the most effective framework for fostering the international cooperation necessary to combat climate change, and nations should act swiftly in enacting one to prevent jeopardizing the lives of their citizens.

CHAPTER 4: THE CHALLENGES OF INCORPORATING TRANSPORT EMISSIONS IN CARBON PRICING INITIATIVES

AUSTIN M. BEAUDOIN*

INTRODUCTION

Among the litany of problems climate change creates for policymakers tasked with mitigating its destructive potential is the failure of the market to include carbon emissions in the cost of goods, services, and all other carbon-intensive activities. The emergence of various carbon pricing initiatives (CPIs) around the world aimed at correcting this market failure is thus an encouraging development.¹ The process of implementation has been fragmented, with little multilateral progress being made to either create an international CPIs or link regional or domestic CPIs. The goal of creating a global price for carbon is of course rendered virtually impossible unless enough countries are participating. This is where the idea of a Carbon Border Tax Adjustment (CBTA) comes in. At least in the short-to-medium term, a CBTA can enable an CPI regime to apply carbon prices to imports coming from outside of the system as a condition of entering the market. CBTAs accordingly may become a crucial link between regional efforts to price carbon and global resistance to such measures. The EU has recently proposed such a mechanism, which it dubbed a Carbon Border Adjustment Measure (CBAM), which has prompted various policy, political, and legal objections.

This article will analyze the merits and implementation challenges of incorporating transport carbon emissions into proposed or existing carbon pricing initiatives. Two clarifications on scope are necessary at the outset. First, the analysis will be confined to proposed, existing, or hypothetical CPIs that employ some sort of carbon pricing internally – be it cap-and-trade or a carbon tax – and a corresponding CBTA. This article will use the term Transport Emissions Carbon Pricing Initiative (TECPI) to refer to the proposed concept. For the most part, the analysis is applicable regardless of deciding between a carbon tax or a cap-and-trade system. Second, this article concerns scope 3 transport emissions produced from trade, not from travel. Although the two datasets can be intertwined, they deal with different sets of policy issues. Focusing on the former will allow for a more focused analysis.

Part I of this article will provide some basic background on the policy context for pricing transport carbon emissions and outline some of the normative and policy justifications for their incorporation. Part II will focus on how these emissions could be included in TECPIs by briefly outlining how they might work in practice and how such regimes can be compatible with WTO law. Part III discusses the implementation challenges of an TECPI that includes a transport CBTA, specifically by explaining the legal challenges, political resistance, and associated policy challenges. Part IV will

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¹ Jurisdictions as varied as California, Canada, and the EU are currently in various stages of utilizing, implementing, or proposing an ETS for their jurisdictions. See Joseph Pryor, Marissa Sankikarn & Samanigo Fernandez, *The role of a carbon price in tackling road transport emissions*, at 17 (World Bank Discussion Paper 2021).

synthesize this discussion by imagining what an effective carbon pricing regime might look like considering the implementation challenges.

I. NORMATIVE AND POLICY JUSTIFICATIONS

A. Background

It is important to note at the outset that various carbon pricing regimes currently exist around the globe. They exist at various stages of implementation and can range greatly as to their scope, efficacy, and even whether they are binding in nature. This paper will briefly describe how an TECPI is intended to work, drawing in part from the EU ETS and its proposed CBAM. All its basic features are applicable to TECPI regimes, but some of its details will vary among jurisdictions.

An ETS, sometimes known as a “cap-and-trade” program, “is an explicit carbon pricing instrument that limits or caps the allowed amount of GHG emissions and lets market forces disclose the carbon price through emitters trading emissions allowances.”² In the EU, covered installations – mostly the electricity, energy-intensive sectors like oil, steel, aluminum, cement, chemicals, and paper – must surrender enough allowances to fully cover its annual emissions or face a fine.³ Theoretically, the supply of emissions allowances will drop every year, raising the demand and thus the price for each allowance. An ETS is thought to be efficient because this process should create a demand for carbon among emitters who cannot save money elsewhere by reducing emissions.⁴ It also is thought to spur innovation in low-carbon technologies.⁵ As a way to gradually implement the ETS and reduce economic shocks, the EU has been providing free allowances to most covered sectors that it plans to phase out.⁶

Implementing an ETS addresses the emissions of covered entities within its jurisdiction. Two basic problems remain. First, without other trading partners joining the ETS or creating a similar CPI of their own, domestic goods and services subject to the ETS will become more expensive and thus less economically competitive. The concern is that this may lead to “carbon leakage” where firms either move abroad to jurisdictions without a CPI or modify their supply chains to import products and thus avoid the carbon costs. Second and more generally, without mass market participation in an ETS or similar emissions regime, a global cost for carbon cannot be created, and emissions will continue to rise. This is where CBTAs come in.

The EU’s CBAM proposal is the best current example of what such a policy might look like. A CBAM requires importers to purchase allowances – or in a carbon tax context, perhaps pay an equivalent carbon tariff – corresponding to the carbon price that would have been paid if the product was made within the ETS’s jurisdiction.⁷ The allowances for importers will be based on the carbon price being paid by domestic producers in the ETS

² *Putting a Price on Carbon with an ETS*, WORLD BANK GRP. (2013), https://www.worldbank.org/content/dam/Worldbank/document/Climate/background-note_ets.pdf.

³ Directorate-General for Climate Action, *EU Emissions Trading System (EU ETS)*, EUROPEAN COMMISSION (2021), https://ec.europa.eu/clima/eu-action/eu-emissions-trading-system-eu-ets_en.

⁴ *Id.*

⁵ *Id.*

⁶ *Id.*

⁷ Cecilia Bellora & Lionel Fontagne, *The EU in search of a WTO-compatible Carbon Border Adjustment Mechanism*, VOX EU (Mar. 26, 2022), <https://voxeu.org/article/search-wto-compatible-carbon-border-adjustment-mechanism>.

for an equivalent good or service.⁸ Importers who can demonstrate that they have already been subject to a carbon tax by their own country, or a third country will have that cost deducted from what they owe under a CBAM.⁹ What carbon “taxes” are owed in the form of allowances will be “based on the carbon emissions associated with the production of each imported product,” with plans to rely on the data from the importer’s own country, the EU’s data, or the own producers data, as available.¹⁰ From a policy perspective, the CBAM fills a lot of serious gaps in any ETS regime. It has also generated political, legal, and policy pushback.

B. Policy justifications

Perhaps the most important reason for including transport emissions in an ETS is because they take up a significant – and often overlooked – portion of overall emissions. “Globally, the transport sector accounts for almost a quarter of global CO₂ emissions, with road transport accounting for around three quarters of total transport emissions.”¹¹ International transport is specifically “responsible for 33 percent of world-wide trade-related emissions, and over 75 percent of emissions for major manufacturing categories like machinery, electronics and transport equipment.”¹² The issue of dealing with transport-based carbon emissions is especially acute for the United States. Emissions from transport represent the largest single contributor of U.S. GHG emissions,¹³ in large part due to its heavy reliance on air cargo.¹⁴ As a superpower responsible for “a third of transport emissions worldwide,” the U.S. both has significant incentives and likely significant reasons for resisting an TECPI or being subject to a CBTA.

CBTAs are particularly important for their ability to prevent carbon leakage, discussed above.¹⁵ In the EU context, the proposed CBAM is expected to significantly reduce possible carbon leakages, and lower overall carbon emissions.¹⁶ Inevitable future WTO challenges to the CBAM will prove whether this is correct.

Another important benefit of a CBAM is its ability to subject reluctant states to a carbon pricing regime, and potentially its ability to cajole states into participating. The basic idea is if trade partners are forced to pay these costs anyway, for example whenever they export to the EU, they may adopt their own TECPI complete with a CBTA to ensure EU imports face the same added carbon costs. Other states could adopt an analogous ETS with a CBAM, requiring carbon allowances or taxes on imports and deducting costs already paid as in the EU. This would allow states subject to carbon pricing to generate additional revenues of their own. The revenue generated by an TECPI can be used to

⁸ *Id.*

⁹ *Id.*

¹⁰ Warwick McKibbin & Peter J. Wilcoxon, *The Economic and Environmental Effects of Border Tax Adjustments for Climate Policy*, BROOKINGS TRADE FORUM 1 (2008-09). The EU makes an importer being able to demonstrate their own carbon emissions for a given good or service the preferable option.

¹¹ Joseph Pryor, Marissa Sankikarn & Samaniego Fernandez, *The role of a carbon price in tackling road transport emissions* 7 (World Bank Discussion Paper 2021).

¹² Anca D. Cristea et. al., *Trade and Greenhouse Gas Emissions from International Freight Transport* 1 (NBER Working paper Series, Working Paper 17117, Jun. 2011).

¹³ *Carbon Pollution from Transportation*, EPA (Jun. 8, 2021), <https://www.epa.gov/transportation-air-pollution-and-climate-change/carbon-pollution-transportation>.

¹⁴ Cristea et. al., *supra* note 12, at 1.

¹⁵ Bellora & Fontagne, *supra* note 7.

¹⁶ Dolf Gielen, Massamba Thioye & Francisco Boshell, *CBAM needs universal adoption of methods for measuring carbon intensity*, at 3, ENERGY POST (Aug. 31, 2021), energypost.eu/cbam-needs-universal-adoption-of-methods-for-measuring-carbon-intensity/.

invest in green technologies and other methods of climate change adaptation or mitigation.

It is unclear whether including the carbon costs of transportation will make many goods significantly more costly. Even if the price signal sent to consumers is not huge, it still may encourage consumers to buy local and rely on shorter supply chains. Any skepticism on the efficacy of price signaling suggests complimentary measures may be needed as well. One option could be labels with GHG information on them, including possibly how many GHGs were emitted in the transportation of that good. Doing so while implementing a TECPI and thus adding the carbon costs to imported good may create a stronger signal to consumers. In any event, including transport emissions in the CPI is also important simply as part of the larger effort to ensure virtually all the emissions involved in producing a good are reflected in the price of that good. An TECPI can also be effective when used in tandem with other measures, such as the EU's strategy of simultaneously tightening emissions standards while rolling out a transport ETS.¹⁷

Determining *why* transport emissions should be included in carbon pricing regimes is considerably more straightforward than *how* to go about including these emissions. The following section will explore current initiatives and some of their implementation challenges.

II. INCORPORATING TRANSPORT EMISSIONS IN A CPI

This section will discuss the challenges inherent in data collection and measurement for international transport emissions. The obstacles will be introduced, as well as recent studies that propose novel methods of measuring these emissions. Above all, more data is needed. Basic ideas on how to structure these emissions within an TECPI follows, with a brief concluding analysis of why a TECPI including such emissions is still compatible with WTO law.

A. *Challenges in measuring transport GHG emissions*

Accounting for transport emissions with a TECPI is a complex issue that has been mostly overlooked.¹⁸ It is worth noting at the outset that there is no conventionally agreed upon standard for pricing carbon in general; instead, differing conventions are used.¹⁹ Transport emissions exacerbate this with its own set of data collection and other practical challenges. Studies measuring international freight transport emissions have accordingly been limited in scope. Most studies on transport emissions focus on a particular product, geographic market, or both, providing a useful study for that locality, but not necessarily for estimating global emissions.²⁰

Even more problematic is the general issue of lacking “data sources that attribute international transport emissions to origin and destination countries.”²¹ There accordingly

¹⁷ Cristina Urrutia, Jakob Graichen & Anke Herold, 2030 climate target plan: extension of European Emission Trading System (ETS) to transport emissions, EUROPEAN PARLIAMENT (2021), at 14.

¹⁸ Misak Avetisyan, *Impacts of global carbon pricing on international trade, model choice and emissions from international transport*, 76 ENERGY ECON. 532, 533 (2018). For example, no effort is made under the Kyoto regulations to differentiate between domestic and international air emissions.

¹⁹ Dolf Gielen, Massamba Thioue & Francisco Boshell, *CBAM needs universal adoption of methods for measuring carbon intensity*, at 3-4, Energy Post (Aug. 31, 2021), energypost.eu/cbam-needs-universal-adoption-of-methods-for-measuring-carbon-intensity/.

²⁰ Anca D. Cristea et. al., *Trade and Greenhouse Gas Emissions from International Freight Transport 2* (NBER Working paper Series, Working Paper 17117, Jun. 2011).

²¹ *Id.*

is “little systemic information regarding the magnitude of transportation emissions relative to production, and how they are distributed across trade flows.”²² What is available is a confusing mix of mostly national and local governmental data that varies in methodology and reliability.²³ Many countries have national air pollutant inventories measuring the level of pollutants in the air, but they typically are only measuring aggregate amounts, presenting the challenge of how to disaggregate transportation emissions from the whole. International organizations provide some data to fill in these gaps, but the datasets are also limited. Most prominent is the aggregate transport emissions data provided by the International Transport Forum (ITF).²⁴ The organization produces data on the aggregate transport emissions of the international aviation and maritime transport sectors by combining data on fuel consumption from the International Energy Agency (IEA), along with information on GHG emissions by fuel type.²⁵ This data has two basic limitations, however. The ITF’s top-down data gathering approach forces it to omit road and rail transport numbers due to its inability to distinguish international from domestic emissions. This is the case despite large amounts of transport emissions coming from these sectors, particularly in cases of land-adjacent trading partners.²⁶ The ITF data also cannot show where fuel was used or how, making it impossible to evaluate total emissions associated with particular trade flows, or estimate whether emissions will rise or fall relative to trade.²⁷ The existing data is therefore lacking, although creating better datasets seems possible.

The crucial nature of this emissions data and the dearth of its availability in the literature makes briefly outlining a potentially viable dataset worthwhile. It begins with compiling better GHG inventories. According to the IPCC, these emission or GHG inventories require 1) data collection and 2) uncertainty assessment.²⁸ Data collection requires “evaluation of existing sources of data and the planning of new emission measurements and surveys.”²⁹ Factors causing uncertainty in the emissions data include “poor air pollution monitoring systems, inadequate traffic models, especially when future projections in space and time are considered, bad expert judgments in choosing model parameters and emission factors, and other objective and subjective factors related to the assessment models.”³⁰ The price of carbon selected for the analysis also significantly influences the outcome.³¹ The transport GHG emissions data extracted from these emissions inventories is crucial for developing “environmental accounting tables” necessary to perform statistical analysis and for research on how to improve fuel standards and design better transportation policies in the future.³²

²² *Id.*

²³ A.C. McKinnon & M.I. Piccyk, *Measurement of CO₂ emissions from road freight transport: A review of UK experience*, 37 Energy Pol’y 3733, 3740 (2009).

²⁴ Cristea et. al., *supra* note 21, at 3.

²⁵ *Id.*

²⁶ *Id.*

²⁷ *Id.* at 4.

²⁸ Alessandra La Notte, Stefania Tonin & Greti Lucaroni, *Assessing direct and indirect emissions of greenhouse gases in road transportation, taking into account the role of uncertainty in the emissions inventory*, 69 ENVTL. IMPACT ASSESSMENT REV. 82, 82-83 (2018).

²⁹ *Id.*

³⁰ *Id.*

³¹ *Id.*

³² *Id.* at 83.

The statistical models that estimate emissions can be designed to be top-down, where they primarily rely on national or regional data, or bottom-up, where the primary data is based on local, provincial, and then federal data. The bottom-up approach seems preferable for present purposes. Relying on local data allows for a clearer picture of which modes of transport are generating which emissions, and to what levels.³³ One study relying on a bottom-up approach was able to estimate transport emissions by “calculating the quantity of transportation services for that flow provided by each transportation mode and multiplying by emissions per unit of transportation services.”³⁴ By using emissions inventories combined with transportation statistics, such data can be collected. This hybrid model can be further combined with environmental accounts that collect air emissions data, a process that is doable, but methodologically challenging. It seems this basic approach could be applied to transport emissions and control for trade and non-trade-based transport emissions, domestic and international transport emissions, and more. Doing so would make this already challenging analysis considerably more complex, as the methodology described above would have to be repeated for most countries to stitch together a global picture of transport emissions. The important point is that it does seem feasible, it just will require time, effort, and resources. New studies and governmental improvements to their data collection methods and thus urgently needed. Governments should also encourage local or provincial data collection to ensure they have more than national air pollutant inventories. Doing so will make data disaggregation easier.

B. Proposals for incorporating transport emissions

The above discussion offers a possible way to gain a reliable estimate of global transport emissions and the emissions it takes a given mode of transportation to transport something a certain distance on average. This subsection will focus on how to then apply this data to the emitting entities. For its part, the UNFCCC proposed several possibilities for “allocation of international transport emissions.”³⁵ This was in the context of allocating emissions to individual states, but its basic approaches are helpful when considering how to link transport emissions to their respective private emitter. Before that is possible, identifying which point in the supply chain is appropriate for adding the TECPI to each mode of transportation is needed.

The basic question is whether all modes of international transport could be subject to the same CBTA targeting the same point in the supply chain. The best option is probably downstream, specifically having the importer pay for the cost of carbon at customs. Administratively, it would be easier and likely cheaper to target the same point in the “stream” for all modes of transportation and emitters. For this reason, a TECPI should

³³ Alessandra La Notte, Stefania Tonin & Greti Lucaroni, *Assessing direct and indirect emissions of greenhouse gases in road transportation, taking into account the role of uncertainty in the emissions inventory*, 69 ENVTL. IMPACT ASSESSMENT REV. 82, 83 (2018).

³⁴ Anca D. Cristea et. al., *Trade and Greenhouse Gas Emissions from International Freight Transport* 7 (NBER Working paper Series, Working Paper 17117, Jun. 2011). This study was unable to precisely account for differences in internal travel emissions before international transport. This portion of the emissions are thus a rougher estimate.

³⁵ Misak Avetisyan, *Impacts of global carbon pricing on international trade, model choice and emissions from international transport*, 76 ENERGY ECON. 532, 534 (2018). The proposals included “no allocation, allocating to parties relative to their national emissions, allocating to the country where the fuel is purchased, allocating to parties based on the nationality of air transporting company and the registration country of the airplane, allocating to the country of departure or arrival of a plane (ship) or sharing between countries of departure and destination, and assigning to the country of departure or arrival of passengers or freight.” *Id.*

target downstream importers. Doing so should avoid some of the negative externalities of upstream targeting for some modes of transportation. The process could look something like an arriving trade transport – be it a ship, airplane, train, or truck – being assessed an additional transport-emissions duty on their import when processing through customs. This transport CBTA can be applied as all other duties are being applied, such as ad valorem taxes. The difference here is of course the challenge of accounting for how much carbon was emitted, and how to attribute a proportional share of that carbon to each individual import. The methodological challenges and a possible design for calculating the carbon will be discussed below. On the question of attributing carbon emissions to individual imports, it seems that a calculation could be developed based on the surface area, weight, and other relevant characteristics about the import that suggest it should take a certain share of the cost of transport carbon. Classifications of “like” products and the rates they should pay on average could likely be used. The technical details of doing so are beyond the scope of this paper, but it suffices to say here that such a calculation is feasible and should be developed.

For all modes of transportation, an important question is what kind of primary conduct is trying to be incentivized. Different modes of transport have varying abilities to reduce emissions or to choose alternative shipping routes. There will certainly be cases where emission-intensive trade routes are practically the only option for some manufacturers and shippers. A transport CBTA has the benefit of encouraging shipping companies to cut costs where they can by reducing emissions. In competitive markets, this should result in lowered emissions where possible. In noncompetitive markets, there still may ultimately be pressure from manufacturers to cut costs. Overall, the price increases from including the costs of carbon are not expected to be dramatic enough to cause serious problems. More challenging is the legal and political obstacles, discussed below.

C. WTO Compatibility

Much has been written on the WTO compatibility of carbon pricing initiatives focusing on Scope 1 emissions, such as the EU ETS.³⁶ This article focuses on analyzing the less-discussed issue of implementing a WTO-compatible carbon pricing initiative for scope 3 *transport emissions*. The following brief analysis of the potential WTO compatibility of such a carbon pricing initiative will show that one could likely be implemented in a manner consistent with WTO rules.

A proposed TECPI will most likely come under the General Agreement on Tariffs and Trade (GATT). Whether transportation and its emissions could be considered a “service” under GATS is unclear. This paper will confine itself to a GATT analysis, as it is the most likely challenge that opponent states might bring.

The two relevant GATT articles are Articles 2 and 3. Because the analysis of both is mostly intertwined, they will be analyzed together. If the BTA in question is considered a customs duty or charge associated with importation – the most likely outcome – then it will be subject to Article 2 of GATT. Article 2 prohibits countries from “imposing any customs duties that exceed the amounts they agreed to charge in their tariff schedule.”³⁷ A TECPI imposing import duties based on the transport emissions of a good may do so

³⁶ See, e.g., Biermann and Brohm (2005); Brewer (2008); Frankel (2005); Goh (2004); Hoerner (1998).

³⁷ Jennifer A. Hillman, *Changing Climate for Carbon Taxes: Who's Afraid of the WTO?* 5 (Climate & Energ. Pol'y Paper Series) (2013), at 4, <https://ssrn.com/abstract=3116397>.

under Article 2, provided that this duty can be considered “a charge equivalent to an internal tax.”³⁸ If, on the other hand, the BTA is considered an internal tax or charge, it is subject to Article 3. A BTA may be considered as such, especially if there is a domestic ETS or other CPI. This is the argument the EU is currently making, possibly based on the view held by some that Article 3 is less stringent than Article 2.³⁹ Article 3 provides that countries cannot treat imports less favorably than like domestic products. Additional duties can be imposed on imported products, provided these costs are equivalent to the costs of internal regulation. Under either article, a TECPI proponent must make similar showings.

Under either Article 2 or 3, countries may impose taxes or duties on “provided 1) that the BTAs are imposed on products that are like’ the domestic products that are subject to the tax in the first place; and 2) that the amount of the BTA imposed on the imported goods does not exceed the amount of the tax on the domestically produced ‘like’ products.”⁴⁰ The issue is therefore less one of classification and more about making the necessary substantive showings.

As noted above, step 1 of this test under Articles II.2 or III.2 requires showing 1) the tax imposed is an indirect tax, not a direct tax on things like income, and 2) the products subject to the BTA are “like” the equivalent domestic products.⁴¹ The first question is whether taxing the transport emissions involved in transporting a good may be considered an indirect tax on the sale, transfer, or consumption of that good. If it is considered a direct tax, more like income taxes for example, then it will violate GATT. It seems like a scope 3 transport emissions BTA can be considered an indirect tax, either of sale or transfer. Transfer seems ideal, as the transport CBTA likely would assess an extra duty upon importing the good based on the transport emissions involved in its journey. The tax should be described and calculated as based on the share of transport emissions the goods in question are responsible for, making it more likely to be considered an indirect tax.⁴² Tying the cost of the tax to the actual or estimated transport emissions used, and assessing a tax based on the proportion of emissions that good is responsible for will make it seem less like a direct tax on ownership or production. The next challenge is demonstrating that the BTA is assessing duties on “like” imports. For a TECPI, this will mean assessing like costs on like fuels, regardless of whether they were emitted from a domestic producer or an importer.

The first step to creating a WTO-compatible BTA on this issue would be to ensure domestic producers are also paying for their transport emissions. Otherwise, it will be essentially impossible to argue that “like” taxes are being imposed on “like” products. If both domestic and importing producers are subject to taxes on their transport emissions, the challenge then becomes ensuring “like” costs are truly being imposed on “like” products. Here, this means like types of fuels and modes of transportation are charged alike. For example, an importing cargo ship burning diesel fuel should be assessed a duty that is “like” domestic ships burning the same fuel. The core of the problem is if the transport CBTA attempts to charge taxes based on varying fuel efficiencies between “like

³⁸ General Agreement on Tariffs and Trade (GATT), art. 2 (1994).

³⁹ See, e.g., Pauwelyn, J. (2012), “Carbon Leakage Measures and Border Tax Adjustments under WTO Law,” in Prevost, D. and Van Calster, G. (eds.), *Research Handbook on Environment, Health, and the WTO*, Edward Elgar, 2012, www.ssrn.com/abstract=2026879.

⁴⁰ Hillman, *supra* note 37, at 6.

⁴¹ *Id.*

⁴² *Id.* at 8.

fuels” used in transportation. This is just to say it would be taxing the carbon emitted by these fuels, and if some fuel is more efficient than its counterparts, it will emit less and thus possibly pay less. Doing so may help demonstrate that foreign and domestic producers are being charged the same rates based on fuel type and consumption, but it raises WTO problems. Some argue that these distinctions can never be made between “like” products.⁴³ Doing so violates the WTO’s non-discrimination principle, an argument that surely will be brought by opponents. In other words, they argue you cannot differentiate between high-and-low fuel efficiency gasoline, even though the former emits far less GHGs than the latter. This view seems unlikely to pose serious problems for a transport CBTA. This is because the transport carbon tax and its corresponding CBTA would likely apply the identical rate to domestic and imported products. Past WTO decisions finding violations of the non-discrimination principle did so when different tax rates were applied to “like” products.⁴⁴ Here, the same rate would always be applied. Different importers would simply be paying for whatever carbon they emitted, as calculated with that rate.

The second step under either Article II.2 or III.2 is to show that the transport duties assessed by the BTA are no greater than carbon taxes applied to “like” domestic products. As noted above, this means the same mode of transportation burning the same type of fuel must be assessed transport costs in the same way. This will likely turn almost entirely on the methodology used to assess transport emission duties. If it can be shown that the transport costs assessed are not greater than those assessed on domestic producers, it should survive WTO challenge. The methodology must accordingly show that “the tax on the domestic product and its corresponding BTA were determined on a fair and objective basis that relates to the specific products being taxed and not their national origin.”⁴⁵ Otherwise, it will be incredibly difficult to survive a challenge arguing the BTA violates the non-discrimination principle. Ideally, a TECPI would have the capacity to calculate the *actual* share of transport emissions a given good is responsible for. This requires knowing the amount of carbon emitted during transportation, and a calculation of the proportion a given good is responsible for, likely based on surface area and weight. Different goods would thus be charged different amounts, but they would be paying the same rate. The differences in the transport carbon tax amounts would reflect the carbon emitted, not any bias or hidden protectionism. Unfortunately, this is likely administratively impossible. Many transporters domestically and abroad lack the capacity to calculate their own transport emissions, let alone the proportionate responsibility of a single good. A TECPI accordingly requires “an alternative means to set the carbon content of an imported good if companies, importers, or countries were unwilling or unable to provide the necessary data.”⁴⁶ The best option is probably to “assume that the carbon content of the imported product is equal to the carbon content of the like product produced by the ‘predominant method of production’ or even the ‘best available technology’ in the United States.”⁴⁷ For transportation emissions, this may look something like determining average rates of carbon emission based on mode of transportation, weight and size of cargo, the fuel type used, and the distance traveled. Companies that can demonstrate they are using modes of transportation or fuels that are less carbon-intensive than transportation

⁴³ *Id.* at 8.

⁴⁴ *Id.*

⁴⁵ Hillman, *supra* note 37, at 8.

⁴⁶ *Id.*

⁴⁷ *Id.* at 8.

averages can still pay a lower BTA under this system. In this way, importers are given a choice: do not provide the necessary GHG information and pay essentially an estimated duty on their emissions or produce data showing they produced less than the average transport usually does when making that journey and pay a lower BTA.

One possible response to challengers arguing a carbon BTA violates the non-discrimination principle is worth noting. The idea that “like” products cannot be charged different amounts is not true. Examples of other measures such as ad valorem taxes feature calculations based on the underlying value of the asset. This is true for some countries with importing gasoline, for example.⁴⁸ The result is that “like” products will be charged different rates based on their underlying value and based on a common methodology. The same basic premise applies to carbon: instead of charging differing amounts based on value, like products will sometimes be charged differing amounts based on the underlying carbon emitted. Just as public tax assessors are used to determine value of certain assets for taxation purposes, so too could public carbon tax assessors make the necessary estimates of carbon emissions. So at least on this point, it seems like the challengers will fail.

As explained above, a TECPI implementing a transport emission BTA seems likely to survive WTO challenges under either Art. II.2 or III.2. These challenges are nearly inevitable. Challengers will probably make most of the arguments previously referenced: the BTA is not an indirect tax on production within the meaning of GATT; it violates WTO rules to assess different BTAs to “like” products, regardless of differences in transport carbon emissions; and that the BTA violates the MFN principle and is really trade protectionism in disguise. While these challenges are surmountable by a well-designed TECPI, it is possible challengers succeed in making these arguments. There is still an option if this outcome occurs: Article XX of GATT and its chapeau.

Article XX contains several exceptions to the applicability of GATT rules. The two of most relevance here are “paragraphs (b) and (g) of Article XX, which permit WTO members to adopt policies that are inconsistent with GATT disciplines, but necessary to protect human, animal, or plant life or health (paragraph (b)), or which relate to the conservation of exhaustible natural resources (paragraph (g)).”⁴⁹ For either exception, proponents “must show 1) that its carbon tax scheme along with the corresponding BTA falls under at least one of the two exceptions (either (b) or (g)); and 2) that the carbon tax/BTA system satisfies the introductory paragraph (the ‘chapeau’) of Article XX, which requires that the BTA not be applied in a manner that would constitute ‘a means of arbitrary or unjustifiable discrimination between countries where the same conditions prevail’ and is not ‘a disguised restriction on international trade.’”⁵⁰

Under exception (b), the specific questions are: “1) whether the policy for which the provision was invoked falls within the range of policies designed to protect human, animal, or plant life or health and 2) whether the application of the measure... to imports was ‘necessary’ (here, to prevent carbon leakage).”⁵¹ It seems both requirements can be rather easily met. Reducing carbon emissions will be critical to avoiding the most catastrophic

⁴⁸ Taxes on the import and export of natural gas, Thomson Reuters (2019), [https://uk.practicallaw.thomsonreuters.com/1-524-3130?transitionType=Default&contextData=\(sc.Default\)&firstPage=true](https://uk.practicallaw.thomsonreuters.com/1-524-3130?transitionType=Default&contextData=(sc.Default)&firstPage=true).

⁴⁹ Hillman, *supra* note 37, at 9.

⁵⁰ *Id.* at 9-10.

⁵¹ *Id.* at 10; see *Appellate Body Report on US-Gasoline*, p. 16.

potentialities of climate change.⁵² Using a TECPI to account for trade transport emissions can contribute to that goal and possibly save lives. It seems that a TECPI could at least fit under this exception.

For exception (g), the TECPI must be shown to relate to the conservation of natural resources. It seems this is just as viable of an exception for a TECPI. Although it is a bit indirect, creating a price for transport carbon emissions will hopefully lead to the reduction of GHG emissions overall. Even reducing specifically transport emissions can have large benefits for the climate. Doing so could do things like help slow the destruction of oceans, and in a broader sense, cut down on the emissions that are slowly causing entire tracts of land to sink under water.

The first step is satisfied rather easily for either exception. Precedent under both exceptions has found things like policies aimed at reducing cigarette consumption, protecting marine life, and reducing risks to plant, animal, and human health from toxic sources like burning tires.⁵³ Much more difficult is satisfying step two of the test: that the BTA is applied in a manner that would not constitute “a means of arbitrary or unjustifiable discrimination between countries where the same conditions prevail” and cannot be “a disguised restriction on international trade.”⁵⁴ The arguments from challengers that a transport BTA is really just trade protectionism in disguise will have particular force here. This problem is acute for transportation considering domestic producers will consistently emit less carbon and thus pay less of a tax than importers subject to the BTA. A proponent of well-designed TECPI following the principles articulated above should be able to show that the purpose is to reduce transport emissions, not to benefit domestic trade. Proving this point will at minimum require designing a TECPI that assesses the same rates to domestic and importing producers. If there is a BTA with no corresponding and equivalent carbon pricing system – be it cap-and-trade, a tax, or something else – the BTA will almost certainly be found in violation of WTO rules. As proposed, however, it has a real chance of surmounting even the difficult part-two Article XX test.

In sum, a transport BTA has a strong chance of surviving WTO challenges. Whether it may ultimately succeed will first hinge on threshold questions like whether the BTA is an indirect tax and whether it can assess different duties on “like” products emitting at different rates, but it will be decided based on the actual design and methodologies used to assess differing BTA costs based on emissions.

III. IMPLEMENTATION CHALLENGES

The implementation challenges have been roughly grouped into policy, legal, and political challenges. These categories are intertwined and will require solutions that address most of them. Each set of challenges will be discussed in turn.

A. Policy challenges

An important threshold question is perhaps the most basic policy question: on balance, is implementing a TECPI worth it? One commentator concluded that the

⁵² See *id.*

⁵³ *Id.* 10; see, e.g., WTO Appellate Body Report, *Brazil – Measures Affecting Imports of Retreaded Tyres* (“Brazil-Retreaded Tyres”), WT/DS332/AB/R, adopted December 17, 2007; GATT Panel Report, *Thailand – Restrictions on Importations of and Internal Taxes on Cigarettes* (“Thailand Cigarettes”) DS10/R, adopted November 7, 1990, BISD 37S/200; GATT Panel Report, *United States – Restrictions on Imports of Tuna* (“US – Tuna (Mexico)”), DS21/R, September 3, 1991, unadopted, BISD 39S/155; GATT Panel Report, *United States – Prohibition of Imports of Tuna and Tuna Products from Canada* (“US – Canadian Tuna”), L5198, adopted February 22, 1982, BISD 29S/91.

⁵⁴ GATT Art. XX.

benefits of a CBTA would be too small to justify their administrative complexity or their deleterious effects on international trade and the potentially damaging consequences for the robustness of the global trading system.”⁵⁵ The overall evaluation of its impact is mixed, but most commentators advocate for a CPI – be it a cap-and-trade or carbon tax – with an accompanying CBTA. Some predict that while the overall impact of a TECPI on the mode of transportation for goods will not be hugely significant because options are limited in many situations, but such measures “can lead to increased research activity and adaptation of more efficient technologies within transportation modes and various sectors of the economy.”⁵⁶ Others dispute this, arguing that CPIs can encourage shifts from ground shipping to maritime transport, for example.⁵⁷ In either event, the TECPI is worth implementing. Even if it only changes some modes of transportation, wherein emission-intensive transport is substituted for less-intense or sustainable transport, implementing this policy will have several additional benefits. As illustrated above, a transport TECPI can help better reflect the true cost of carbon in goods, send price signals, incentivize efficiency, green innovation, and more.

The benefits of TECPI do not answer the related question of whether it makes economic sense. Will imposing the carbon costs of transport on importers under a CBTA be worthwhile? The answer seems to be yes, but there are costs. One study found that a CBTA “would be significant in reducing carbon leakage,” but it also found “there are considerable economic costs associated with doing so.”⁵⁸ Both EU imports and exports fell in their analysis, which “induces a loss of competitiveness on the European market as well as on third markets.”⁵⁹ It also asserts that its model predicts that the taxing EU country will be “extracting rent” from the exporting country in the form of a financially advantageous trade relationship, making its acceptance by other WTO members another challenge.⁶⁰ This prognosis is not to suggest implementing the ETS is not worthwhile, just that there are considerable economic costs. The costs are also disputed, as other commentators argued the economic costs would be small but acute.⁶¹ CO₂ intensive sectors will feel significant effects, and firms that trade globally will face a loss of competitiveness.⁶²

Another study found that the EU’s CBAM would help avoid carbon leakage, but it would do little to reduce global carbon emissions – only about a 0.1% estimated drop.⁶³ This slightly misses the point. A regional bloc like the EU adopting the ETS is unlikely to significantly reduce global emissions, but it has the effect of lowering regional emissions, and hopefully encouraging other states to imitate their ETS regime. The more states adopt

⁵⁵ Warwick McKibbin & Peter J. Wilcoxon, *The Economic and Environmental Effects of Border Tax Adjustments for Climate Policy*, Brookings Trade Forum, at 2 (2008-09).

⁵⁶ Misak Avetisyan, *Impacts of global carbon pricing on international trade, model choice and emissions from international transport*, 76 ENERGY ECON. 532, 533 (2018).

⁵⁷ *Id.*

⁵⁸ Cecilia Bellora & Lionel Fontagne, *The EU in search of a WTO-compatible Carbon Border Adjustment Mechanism*, VOX EU (Mar. 26, 2022), <https://voxeu.org/article/search-wto-compatible-carbon-border-adjustment-mechanism>.

⁵⁹ *Id.* This is especially the case because the EU ETS examined here would make goods more expensive even if they were intermediaries in the EU supply chain.

⁶⁰ *Id.*

⁶¹ M.J. Blom, B.E. Kampman & D. Nelissen, *Price effects of incorporation of transportation into EU ETS*, CE DELFT, at 8, (2007).

⁶² *Id.*

⁶³ *Id.*

TECPIs to avoid carbon leakage, the more global emissions can be expected to tick down. In sum, there will be some economic shocks associated with implementation, but none that counsel against its implementation in general. The policy objectives will be sufficiently met to justify implementing a TECPI.

B. Legal challenges

As mentioned above, WTO contracting parties are almost certain to bring challenges to any ETS regime that includes a transport CBTA. The very proposal of a CBTA by the EU led Brazil, China, India, and South America to express “grave concern” about the CBTA and declared it to be trade protectionism in disguise that will discriminate against their products.⁶⁴ These political statements likely predict the future legal challenges that will be brought. In short, they are likely to argue the state implementing their transport CBAM is discriminating against them based on the national origin of their products. They also are likely to argue that what is being framed by the implementing state as a necessary measure to fight climate change is in fact trade protectionism in disguise. As explained above, these challenges are rebuttable by the implementing state. These arguments are nonetheless strong, as the CBTA at least superficially looks like imposing different taxes on goods based on their national origin. A CBTA that is well-designed and well-executed is nevertheless likely to survive these legal challenges.

C. Political challenges

Resolving the legal challenges of course does not resolve the political challenges surrounding implementation of CBTAs. Because this paper focuses on the international and trade implications of a CBTA, it will focus on challenges to multilateral implementation. States implementing a CBTA will desire other states to accept it and hope to avoid triggering trade conflict over its implementation. Politically, states have very differing views on climate change and the best policy responses. When it comes to market-based solutions like a cap-and-trade system, states also can have differing economic incentives. These dynamics are explored below, with somewhat surprising results.

States such as China, India, and Brazil have already made their suspicion of CBTAs – and the EU’s CBAM in particular – known. The United States has not been as outspoken, but it is almost certain to resist its implementation. As is the case with many other things, gaining increased acceptance of CPIs, particularly CBTAs, may depend less on solid policy arguments and more on state calculations of self-interest. States will be reluctant to join a system that they feel benefits rivals or neighbors more. One study examined international freight transport GHG emissions and discovered the relative positions of states in a multilateral CBTA world are different than expected. The difference maker is less about which countries export the most goods, as might be expected, and more about which countries use the most emission-intensive modes of transport. CBTA opponents like China and India are only estimated to have “14 percent of their export emissions come from transport, while transport is responsible for 66 percent of U.S. export emissions due to substantial use of air cargo.”⁶⁵ This, despite India’s production of traded goods having “143 percent more emissions than the U.S. per dollar of trade, but after incorporating transportation, its exports are less emission intensive in total.”⁶⁶ The difference is due to

⁶⁴ Joe Lo, “Emerging Economies Share ‘Grave Concern’ over EU Plans for a Carbon Border Tax,” *Climate Home News*, April 9, 2021.

⁶⁵ *Id.*

⁶⁶ *Id.* at 23.

the United States' "unusually large reliance on air cargo" for exports, resulting in export emission levels that are "nearly eight times more intensive than the transportation of Chinese goods, and six times more emission intensive than Europe."⁶⁷ The U.S.'s exports are far more emission-intensive than its imports, while the reverse is true for export-heavy countries like China and India. Two important implications emerge. First, the U.S. urgently needs to wean off its addiction to air cargo for its exports. In this sense, it stands to greatly benefit from a CBTA. Secondly, the fact that other states applying a CBTA to U.S. transport emissions on imports will cause serious price increases suggests the U.S. will vehemently oppose its implementation. The upside would be possibly cajoling the U.S. into implementing a CBTA of its own, but it risks sparking a trade war with the world's richest nation. Doing so may cause more harm than good and set back the multilateral implementation of ETS regimes years. This reality does not caution against implementing a CBTA, just that it be done gradually.

Another political implementation issue is the possibly negative economic effects a transport CBTA would have on developing nations. The central concern is that a CPI will contribute to rising fuel and other prices that will increase poverty in developing nations.⁶⁸ Doing so could even enhance the WTO compatibility of the TECPI, as it would suggest the country implementing the TECPI is genuinely trying to combat climate change, not protect their domestic industries.⁶⁹ Fortunately, one study found that "on average, carbon pricing can be expected to display progressive effects on the income distribution in poorer countries, while having regressive effects in richer countries (with per capita incomes of above roughly USD 15,000)."⁷⁰ The precise economic effects are unclear. Regardless, there may be a need to make exceptions or otherwise differentiate between the obligations of developed and developing countries to pay for all their transportation-related carbon emissions. This could be through applying a free allowance system to all states, the U.S. and developing nations alike, or designing tailored allowances for developing countries. All these measures must think of the effects of even relatively modest price increases on those who will feel any economic shocks from the policy most severely.

IV. DESIGNING A VIABLE TRANSPORT ETS

This article has identified and discussed the various opportunities and implementation challenges offered by a TECPI. The final section will bring some of these considerations together and briefly propose a design for a TECPI that satisfies all the necessary legal, policy, and political criteria. There are no simple solutions to recalcitrant states, but it is hoped this basic design is at least feasible for states interested in implementing a similar carbon pricing regime.

The challenge in implementing a transport is less about doing so domestically. The challenge is implementing a WTO-Compatible CBTA in addition to the domestic CPI. The domestic CPI itself can largely follow the EU's ETS model, or assess a carbon tax as states like California do, with transport creating few complexities outside of the data gathering and analytical difficulties previously discussed. For the CBTA, the core elements of the EU's proposed CBAM can be applied to transport. "The first step in computing a carbon-tax BTA on a given import would be to determine the total amount of fossil energy

⁶⁷ *Id.* at 22.

⁶⁸ Ira Irina Dorband, Michael Jakob, Matthias Kalkuhl & Jan Christoph Steckel, *Poverty and distributional effects of carbon pricing in low- and middle- income countries*, 115 *WORLD DEV.* 246, 246 (2018).

⁶⁹ Hillman, *supra* note 42, at 12.

⁷⁰ *Id.* at 250.

that was used directly or indirectly in the production of the good.⁷¹ Determining the total amount of carbon emissions produced in the transportation of a good should be based on the hybrid environmental accounting models discussed *infra*. This is a work-in-progress, particularly for the rail and trucking sectors. States, international organizations, and academics should turn their attention to how to better account for these emissions. Because the CBTA is targeting countries outside of the CPI, it is reasonable to assume some trading partners will lack the capacity to determine their own transport GHG emissions. Giving importers the option of either presenting their own emissions transport data or else relying on averages based on default calculations for the given mode of transportation, fuel type, and distance traveled could be employed.⁷² Ideally, some of this data could be produced by international organizations, perhaps adding a degree of independence and legitimacy to what will be a politically contentious implementation.

The EU's "Fit for 55" proposal also suggests that the addition of transport and maritime emissions be part of a new, separately operating ETS. This will be the case with its accompanying CBAM as well.⁷³ This decision seems sound and should be taken by other countries who have existing CPIs in place or are considering adopting one. The basic rationale for this bifurcation of CPIs is that a separate TECPI is likely to be more effective than if transport emissions were simply added to the existing CPI. The fear is that doing so would distort the market for allowances. The downside of this separation is that the TECPI may "create significant additional burdens and distributional effects both within a country and between countries."⁷⁴

In the EU context, this suggests that policies to help poor member states are necessary. Policies such as direct payments or other funds are pointed to as possible solutions.⁷⁵ Funds can be used from the revenue generated from the emissions taxes to provide funding. This suggestion should be taken seriously by any state considering implementing a TECPI. A separate but related issue is guarding against unexpected price increases in the transport allowance market. These concerns are especially acute if the TECPI being implemented does not allow for free allowances. Free allowances are preferable despite their propensity to hinder the TECPI lowering emissions because of the likely political backlash. It is difficult to foresee a major economy announcing it is implementing its own TECPI without offering some concessions, such as gradually phasing out free allowances. Additionally, a failsafe mechanism that can provide price controls or reserve allowances to make sure the price of carbon is not too high. Either or both safeguards can be used to protect the most vulnerable constituencies.

This proposed TECPI design is not perfect, but it should be feasible relative to more robust options. It nonetheless would have the potential to have a significant impact on reducing trade-related transport emissions in the coming decades. The EU's proposal and likely subsequent implementation of its proposed regime will serve as a critical case study.

⁷¹ Warwick McKibbin & Peter J. Wilcoxon, *The Economic and Environmental Effects of Border Tax Adjustments for Climate Policy*, Brookings Trade Forum 9 (2008-09).

⁷² See Dolf Gielen, Massamba Thiye & Francisco Boshell, *CBAM needs universal adoption of methods for measuring carbon intensity*, at 3, Energy Post (Aug. 31, 2021), energypost.eu/cbam-needs-universal-adoption-of-methods-for-measuring-carbon-intensity/.

⁷³ *Id.*

⁷⁴ Cristina Urrutia, Jakob Graichen & Anke Herold, 2030 climate target plan: extension of European Emission Trading System (ETS) to transport emissions, European Parliament (2021), at 11.

⁷⁵ *Id.*

V. CONCLUSION

The central aim of this article has been to propose possible solutions to the various implementation challenges surrounding a TECPI. Perhaps above all else, the discussion indicated the urgent need for better data and statistical modeling. The implementation challenges are considerable on all fronts, but without more reliable measurements of emissions by fuel type and mode of transport, the core of the TECPI cannot function. Fortunately, attention by a state, a group of states, or a coalition of states and international organizations could likely have success in generating useful data. What is needed at present is commitment of resources to the issue. Countries considering implementing similar carbon pricing regimes in the coming years should be careful to ensure its design comports with WTO law and is tailored to the needs of its most vulnerable constituencies and possibly even trading partners. Bold action is needed, but political tact must accompany it. Especially when it comes to the U.S., its aviation emissions both must be included in other countries' CPIs and may ultimately become a confrontation if the U.S. is resistant. This and other conflicts regarding strategic trading positions will complicate implementation, but it is hoped they are not insurmountable. In sum, a TECPI is a viable and important policy options for states.

CHAPTER 5: A CASE FOR THE EXEMPTION OF LEAST DEVELOPED COUNTRIES UNDER THE EUROPEAN UNION'S CARBON BORDER ADJUSTMENT MEASURE AND SIMILAR MEASURES

ABBY MORENIGBADE

This paper argues that there should be an exception in the EU CBAM and other similar measures for Least Developed Countries who are climate vulnerable, have exported CBAM sector goods to the EU in the past, and whose efforts to adapt to and mitigate climate change would be hurt by a CBAM levy. It argues that such exceptions should be modeled after the EU's Generalized Scheme of Preferences which is exempted from MFN conformity based on the enabling clause and which also has robust rules of origin.

INTRODUCTION

There is no doubt that climate change has had, and will continue to have significant environmental, social and economic impacts on communities around the world. However, some populations around the world, especially those in developing countries, are being disproportionately impacted in comparison to their counterparts in developed countries.

Because of the worldwide impact of climate change, the Paris Climate Agreement requires that each country set its own emissions reduction plans in line with the shared goal of limiting the increase in average global temperature to "well below" 2 degrees Celsius above pre-industrial levels (3.6 degrees Fahrenheit), while "pursuing efforts to limit the temperature increase to 1.5 C [2.7 F]." As a result, different countries and regions are putting measures in place such as Cap and Trade Programs and Border Carbon Adjustments in an attempt to reduce their greenhouse gas emissions. One such region is the European Union (EU) which hopes to implement a Carbon Border Adjustment Mechanism starting in 2026, with a transition period starting in 2023. This paper has three parts. Part 1 of the paper examines the relevant legal instrument, the EU Emissions Trading System and CBAM, as well as a Mozambique Case Study. Part 2 of the paper argues that Least Developed Countries (LDCs) who are climate vulnerable, have exported CBAM sector goods to the EU in the past, and whose efforts to adapt to and mitigate climate change would be hurt by a CBAM levy should be exempted from the CBAM. Part 3 of the paper examines whether there are legal arguments under international climate change law, and trade rules for the EU to contribute its revenues to LDCs, as well as moral arguments.

PART I

Legal Instruments on Climate Change

In 2016, the Paris Agreement came into force to become the most recent international treaty for the parties to the United Nations Framework Convention on Climate Change (UNFCCC). Currently, 192 countries and the European Union (EU) are Parties to the treaty.¹ One of the main goals of the Paris Agreement is to limit global warming to well

¹ *Paris Agreement - Status of Ratification*, United Nations Climate Change. <https://unfccc.int/process/the->

below 2, while “pursuing efforts” to keep it to 1.5 degrees Celsius, compared to pre-industrial levels.² Before the Paris Agreement, there was the United Nations Framework Convention on Climate Change (UNFCCC) and the Kyoto Protocol. The UNFCCC entered into force in March 1994, with the main objective of stabilizing greenhouse gas concentrations in the atmosphere “at a level that would prevent dangerous anthropogenic interference with the climate system.”³ Although the UNFCCC has near universal participation with 196 parties, the parties did not define the legal obligations that would help countries achieve this objective; this led to the negotiation and ultimate adoption of the Kyoto Protocol in 1997.⁴ Both the UNFCCC and the Kyoto protocol took the approach of separating countries into two categories (Annex I and Annex II) where one category of rich developed countries were responsible for mitigating the effects of human activities, and the others were not.⁵ As a result of this differentiation, major emitters such as the United States, and China were not parties to the Kyoto Protocol and only 12% of global emissions was covered.⁶ However, the Paris Agreement does away with this approach and is characterized by a more universal and bottom-up approach. In this approach, both developed and developing are responsible for pursuing efforts to limit temperature increase and instead of setting one specific goal for all Parties, Parties have the opportunity to submit their own national targets and instruments in the form of nationally determined contributions (NDCs). In November 2021 at the 26th United Nations Climate Change conference (COP26) was held in Glasgow, and there the parties adopted the Glasgow Climate Pact. Some of the ways the pact seeks to address reduction of GHG emissions are through asking Parties to revisit and strengthen their individual emissions reduction target “as necessary to align with the Paris Agreement temperature goal by the end of 2022, taking into account different national circumstances.”⁷ With regard to developed countries’ failure to support developing countries through climate financing, the Pact “notes with deep regret that the goal of developed country Parties to mobilize jointly USD 100 billion per year by 2020 in the context of meaningful mitigation actions and transparency on implementation has not yet been met.”⁸ Consequently, it urges the developing countries to fully deliver on their promise, which was made in 2009 at COP15, to provide \$100 billion a year to developing countries.⁹

paris-agreement/status-of-ratification.

² *The Paris Agreement: What is the Paris Agreement?*, United Nations Climate Change, <https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement#:~:text=The%20Paris%20Agreement%20is%20a,compared%20to%20pre%2Dindustrial%20l evels>.

³ *What is the United Nations Framework Convention on Climate Change?*, United Nations Climate Change, <https://unfccc.int/process-and-meetings/the-convention/what-is-the-united-nations-framework-convention-on-climate-change#:~:text=The%20ultimate%20objective%20of%20the,ecosystems%20to%20adapt%20naturally%20to>.

⁴ Susanne Droege et. al., *The Trade System and Climate Action: Ways Forward under the Paris Agreement*, S.C.J. INT'L & BUS. (2016) <https://heinonline.org/HOL/P?h=hein.journals/scjilb13&i=216>.

⁵ *Parties & Observers*, United Nations Climate Change, <https://unfccc.int/parties-observers>.

⁶ *Parties*, United Nations Climate Change https://unfccc.int/process/parties-non-party-stakeholders/parties-convention-and-observer-states?field_national_communications_target_id%5B515%5D=515&field_partys_partyto_target_id%5B512%5D=512.

⁷ *Glasgow Climate Pact: Advanced Unedited Version*, https://unfccc.int/sites/default/files/resource/cop26_auv_2f_cover_decision.pdf.

⁸ *Id.*

⁹ *Id.*

Relevant WTO Rules

Although countries have pledged climate actions that vary in scope, nature and ambition, one thing that some NDCs have in common is that they envision trade and trade measures playing a role in the implementation of their efforts to mitigate and adapt to climate change impacts. For instance, in 2017 more than 70 NDCs directly referenced trade or trade measures.¹⁰ Some of these trade measures included the use of standards or labeling, lowering trade barriers to contribute to climate change mitigation, regulation of the importation of electric appliances, and regulation or banning importation of old or inefficient vehicles, fossil fuel subsidy reform, and a potential ban on exporting timber from protected areas.¹¹ It is worth noting that the countries that are biggest emitters and exporters of embedded carbon did not explicitly refer to the reduction of trade barriers in their NDCs.¹² Additionally, only 22% included measures that are explicitly geared towards climate change mitigations.¹³ Consequently, the World Trade Organization (WTO) has a significant role to play in the inclusion of trade measures in NDCs geared specifically towards mitigation as well as the global implementation of NDCs under the Paris Agreement. The WTO rules should also not act as a barrier to achieving net zero emissions. The WTO was created on January 1st, 1995. Prior to its creation, the General Agreement on Tariffs and Trade (GATT) governed, and, because it was incorporated into the WTO, continues to govern the trade of goods. In addition to the GATT, there are now other WTO agreements that cover broad areas of trade such as services and intellectual property; dispute settlement; and reviews of governments' trade policies. Despite having several agreements, none of these agreements explicitly discuss climate change. However, the organization claims that "the goals of sustainable development and environmental protection are central to the WTO, as captured in the preamble to its founding charter, the Marrakesh Agreement."¹⁴

European Union Emissions Trading System

In the past several years, countries and regions around the world have introduced different unilateral and multilateral approaches for tackling the problem of climate change. Carbon pricing is one such approach, and is the act of putting a price on the amount of carbon dioxide (CO₂) emitted in order to shift the burden for the external cost of greenhouse emissions back to emitters and thus encourage them to replace fossil fuels with renewable energy.¹⁵ As of 2020, more than 64 carbon pricing initiatives have been implemented or were scheduled for implementation globally.¹⁶ This illustrates recognition of the importance of placing a price on carbon as a way to reduce GHG emissions. At the

¹⁰ Clare Brandi, *Trade Elements in Countries' Climate Contributions under the Paris Agreement*, International Centre for Trade and Sustainable Development, 31 (2017) <https://euagenda.eu/upload/publications/untitled-81229-ea.pdf>.

¹¹ *Id.* at 13-15, 31.

¹² *Id.* at 13.

¹³ *Id.* at 31.

¹⁴ *Trade and Climate Change*, World Trade Organization, https://www.wto.org/english/tratop_e/envir_e/climate_intro_e.htm.

¹⁵ *Carbon Pricing Dashboard*, The World Bank <https://carbonpricingdashboard.worldbank.org/what-carbon-pricing>.

¹⁶ Jiarui Zhong et. al., *Beggar thy neighbor? On the competitiveness and welfare impacts of the EU's proposed carbon border adjustment mechanism*, 162 ENERGY POLY (2022), . https://www.sciencedirect.com/science/article/pii/S0301421522000271?casa_token=zCRexFYQteoAAAAA:LHjJqStRg5btJd3NkED0l260l5Qpw5xT8PNGjwjnJlxWGXSQkMIOMXZk7t4Fb-37ZRTuv-7SXC.

same time however, there is a carbon price dispersion among regions around the world and this clouds the possibility of having a global market. There are various types of carbon pricing but only the Emissions Trading System will be discussed in this paper.

Originally launched in 2005, the European Union's Emissions Trading System (EU ETS) is the first international emissions trading system in the world.¹⁷ The ETS creates a financial incentive for emitters within the EU to cut back on their emissions by using a 'cap and trade' system. The cap and trade system is designed to reduce greenhouse gas emissions and fight climate change by setting a cap on the total volume of GHG emissions from installations (companies) and aircrafts that are responsible for around 50% of EU GHG emissions.¹⁸ A fixed number of emission allowances, known as European Union Allowances (EUA), are issued each year and companies that are covered under the EU ETS need to hold allowances for every tonne of CO₂ they emit in one calendar year.¹⁹ If a company does not have enough allowances to cover its emission it risks facing significant fines. Companies can avoid fines by reducing their emissions so that they do have enough allowance, or by buying allowances on the market from other companies who emit less and thus have leftover allowances to sell. The EU ETS allows the trading of allowances so that the total emissions from the companies can stay within the cap and the least-cost measures can be used to reduce GHG emissions.²⁰ The EU ETS covers 11,000 companies in the EU member nations, as well as in Norway, Iceland and Liechtenstein.²¹ The goal is that over time, the cap will be reduced, fewer allowances will be issued, the allowances will become more expensive, and companies will be incentivized to create cleaner production.²²

Between 2013-2020, the EU allocated 57% of emissions allowances through auctions.²³ The total revenue generated from auctions between 2012 and June 2020 exceeded EUR 57 billion.²⁴ According to the EU ETS Directive, Member States should use at least 50% of the revenues from auctions for climate and energy purposes.²⁵ However, prior to auctioning allowances, most allowances were given for free to ensure that the regulated industries remained competitive and to avoid carbon leakage.²⁶ Although the EU has proposed a revision of the ETS to address several deficiencies, the allocating of free allowances to certain industries has been one of the biggest criticisms of

¹⁷ *EU Emissions Trading System (EU ETS)*, https://ec.europa.eu/clima/eu-action/eu-emissions-trading-system-eu-ets_en.

¹⁸ *EU ETS Handbook*, 14 https://ec.europa.eu/clima/system/files/2017-03/ets_handbook_en.pdf.

¹⁹ <https://www.cleanenergywire.org/factsheets/understanding-european-unions-emissions-trading-system>
²⁰ *Id.*

²¹ *Understanding the European Union's Emissions Trading System (EU ETS)*, Dutch Emissions Authority <https://www.emissionsauthority.nl/topics/emissions-trading-in-europe>.

²² James Bacchus, *Legal Issues with the European Carbon Border Adjustment Mechanism*, CATO Institute (2021) <https://www.cato.org/briefing-paper/legal-issues-european-carbon-border-adjustment-mechanism#background>

²³ *Auctioning revenues and their use*, European Commission https://ec.europa.eu/clima/eu-action/eu-emissions-trading-system-eu-ets/auctioning_en#:~:text=In%202019%20alone%2C%20the%20generated,climate%20and%20energy%2Drelated%20purposes.

²⁴ REPORT FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT AND THE COUNCIL, Report on the functioning of the European carbon market, https://ec.europa.eu/clima/eu-action/eu-emissions-trading-system-eu-ets/auctioning_en#:~:text=In%202019%20alone%2C%20the%20generated,climate%20and%20energy%2Drelated%20purposes.

²⁵ *Id.*, <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52020DC0740>.

²⁶ *Free allowance allocation in the EU ETS*, https://cadmus.eui.eu/bitstream/handle/1814/46048/RSCAS_FSR_PB_2017_02.pdf?sequence=1&isAllo wed=y.

the EU ETS.²⁷ During Phase I and II of the initiative, most of the industries received free allowances, and even now, some industries still receive free allowances.²⁸ Environmentalists have been critical of the free allocations because not only do they decrease the incentive for companies to emit less carbon, some companies have profited immensely from the over-allocation of free allowances between 2008-2019.²⁹ Additionally some have pointed out that the price of emissions allowances has been too low to act as an incentive for companies to invest in emission reductions.³⁰

The European Carbon Border Adjustment Mechanism (CBAM)

On July 14th, 2021 the European Commission introduced the Carbon Border Adjustment Mechanism (CBAM) as part of the “Fit for 55” package.³¹ The Fit for 55 package refers to a set of proposals to update EU legislation and establish new initiatives that are in agreement with the climate goals of the European Council and the European Parliament. Fit for 55 itself refers to the EU’s goal of reducing net greenhouse gas emissions by at least 55% by 2030., compared with 1990 levels.³²

The EU CBAM is a climate measure that puts a carbon price on EU imports that have not been produced under similar emission standards to the EU’s standards.³³ In the initial stages, carbon intensive goods that are at a high risk of carbon leakage such as iron and steel, cement and fertilizers, aluminum, and electricity generation will be subject to the fees. These goods are at a high risk of carbon leakage because domestic producers of these goods within the EU are currently subject to the EU ETS system which puts them at a disadvantage when compared to foreign producers of the same goods who are not subject to any form of carbon pricing.

Consequently, there is the concern that producers of carbon intensive goods in the EU will move production to countries that do not tax GHG emissions or import more rather than produce in the EU. Companies exporting carbon intensive goods to the EU will be required to purchase CBAM certificates which will be surrendered by May 31st of each year.³⁴ The price of the certificate will be calculated “as the average price of the closing prices of EU ETS allowances on the common auction platform in accordance with the procedures laid down in Commission Regulation.” Currently the price of Carbon in the EU is €100 per ton, the highest it has ever been. Unlike the allowances under the ETS, CBAM certificates cannot be traded between importers, they can only be bought and sold back to the appropriate authorities. The hope is that the CBAM will level the

²⁷ *EU must stop subsidising polluters with hundreds of billions in free emissions allowances, green groups demand*, <https://carbonmarketwatch.org/2021/12/17/eu-must-stop-subsidising-polluters-with-hundreds-of-billions-in-free-emissions-allowances-green-groups-demand/>.

²⁸ *Id.*

²⁹ *Additional profits of sectors and firms from the EU ETS 2008-2019*, https://carbonmarketwatch.org/wp-content/uploads/2021/06/CE_Delft_Additional_Profits_ETS.pdf.

³⁰ “The EU Emission Trading Scheme: The Price Ain’t Right” <https://www.bard.edu/cep/blog/?p=5863>.

³¹ *Carbon Border Adjustment Mechanism: Questions and Answers*, https://ec.europa.eu/commission/presscorner/detail/en/qanda_21_3661.

³² *Fit for 55*, European Council, <https://www.consilium.europa.eu/en/policies/green-deal/fit-for-55-the-eu-plan-for-a-green-transition/>.

³³ “Legal Issues with the European Carbon Border Adjustment Mechanism,” <https://www.cato.org/briefing-paper/legal-issues-european-carbon-border-adjustment-mechanism>.

³⁴ *CBAM Certificates*, <https://www.emissions-euets.com/1922-carbon-border-adjustment-mechanism-cbam/2178-cbam-certificates>.

playing field for products within and outside the EU and incentivize other countries to have a carbon pricing mechanism of their own.

Mozambique Case Study

While all nations around the world are feeling the impact of climate change, some countries are more vulnerable to its impact than others. Mozambique, a southern African country with a population of 31.2 million people, and a GDP of \$14 billion has felt, and continues to feel the devastating impacts of climate change more than most countries. At 2 tCO₂ eq per capita in 2019, the country has contributed minimally to global GHG emissions but this has not shielded it from the adverse impacts of climate change.³⁵ With 2,470 km of coastline, the country has one of the longest coastlines in Africa.³⁶ Consequently, 60% of the population, which call the coastal areas home, have been especially impacted by the increase in rainfall in a short period of time.³⁷ This increase in rainfall reduces the areas in the country available for agriculture in green and low-lying areas.³⁸ Consequently families who rely on agriculture as a source of income are severely affected.

In March of 2019, Tropical Cyclone Idai, one of the deadliest cyclones to ever hit the southern hemisphere, made landfall near Beira, the second largest city in Mozambique.³⁹ 40 days later on April 25, Tropical Cyclone Kenneth made landfall in Mozambique between the districts of Macomia and Mocimboa da Praia in Cabo Delgado province.⁴⁰ This was the first time in recorded history that two tropical cyclones as strong as Idai and Kenneth hit Mozambique in the same rainy season. Cyclone Idai alone killed more than 600 people, injured 1600 others and caused infrastructure damage estimated at \$796 million. Primary sectors such as agriculture and fisheries, as well as other sectors such as tourism, commerce and industry suffered losses amounting to \$986 million.⁴¹ When combined, cyclones Idai and Kenneth affected more than 2 million people.

As a result of these severe weather events, as well as armed conflicts in the northern part of the country, hundreds of thousands of Mozambicans have been forced to relocate from their homes. The destruction of schools and their use as shelters kept children out of schools and there was an increase in communicable diseases such as cholera and malaria.⁴² While one part of the country is affected by severe flooding, others in a different part of the country have been affected by severe drought because of prolonged dry seasons. During these seasons, hunger and malnutrition becomes even more rampant because of the lack of food production and the increased difficulty of farming and raising livestock in the rural areas where a majority of Mozambicans live. These extreme weather events have negatively affected Mozambican people, their health, and their economy.

³⁵ *CBAM Certificates*, <https://www.emissions-cuets.com/1922-carbon-border-adjustment-mechanism-cbam/2178-cbam-certificates>.

³⁶ "Climate Risk Profile Mozambique," https://www.climatelinks.org/sites/default/files/asset/document/2018_USAID-ATLAS-Project_Climate-Risk-Profile-Mozambique.pdf.

³⁷ *Id.*

³⁸ *Id.*

³⁹ "After Idai: Insights from Mozambique for Climate Resilient Coastal Infrastructure," <https://www.jstor.org/stable/resrep34150>.

⁴⁰ "Cyclones Idai and Kenneth," <https://www.unocha.org/southern-and-eastern-africa-rosea/cyclones-idai-and-kenneth>.

⁴¹ *Id.*

⁴² "Outbreak of Cholera Due to Cyclone Kenneth in Northern Mozambique, 2019," <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6720437/>.

They have also resulted in immense setbacks to the country's mission of fighting extreme property.

In response to the devastating impacts of the cyclones and other climate change related events, especially on those who live in the coastal parts of the county, the Government of Mozambique has engaged in several projects to build resilience and improve response capacity against natural disasters. One such project is the Coastal Resilience to Climate Change (CRCC) project which was implemented in partnership with the International Union for Conservation of Nature (IUCN), Rare, a nonprofit focused on behavior change organization in the conservation world and the Swedish Embassy in two coastal communities in Mozambique's Inhassoro district. One major focus of this program is adaptation and restoration. The program seeks to build local capacity in terms of knowledge and skills so that Mozambicans can develop conservation agriculture projects and strengthen their capacity to use sustainable agriculture as an alternative source of livelihood.⁴³ In its latest Nationally Determined Contribution (NDC) submission, Mozambique says that it hopes, through mitigation actions, to reduce GHG emissions by 40 million tCO₂e between 2020 and 2025 but implementing any reduction is conditional on the provision of technology and capacity building support from the international community.⁴⁴

PART II

Who Should be exempted from the EU CBAM and Similar Measures? And Why?

The CBAM will directly and indirectly affect lower and lower-middle income countries as well as several least developed countries (LDCs) who are also climate vulnerable countries. Consequently, the European Union, and other countries who implement a carbon tax measure, should design the measures in such a way that they fully exempt LDCs who are also climate vulnerable countries, and have exported goods from sectors covered by the CBAM into the EU. These are the three criteria upon which the first round of exemptions should be based: 1) LDC, 2) Climate Vulnerable, 3) Has exported covered by the CBAM to the country implementing the CBAM. Subsequent rounds of exemption can relax that the first standard so that it includes low- income countries and not just LDCs, but this will not be the focus of this paper.

According to the United Nations Department of Economic and Social Affairs, LDCs are countries that are low income and face several long term structural impediments to sustainable development.⁴⁵ The three criteria the UN Committee for Development (CDP) uses to designate a country as an LDC are its income, human assets, and economic and environmental vulnerability.⁴⁶ For income, the CDP evaluates a country's gross national income (GNI) per capita against a threshold.⁴⁷ For human assets, they use the Human

⁴³ "Climate-resilience project helps farmers thrive in Mozambique" <https://www.iucn.org/news/eastern-and-southern-africa/202008/climate-resilience-project-helps-farmers-thrive-mozambique#:~:text=In%20early%202020%20the%20Coastal,provided%20them%20with%20agricultural>.

⁴⁴ Mozambique NDC, https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/Mozambique%20First/NDC_EN_Final.pdf.

⁴⁵ Least Developed Countries (LDCs), <https://www.un.org/development/desa/dpad/least-developed-country-category.html>.

⁴⁶ LDC Identification Criteria & Indicators, United Nations, <https://www.un.org/development/desa/dpad/least-developed-country-category/ldc-criteria.html>.

⁴⁷ *Id.*

Assets Index to measure capital (HAI). The HAI is composed of indicators such as mortality rate for children under five, maternal mortality rate, adult literacy rate, and a gender parity index for gross secondary school enrollment.⁴⁸ To measure a country's economic and environmental vulnerability, there is an Economic and Environmental Vulnerability Index (EVI) that is composed of eight indicators such as share of agriculture, forestry, fisheries in GDP, instability of exports of goods and services, instability of agricultural production, and victims of disasters.⁴⁹ Consequently, the countries that are designated as least developed have the lowest levels of human assets and are extremely vulnerable to economic and environmental shocks.⁵⁰ Currently, there are 46 countries on the list of LDCs; the CDP reviews the list every three years, and countries can be added and graduated out of the list.⁵¹ Of the countries that are considered least developed, more than 70% are located on the African continent.⁵²

Climate vulnerability describes “the degree to which natural, built, and human systems are at risk of exposure to climate impacts.”⁵³ The Global Climate Risk Index 2021, analyzes and ranks to what degree regions and countries have been affected by climate related extreme weather such as storms, floods, and heatwaves. The index released a list of top ten most affected countries in 2019, and in addition to Mozambique ranking first on the list, half of the list were LDCs, while eighty percent of the list were low-to lower middle-income.⁵⁴

Mozambique is an LDC that is extremely vulnerable to the impact of climate related extreme weather events.⁵⁵ It has also exported aluminum to EU member countries for several years and it will also be negatively affected by the CBAM. Because it meets the criteria of being an LDC, a climate vulnerable country, and its exports of a CBAM sector good to the EU will negatively affect its ability to put resources towards climate change adaptation and mitigation, it ought to be exempted from the EU CBAM. One of the immediate ways in which the CBAM will affect Mozambique is that the country stands to lose over 1 percent of its GDP in light of a CBAM application to its exports.⁵⁶ This is because Mozambique sends more than half of its aluminum to the EU, and the export of aluminum comprises 7.7% of its GDP.⁵⁷ The country also accounts for 7.7% of the EU's imports of aluminum.⁵⁸ While 1% seems like a negligible number to some, it is not to

⁴⁸ *Id.*

⁴⁹ *Id.*

⁵⁰ *Id.*

⁵¹ *Id.*

⁵² Wale-Oshinowo et. al., *Least Developed Countries in Africa*, The Palgrave Encyclopedia of Global Security Studies (2022) https://doi.org/10.1007/978-3-319-74336-3_346-1.

⁵³ *Defining Vulnerable Communities In The Context of Climate Adaptation*, State of California Governor's Office of Planning and Research, https://opr.ca.gov/docs/20180723-Vulnerable_Communities.pdf.

⁵⁴ David Eckstein et. al., GLOBAL CLIMATE RISK INDEX 2021: Who Suffers Most from Extreme Weather Events? Weather-Related Loss Events in 2019 and 2000-2019 file:///Users/abbymorenigbade/Downloads/Global%20Climate%20Risk%20Index%202021_1.pdf

⁵⁵ *Id.*

⁵⁶ *An EU Tax on African Carbon – Assessing the Impact and Ways Forward*, <https://www.cgdev.org/blog/eu-tax-african-carbon-assessing-impact-and-ways-forward#:~:text=The%20EU's%20CBAM%20as%20currently,collaborative%20approach%20to%20climate%20transition>.

⁵⁷ Chris Kardish et. al., *Which countries are most exposed to the EU's proposed carbon tariffs?*, CHATAM HOUSE (2021), <https://resourcetrade.earth/publications/which-countries-are-most-exposed-to-the-eus-proposed-carbon-tariffs>.

⁵⁸ About Mozambique, UNDP, <https://www.mz.undp.org/content/mozambique/en/home/countryinfo.html>.

Mozambique who has 46.1% of its population living below the poverty line.⁵⁹ A reduction in the country's GDP could mean the difference between investing in resources to building coastal resilience in the face of climate change, and not doing so.

While a country like Mozambique is one of the LDCs most directly impacted by the CBAM because of its aluminum exports, some other LDCs stand to be impacted directly and indirectly by the CBAM. For instance, between 2018-2020, import of other cement from Cambodia, an LDC, to the EU-27 increased three-fold.⁶⁰ If this trend repeats itself in future years, Cambodian cement export will be subject to the CBAM, and these costs will likely affect the country's already low GDP, thus further hindering the country's development and ability to adapt to and mitigate the effects of climate change. The same would be true for LDCs like Chad, Senegal, Haiti, Uganda, Guinea, Sierra Leone, Niger, Myanmar, Ethiopia, Madagascar, Afghanistan, and Mauritania, who in the past six years have exported goods from a CBAM sector into the EU at varying rates over the past 6 years. These countries like Mozambique are also LDCs that should be exempted even if they do not export CBAM sector good to the EU every year. It ought to be enough that they have done so in the past. In addition to carbon costs that are subject to increase in the near future, developing countries will face additional burdens such as the cost of monitoring the embedded GHG emissions of products during the production process, costs related to the documentation of the process, including the submission of information to the CBAM registry and costs related to the preparation for controls by the authorities.⁶¹ The EU Impact Assessment Report for the CBAM has acknowledged that the "CBAM may give rise to unintended economic risks due to additional costs for exporters and deteriorating terms of trade. Many countries in the Global South, and on the African continent in particular are exposed to relatively high risks."⁶² Despite having this information, the EU has not used this information to develop concrete means of alleviating the burden that a CBAM will place on developing countries and the ought to for the reasons stated above. If LDCs have to shift their resources to the costs of adhering to the CBAM, they will not be able to focus on urgent needs such as adaptation to and mitigation of climate change impacts, or investment in infrastructures that the countries desperately need in order to lift their citizens out of poverty.

Consequently, these LDCs like Mozambique are climate vulnerable countries, their exports of a CBAM sector good to the EU will negatively affect their ability to put resources towards climate change adaptation and mitigation, and they ought to be exempted from the EU CBAM.

How Can Exemptions Be Made?

Exemptions of LDCs who are climate vulnerable can be modeled after existing trade instruments such as the EU's General Scheme of Preferences (GSP) and other similar instruments. These exemptions should be made for the period during which the countries qualify for preferential treatment under the GSP and are at great risk of being severely impacted by climate change. The EU should also consider exempting lower-to lower-

⁵⁹ *Id.*

⁶⁰ ANNEX 3: WHO IS AFFECTED AND HOW?, p. 20, https://ec.europa.eu/info/sites/default/files/carbon_border_adjustment_mechanism_0.pdf.

⁶¹ 6.6 Administrative Impacts, p. 74, https://ec.europa.eu/info/sites/default/files/carbon_border_adjustment_mechanism_0.pdf.

⁶² 5.2.1.11 The CBAM for Least Developed Countries (LDCs), p. 30, https://ec.europa.eu/info/sites/default/files/carbon_border_adjustment_mechanism_0.pdf.

income countries who have preferential treatment under the GSP and are climate vulnerable but this will not be the focus of this paper.

In 1971, the EU created the GSP following recommendations from the United Nations Conference on Trade and Development (UNCTAD) that developed countries should help developing countries in their efforts to integrate into the world economy.⁶³ The GSP is an instrument that makes it easier for developing countries to import their products to the EU by removing or reducing tariffs for their goods when they enter the EU market.⁶⁴ By removing or reducing tariffs from these countries, the developing countries can generate additional export revenue that can help foster economic growth and job creation.⁶⁵

Because each country has different needs, the EU GSP accounts for these varying needs by providing a sliding scale of preferences based on these needs.⁶⁶ The different types of preferences are the “general/standard GSP” scheme, the “GSP+” scheme, and the “Everything but Arms,” (EBA) scheme.⁶⁷ The general/standard scheme applies to low and lower-middle income countries and it offers a partial or full removal of customs duties on two-thirds of tariff lines.⁶⁸ As of 2019, 15 countries and territories are given these reductions under the standard scheme.⁶⁹ The GSP+ scheme reduces the tariffs from the standard GSP to zero for “vulnerable low- and lower-middle-income countries that implement 27 international conventions related to human rights, labor rights, protection of the environment and good governance.”⁷⁰ Finally, the EBA scheme is the special arrangement for least developed countries that gives all their products, exempts arms and ammunition duty-free, quota-free access.⁷¹ This scheme especially is of particular interest to this paper.

Using the EBA scheme of preference is a great model for exempting LDCs who are also climate vulnerable from the CBAM because the GSP is in compliance with WTO law. Although the GATT’s “Most Favored Nation” principle (MFN) requires equal treatment for all WTO members, the WTO’s enabling clause allows an exception to this principle.⁷² The enabling clause refers to the 1979 GATT Decision which “allows derogations to the most-favored nation (non- discrimination) treatment in favor of developing countries. In particular, its paragraph 2(c) permits regional or global arrangements among developing countries in goods trade.”⁷³ Additionally, once a country no longer qualifies for the preferences under the EBA, it graduates out of the list and the same rules would apply to it for its exemptions under the CBAM exemptions. Finally, in

⁶³ The EU’s Generalised Scheme of Preferences (GSP), https://trade.ec.europa.eu/doclib/docs/2015/august/tradoc_153732.pdf.

⁶⁴ *Id.*

⁶⁵ *Id.*

⁶⁶ Generalised Scheme of Preferences, https://policy.trade.ec.europa.eu/development-and-sustainability/generalised-scheme-preferences_en.

⁶⁷ *Id.*

⁶⁸ *Id.*

⁶⁹ List of GSP beneficiary countries, https://trade.ec.europa.eu/doclib/docs/2019/ay/tradoc_157889.pdf.

⁷⁰ Generalised Scheme of Preferences, https://policy.trade.ec.europa.eu/development-and-sustainability/generalised-scheme-preferences_en.

⁷¹ Generalised Scheme of Preferences, https://policy.trade.ec.europa.eu/development-and-sustainability/generalised-scheme-preferences_en.

⁷² *Id.*

⁷³ *Differential and more favourable treatment reciprocity and fuller participation of developing countries*, https://www.wto.org/english/docs_e/legal_e/enabling1979_e.htm.

order for a country to receive preferential treatment under the GSP, their product needs to be in compliance with the rules of origin found in various EU regulations.⁷⁴ This would be the same for climate vulnerable LDCs who are exempted from the CBAM. It would ensure that non-exempted countries do not take unfair advantage of the exemptions by re- routing their goods through exempted countries.

PART III

Is There A Legal Argument for Contributing CBAM Revenues to Climate Vulnerable Countries?

Although implementation of the EU CBAM will not begin until 2026 with a transition period beginning in 2023, one of the major criticisms of the CBAM is that the EU has not announced any plans to use part of the revenue to support climate transitions for developing countries that will be affected by the CBAM or to generally support climate vulnerable countries.⁷⁵ Instead, the current plan is for all the revenue to remain within the EU as “own resources.”⁷⁶ The concept of using revenue from a carbon pricing scheme to support poorer countries in their energy transition is not a foreign concept to the EU because part of the revenue from auctioning ETS allowances is given to the EU’s Modernization Fund to support the ten lower-income EU member states with their energy transition.⁷⁷ As a result, the EU must do the same for lower income climate vulnerable countries in other parts of the world. The principle of Common But Differentiated Responsibilities and Respective Capabilities (CBDR-RC) outlined in the United Nations Framework Convention on Climate Change and other documents governs this obligation on the part of the EU and other developed countries.

Neither the UNFCCC, the Kyoto Protocol, the Paris Agreement nor the Glasgow Climate Pact have a legally binding obligation for developed regions to financially developing countries in their fight against climate change. However, these countries and regions like the EU should be held to a high standard in terms of contributing some of the revenues from measures like the CBAM to mitigation and adaptation measures of lower income, climate vulnerable countries. However, under the UNFCCC, developed countries have a responsibility to provide financial resources to assist developing countries with implementing the objectives of the UNFCCC in accordance with the principle of “common but differentiated responsibility and respective capabilities” (CBDR).⁷⁸ In line with this responsibility, developed countries made a collective commitment at the 15th Conference of the Parties (COP) in 2009 to provide new and additional resources approaching USD 30 billion for the period of 2010-2012 to developing countries for adaptation to and mitigation of climate change impacts.⁷⁹ At the same conference in

⁷⁴ *Taxation and Customs Union*, https://ec.europa.eu/taxation_customs/customs-4/international-affairs/origin-goods_en#:~:text=Rules%20of%20origin%20determine%20where,of%20goods%20traded%20in%20commerce.

⁷⁵ “EU must use its carbon border tax to support a just transition around the world,” <https://www.climatechangenews.com/2021/07/12/eu-must-use-carbon-border-tax-support-just-transition-around-world/>; “How to make a success of the EU carbon border adjustment,” <https://www.euractiv.com/section/energy-environment/opinion/how-to-make-a-success-of-the-eu-carbon-border-adjustment/>; “The puzzle of carbon border fees and a just transition,” <https://www.iatp.org/blog/202107/puzzle-carbon-border-fees-and-just-transition>.

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⁷⁷ *EU must use its carbon border tax to support a just transition around the world.*

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⁷⁹ “Report of the Conference of the Parties on its fifteenth session, held in Copenhagen from 7 to 19

Copenhagen, they committed to jointly mobilizing USD 100 billion dollars a year by 2020 to address the needs of developing countries.⁸⁰ Although the approach to solving the problem of climate change has evolved to include all countries under the Paris Agreement, the financial responsibilities that developed countries have to developing countries has remained the same. In fact, this commitment has been restated in the years following COP 15, including at the 2015 Paris Climate Conference where developed countries extended the USD 100 billion mobilization goal from 2020 to 2025.

Similarly to the UNFCCC, the Kyoto Protocol and the Paris Agreement also calls for developed countries to assist developing countries with their mitigation and adaptation measures. Article 9 of the Paris Agreement states that “developed country Parties shall provide financial resources to assist developing country Parties with respect to both mitigation and adaptation in continuation of their existing obligations under the Convention.”⁸¹ Although it is generally understood that the Kyoto Protocol and the Paris Agreement are legally binding agreements, there has been debate about which provisions of the Paris Agreement are legally binding and which are not. The financing obligations in these instruments are not legally binding but unless they are, many developing countries will not have the funding to adapt to and mitigate a climate change problem that they did not help to create.

Moral Argument for Contributing CBAM Revenues to Climate Vulnerable Countries

Over the past several decades it has become increasingly clear that climate change is a problem that is affecting every nation on earth. Consequently, every country in the world must do its part to decrease the human activities, such as the burning of fossil fuels and deforestation, that are contributing to climate change. In addition to this, developed countries must support the mitigation and adaptation measures of lower income countries which will require significant financial investments. Supporting the adaptation measures is crucial because many lower income countries are bearing the consequences of a problem they did not help create. The EU has a moral obligation to contribute some of its CBAM revenues to lower income climate vulnerable countries because 1) the EU has profited immensely from the burning of fossil fuels and thus must contribute to solving climate change related problems in these countries, and 2) providing funds to lower income climate vulnerable countries will allow them to invest in renewable alternatives to burning fossil fuel as they continue their development and this is in everyone’s best interest.

The global north, including some of the member states of the EU are some of the greatest contributors to past and current GHG emissions. Between 1850-2021, France, Germany, Italy and the UK (who is no longer a member of the EU as of 2020) combined emitted 223.4 billions of tonnes of CO₂ (198.4GtCO₂).⁸² Most of these emissions came from the burning of fossil fuels during the European industrial revolution. In the nineteenth century, England earned the nickname “workshop of the world” because it

December 2009,” <https://unfccc.int/resource/docs/2009/cop15/eng/11a01.pdf>, Paragraph 8.

⁸⁰ *Id.*

⁸¹ “Climate Finance in the negotiations” <https://unfccc.int/topics/climate-finance/the-big-picture/climate-finance-in-the-negotiations#:~:text=Climate%20Finance%20in%20the%20Paris,existing%20obligations%20under%20the%20Convention.>

⁸² “Analysis: Which countries are historically responsible for climate change” <https://www.carbonbrief.org/analysis-which-countries-are-historically-responsible-for-climate-change.>

exported large volumes of energy and carbon intensive goods.⁸³ In the first half of the nineteenth century, other industrializing nations relied on England for iron and steel because it was successful in turning steel from a product that was expensive to make to a cheaply made product.⁸⁴ The discovery and exploitation of coal as a cheap and abundant energy source dramatically increased the productivity of factory workers, and this in turn caused the average annual production of pig iron to be 2.9 million tonnes between 1850-1854.⁸⁵ This is in comparison to the combined annual average of 1.1million tonnes of Belgium, France and Germany.⁸⁶

By the start of the twentieth century however, German exports of iron and steel exceeded British exports.⁸⁷ Today, steel production remains a key industry in Germany and this industry remains one of the biggest emitters of GHG.⁸⁸ The activities that took place during the European industrial revolution ushered in great improvements in the wealth, income, productivity and living standards of Europeans. These activities also continue to contribute to the heating of the planet because current warming is a result of cumulative total of CO2 emissions over time.

Because these countries have profited and continue to profit immensely from the burning of fossil fuels, they therefore have a moral obligation to use the funds from measures such as the EU CBAM to alleviate climate change related problems that they have caused.

Additionally, it is no secret that the colonization of many countries on the African continent by European powers significantly delayed their development.⁸⁹ As a result, many of these countries are only starting to invest in their own development and some are planning on doing so by burning fossil fuels. Although the cost of renewable energy is on the decline, some lower income countries are choosing fossil fuels as a means for development.⁹⁰ While there may be many reasons for this, including the need to quickly alleviate poverty and, a blanket ban on the use of fossil fuels as a means of development in lower income countries will not only be hypocritical, but it will also further poverty in lower income countries where their GHG emissions is negligible. Many of the world's richest countries, including many EU member States, developed by using fossil fuels, and till this day, continue to use fossil fuels.

Consequently, instead of going on a crusade about how lower income countries need to forsake fossil fuels, they need to assure lower income countries that their development is a priority through investing some of the revenue from the CBAM in renewable sources of energy.

Investment in climate vulnerable lower income countries is a moral requirement because for many years, Western countries including the EU member states pillaged

⁸³ *Id.*

⁸⁴ "The Workshop of the World," https://www.bbc.co.uk/history/british/victorians/workshop_of_the_world_01.shtml.

⁸⁵ "Energy and the English Industrial Revolution," <https://royalsocietypublishing.org/doi/10.1098/rsta.2011.0568#FN1R>.

⁸⁶ *Id.*

⁸⁷ "International Competition in Iron and Steel, 1850-1913," <https://www.jstor.org/stable/2120336> (p. 911).

⁸⁸ "Germany Ready to Spend \$6 Billion to Clean Up Steel Production," <https://www.bloomberg.com/news/articles/2021-05-03/germany-ready-to-spend-6-billion-to-clean-up-steel-production>.

⁸⁹ See e.g., Joshua Dwayne Settles, *The Impact of Colonialism on African Economic Development University of Tennessee Knoxville (1996)*.

⁹⁰ "Why Uganda is investing in oil despite pressures to go green," <https://www.bbc.com/news/world-africa-60301755>.

African natural resources and sold back processed goods at a much higher price. It's time for the EU to use the carbon tax for some good.

How can revenues be used?

One of the many ways revenues from schemes like the EU CBAM can be used to promote the Paris Agreement's goal of limiting global warming to 1.5 degrees Celsius, compared to pre-industrial levels is through contributing to funds that seek to help least developed climate vulnerable countries adapt to and mitigate the impact of climate change.

One fund that would benefit from the CBAM's revenue is the Climate Vulnerable Forum (CVF) and Vulnerable Twenty (V20) Joint Multi Donor Fund (CVF and V20 Fund). The CVF is an international partnership composed of 48 members from Africa, Asia, the Caribbean, Latin America and the Pacific who are most vulnerable to the environmental and social economic impacts of climate change.⁹¹ The Forum was founded ahead of COP15 in November 2009 by the Maldives, and leaders of 10 other countries.⁹² At the first Climate Vulnerable Forum at Male in the Maldives, the 11 nations adopted a statement that voiced alarm at the rate earth is changing because of human activities that have contributed to climate change. Some of the forum's purpose include articulating and defining the shared priorities of climate vulnerable countries, promoting ambitious action to address climate change by the individual member countries domestically, and by the international community, commissioning studies, data, and research to guide the actions taken to address climate change, and building support for actions that will protect the world's most vulnerable.⁹³

The V20 Group of Ministers of Finance of the Climate Vulnerable Forum is a cooperation initiative of economies systematically vulnerable to climate change. Formed in 2015 with the inaugural meeting of the V20 Ministers of Finance of the Climate Vulnerable Forum, the V20 has several economic and financial purposes. Some of which include advocating for the mobilization of public and private sector climate finance, exchanging the best practices on economic and financial aspects of climate action, developing innovative approaches to climate finance and other collective actions.⁹⁴

In July 2021 at the V20 Climate Vulnerable Finance Summit, the CVF & V20 Fund was officially launched.⁹⁵ The Fund has an overall goal of enhancing CVF and V20 members' capacities to achieve key climate change adaptation and mitigation priorities.⁹⁶ Acknowledging that no one member can tackle the complexity of climate change action across multiple policy pillars (foreign, environmental, economic and others) alone, the Fund places an emphasis on facilitating coordination among member states, and on South-South resource sharing and capacity development in order to find solutions for its member states.⁹⁷ The Fund, through its activities, will support economic and finance related interventions. Some of the activities that the current work plan of the Fund focuses on are: the development of climates prosperity plans in the individual member states, development of energy transition scenarios (envisioned in cooperation with the International Renewable Energy Agency (IRENA)), elaboration of the 3rd edition of the

⁹¹ <https://thecvf.org/about/>.

⁹² *Id.*

⁹³ *Id.*

⁹⁴ *About Vulnerable 20 Group*, <https://www.v-20.org/about>.

⁹⁵ <file:///Users/abbymorengibade/Downloads/Projekt-Detail--3016-1.pdf>.

⁹⁶ *CVF & V20 JOINT MULTI-DONOR FUND*, Climate Vulnerable Forum, <https://thecvf.org/fund>.

⁹⁷ *Id.*

Climate Vulnerability Monitor, and support to the Accelerated Finance Mechanism (AFC) (in cooperation with multilateral development banks) and the Sustainable Insurance Facility (SIF) (in cooperation with the Munich Climate Insurance Initiative (MCII) and in support of the Resilience Global Partnership).⁹⁸ The EU and the world has a moral obligation to contribute to a fund like the CVF and V20 fund because many of the countries that the fund supports like small island developing states (SIDS) and least developing countries, are bearing the brunt of climate change even though their contribution to climate change is minimal.

In addition to contributing to the CVF and V20 Fund, some of the revenue can be contributed to the Green Climate Fund. The Green Climate Fund was established at COP 15 in 2009 as an operating entity of the financial mechanism of the Convention to support policies, projects and other activities in developing countries related to mitigation, adaptation, capacity building, technology transfer and development.⁹⁹ Developed countries made a pledge of \$100 billion to the fund every year till 2025, however till date, only USD 8.3 billion has been contributed to the fund.¹⁰⁰ This number is much lower than the USD 100 billion promised to developing countries and the EU has an opportunity to demonstrate that it does indeed care about lowering worldwide GHG emissions through contributing further to the fund.

CONCLUSION

Although the EU's initial CBAM proposal does not include an exemption for developing countries, the EU still has an opportunity to include such an exemption. The criteria for exemption would be that the country is a least developed climate vulnerable country, who has exported the goods in the CBAM sector to the EU, and whose ability to put resources towards climate change adaptation and mitigation would be hindered if subject to a CBAM levy. The exemption for these countries can be based on the EU's Generalized Scheme of Preferences system to bring it in compliance with the WTO's principle of MFN. Additionally, there are no legally binding requirements for developed countries to contribute finances towards developing countries' efforts, but there ought to be based on the principle of Common but differentiated responsibility.

⁹⁸ file:///Users/abbymorenigbade/Downloads/Projekt-Detail--3016-1.pdf.

⁹⁹ *CVF & V20 JOINT MULTI-DONOR FUND*, Climate Vulnerable Forum, <https://thecvf.org/fund>.

¹⁰⁰ "Resource Mobilisation" <https://www.greenclimate.fund/about/resource-mobilisation/irm#:~:text=Contributions,49%20countries%2Fregions%2Fcities..>

PART II

SECTORAL INITIATIVES FOR CLIMATE ACTION

Because the amount of greenhouse gas (GHG) emissions associated with the production of goods varies widely by product and sector, many of the most promising decarbonization efforts are focused at the sectoral level. Steel, cement, and fertilizer, for example, are categorized as carbon-intensive because of the significant amount of global greenhouse absorbed during their production and are frequent targets of trade-related climate measures such as the European Union’s (EU) Carbon Border Adjustment Mechanism (CBAM). But those sectors also present the most promising opportunities for the greatest reductions in GHG emissions, given where we are starting from and where we could end up. The first two chapters in this Part II are prime examples. Chapter 6, “Accelerating Decarbonization in the Steel Industry with A Green Steel Deal,” focuses on the prospect of a truly green steel deal that could be struck between the United States (U.S.) and the EU, one that would include incentives for others to join and would be ambitious in wringing GHG emissions out of a sector that contributes more than 7% of all global emissions. Chapter 7 (“Can International Trade Tools Accelerate the Deployment of Carbon-Negative Concrete?”) presents an even greater opportunity – the prospect of using new technologies in making cement and concrete to move past zero emissions to a world in which every country could rely on their use of cement to act as a carbon sink. Given that production in these two sectors, especially cement, is dispersed around the world, focusing on sectoral initiatives and promoting ideas for the uptake of green technology in these two industries has the potential to bring about major reductions in global GHG emissions. Both recognize the importance of bringing together overarching trade rules and detailed industry and enterprise specific technologies for more effective action.

A less-often discussed but possibly more essential sector from a climate change perspective is water – which is crucial for human, plant and animal life, but its use, storage and distribution can also contribute to GHG emissions. And the world is facing a water scarcity crisis, with over three billion people living in countries where demand for freshwater outpaces the available resources and increasingly extreme weather events are causing major land areas to become drier while disrupting water infrastructure. The world lacks clear rules on the trade in water – whether in bulk form or in ‘virtual’ water used to produce products but which is not necessarily contained in the final traded product. The depth of the crisis and the impact climate change will have on water will be felt differently throughout the world underscore the urgent need for global rules on trade in water. One approach to addressing the issue, at least for trade in bulk water, is laid out in Chapter 8, “Establishing a New International Regime for Water.”

Another sector lacking much in the way of global rules is that of electricity. Until recently and in most countries around the world, the notion of trading electricity across an international border received scant attention from policymakers. But a profound change is occurring in energy markets, one that moves away from large, centralized generating installations running on fossil fuels to flexible, decentralized production from renewable energy. For renewable energy systems to flourish, access to diverse sources of supply, new storage technologies and innovative models of connecting to electric grids

will be essential. Cross-border trade will both be the inducer of this transformation and its most direct result, yet there are few rules in place designed to address the complexity of trade in a product that is not a traditional good and not a traditional service. Chapter 9, “Promoting International Trade in Green Electricity Under WTO Rules: Issues, Challenges, and Opportunities,” uses the EU’s system for cross-border trade in electricity to explore what is working and what is not and what it will take to develop international norms governing international trade in electricity.

Other sectors are far more advanced in the development of international rules and norms. Plastics is one such sector. To regulate the trade in plastics, the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal (Basel Convention) was amended in 2011 to address the trade of mixed plastic, hazardous plastic waste; and non-hazardous plastic waste destined for recycling. Additionally, 175 nations have adopted the United Nations (UN) Resolution to develop an international agreement to end plastic pollution, while at the World Trade Organization (WTO), members launched a Dialogue on Plastics Pollution and Environmentally Sustainable Plastics Trade to discuss both voluntary initiatives and prospects for a more binding treaty to address how we produce and consume plastics. These initiatives have been done in recognition of the fact that primary plastics – and the fossil fuel and petrochemical industries that underpin them – represent a significant and increasing share of the world’s GHG emissions. Reducing the creation of new plastics, addressing the estimated 75 to 199 million tons of plastic waste currently in our oceans, and moving to a more sustainable use of plastics will require a multi-pronged approach, both within the plastics sector itself and across the broader international trade regime. A number of the most essential steps to move closer to a circular economy for plastics is set forth in Chapter 10, “Promoting Responsible Trade in Consumer Plastics to Support the Development of a Circular Plastics Economy.”

Like many other sectors that represent both challenges and opportunities for mitigating climate change, critical minerals such as lithium, graphite, rare earth elements, and cobalt are both essential for batteries to store renewable energy and other key components of clean energy, but also generate transboundary environmental and health harm and risks. The dilemma of needing these scarce materials while wishing to avoid the environmental and human rights harms was brought into sharp focus in the United States, when it enacted the Inflation Reduction Act (IRA). The IRA included a provision limiting its tax credits for Electric Vehicles (EVs) built using critical minerals mined or processed in the United States or in one of the United States’ free trade agreement partners. Given the absence of sufficient domestic production of these critical minerals, the United States has scrambled to conclude agreements, beginning with Japan, that will allow critical minerals to be sourced in more places while at same time including provisions governing environmental and labor standards applicable at any such mining or processing facilities. The existence of such agreements and the limited list of countries involved has led a number of developing countries to cry foul, contending that the specter “critical minerals clubs” will leave them out, in violation of basic trading rules. Chapter 11 of this Part, “Decarbonization Through Critical Minerals: The Language of Free Trade Agreements and the U.S. Inflation Reduction Act,” presents a compelling case for how to do such critical minerals agreements right – consistently with the WTO and with essential environmental and labor standards.

What all of the chapters in this Part make clear is that truly ambitious approaches to climate mitigation and adaptation will need to take place at all levels – enterprise, sectoral,

regional, national and global. As these chapters note, for some of the highest GHG-emitting industries, a sectoral approach holds tremendous promise with much of the most cutting-edge decarbonization technologies being developed at the industrial sector level. But each chapter also stresses the importance of fitting those sectoral notions within the global trading system, both to ensure that the good ideas and technologies are adapted everywhere and to guard against unnecessary trade frictions.

CHAPTER 6: ACCELERATING DECARBONIZATION IN THE STEEL INDUSTRY WITH A GREEN STEEL DEAL

KATYA SIMON*

I. INTRODUCTION

Addressing the climate crisis is one of the most important tasks the international community faces today. Reducing greenhouse gas emissions from the steel industry must be a priority for policymakers: steel production is a significant contributor to global emissions,¹ and as a hard-to-abate sector, it is unlikely to decarbonize at the pace needed to meet Paris Agreement targets of 2°C or less without government support, both via unilateral domestic action and international trade policy. The U.S. and the EU have begun negotiating a Carbon-Based Sectoral Arrangement on Steel and Aluminum (“Green Steel Deal”) which would be the first U.S. trade agreement to incorporate carbon-emission targets.² An effective Green Steel Deal should drive real decarbonization in the global steel industry and minimize trade distortions by being designed in a way that is compatible WTO law. This will not be an easy task, but it is worth pursuing in an effort to provide the trade incentives and policy frameworks that will be necessary for a global transition to net-zero steel.

This paper discusses how certain features of the proposed Green Steel Deal – restrictions on participation in the arrangement by non-market economies, and maximum emissions thresholds as a criterion for entry – could limit the deal’s potential to lower total emissions from steel production and conflict with international trade law. Today, most steel is produced outside the U.S. and the EU.³ An effective sectoral decarbonization agreement should encourage both domestic and foreign producers to reduce emissions from existing production, and only invest in new production that is low-carbon. A Green Steel Deal that excludes nations from participation based on their market-orientation (a factor that is politically and economically important, but unrelated to carbon emissions) or based on their current carbon intensity of production (without giving credit for progressive reductions) will miss the areas most in need of significant near-term investment. These exclusions may also violate WTO rules on most favored nations and

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¹ Chris Bataille et.al., *Global Facility Level Net Zero Pathways: Technical Report on the First Scenarios of the Net Zero Steel Project*, October 2021, http://netzerosteel.org/wp-content/uploads/pdf/net_zero_steel_report.pdf.

² The White House, *Fact Sheet: The United States and European Union To Negotiate World’s First Carbon-Based Sectoral Arrangement on Steel and Aluminum Trade*, Oct. 31, 2021, <https://www.whitehouse.gov/briefing-room/statements-releases/2021/10/31/fact-sheet-the-united-states-and-european-union-to-negotiate-worlds-first-carbon-based-sectoral-arrangement-on-steel-and-aluminum-trade/> [hereinafter, 2021 Fact Sheet] (although both steel and aluminum are being considered as part of the sectoral arrangement, this paper will focus on steel).

³ Ji Chen et al., *Pursuing Zero-Carbon Steel in China: A Critical Pillar to Reach Carbon Neutrality*, RMI, 2021, <http://www.rmi.org/insight/pursuing-zero-carbon-steel-in-china> (noting China produces and consumes over half the world’s steel).

national treatment, and make argument for applicability of the exceptions in Article XX of the GATT more difficult.

A Green Steel Deal could help move the steel industry toward lower-carbon production methodologies by providing incentives for producers to reduce the carbon intensity of their inputs and production processes. The carbon-based tariff should be calculated using a common set of technical standards for measuring the carbon content of steel that provides fair and transparent guidance to producers. The deal should promote technology transfer between parties, and technical assistance to producers in countries without an already well-developed system for measuring, verifying, and reporting necessary emissions data. Parties to the deal should also acknowledge the need for near-term subsidies and government support in accelerating the transition to low-carbon steel. An agreement not to take action against each other for certain uses of government spending to promote a domestic market for green steel, at least for a period of time, will minimize friction between countries with different decarbonization policies. Finally, this deal should be open to all countries willing to participate in reducing emissions in accordance with these standards.

II. BACKGROUND

A. *Steel Industry Emissions*

Climate change is one of the greatest threats to human welfare and international security that modern society has ever faced.⁴ At current levels of global temperature rise, dangerous climate tipping points are “possible,” and may become “likely” even if the world meets its Paris Agreement goals to limit further warming to 2°C or below.⁵ For national and international climate policies to adequately address these risks, drastic reduction in global emissions is needed in this decade, which means accelerating many net-zero transformation plans to produce results sooner than 2050.⁶ Governments must provide robust policy frameworks to drive an increase in near-term emissions reductions, particularly from “hard to abate” sectors that may otherwise be slow to decarbonize.

Direct emissions from the global steel industry account for between 6 – 10% of total energy system emissions.⁷ Steel has historically been considered a “hard to abate” sector for carbon emissions, as steel is produced with highly energy-intensive industrial processes and is also very commoditized,⁸ so producers face low margins that do not leave room to take on voluntary expenses related to decarbonization. Some countries have begun to implement unilateral carbon taxes or border adjustment mechanisms to encourage decarbonization, but so far these measures have not gone far enough to spur the necessary

⁴ UN Security Council, *Climate Change ‘Biggest Threat Modern Humans Have Ever Faced’, World-Renowned Naturalist Tells Security Council, Calls for Greater Global Cooperation*, Press Release SC/14445, Feb. 23, 2021, <https://press.un.org/en/2021/sc14445.doc.htm>.

⁵ OECD (2022), *Climate Tipping Points: Insights for Effective Policy Action*, OECD Publishing, Paris, <https://doi.org/10.1787/abc5a69e-en>.

⁶ *Id.*

⁷ Bataille, *supra* note 1, at 4.

⁸ See International Energy Agency (IEA), *Iron and Steel Technology Roadmap*, 17, October 2020, <https://www.iea.org/reports/iron-and-steel-technology-roadmap> [hereinafter IEA 2020] (noting steel is one of the most widely traded commodities in the world, facing economic headwinds such as overcapacity and trade tensions in recent years).

rapid changes in the steel industry.⁹ International trade policy can help support the steel industry's transition to net-zero on an accelerated timeframe: trade can increase access to low-carbon goods, services, and funding, help to diffuse critical technologies and expertise, and spur innovation by opening up new market opportunities for low-carbon exports.¹⁰

B. Current Efforts to Create Carbon-Based Trade Agreements

Efforts to leverage trade agreements to combat industrial emissions from steel production are already underway: the U.S. and EU announced their intention to create a carbon-based sectoral agreement on steel trade in October 2021.¹¹ As described by the Biden-Harris administration, a carbon-based sectoral agreement for steel (“Green Steel Deal”) would “deliver a major win in the fight to address the climate crisis” as well as “protect our [American] workers and our industry.”¹² Similarly, the EU has expressed an interest in this sectoral agreement to “discourage trade in high-carbon steel...that contributes to global excess capacity from other countries and ensure that domestic policies support lowering the carbon intensity of these industries.”¹³

In both press releases, the EU and the U.S. stressed the importance of lowering sectoral emissions, but also the importance of protecting domestic producers from anti-competitive dumping of imported steel. Resolving a multi-year dispute over U.S. imposition of Section 232 duties on EU steel and related EU duties imposed on U.S. products was another critical outcome for both sides.¹⁴ This dual purpose creates some tension within the proposal: lowering emissions from producers contributing to global oversupply is good for climate but does not protect domestic industry from adverse economic effects or ensure robust supply chains.¹⁵ A deal that excludes producers who contribute to excess capacity will support growth in domestic steel production, but does not accelerate the global net-zero transition if the excluded producers are the ones with the highest carbon intensities.

These economic and national security concerns are significant, and they will make development of a purely carbon-based trade agreement difficult. But the impact of having such a trade agreement would be a significant win for the environment. The U.S. and the EU are among the top importers of steel globally, so a Green Steel Deal favoring imports of low-carbon steel could incentivize substantial changes in production not just

⁹ See Todd N. Tucker & Timothy Meyer, *A Green Steel Deal: Toward Pro-Jobs, Pro-Climate Transatlantic Cooperation on Carbon Border Measures*, Roosevelt Institute, June 2021, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3862839 (describing real-world constraints that have led to, in practice, carbon pricing schemes that do not meaningfully reduce emissions).

¹⁰ World Trade Organization (WTO), *World Trade Report 2022: Climate change and international trade*, 21, Geneva: WTO.

¹¹ European Commission Press Release IP/21/5724, Joint EU-US Statement on a Global Arrangement on Sustainable Steel and Aluminium (Oct. 31, 2021); 2021 Fact Sheet.

¹² 2021 Fact Sheet.

¹³ European Commission Press Release IP/21/5724, Joint EU-US Statement on a Global Arrangement on Sustainable Steel and Aluminium (Oct. 31, 2021).

¹⁴ Barbara Moens & Steven Overly, *Trump's tariff time bomb threatens to blow up transatlantic trade*, POLITICO, (Apr. 5, 2023) <https://www.politico.eu/article/donald-trump-steel-tariffs-europe-time-bomb-transatlantic-trade-united-states/>.

¹⁵ As part of the 2018 investigation into whether Section 232 tariffs should be applied to imported steel, the Department of Commerce found that existing anti-dumping and countervailing duties remedies were being applied but had not adequately addressed the market excess-capacity issues. See *Adjusting Imports of Steel Into the United States*, 83 F.R. 11625 (2018).

domestically, but also in countries with significant exports.¹⁶ A Green Steel Deal that leverages the market power of the U.S. and EU has the potential to be an effective trade tool for combating climate change, as long as it does not impose barriers that prevent developing countries (where the greatest increases in steel production and consumption are expected to happen in the next few decades)¹⁷ from participating. To encourage the necessary involvement from the world’s major steel-producing countries and developing economies, the Green Steel Deal should be focused on carbon-intensity metrics and compatible with WTO rules.

III. POTENTIAL TRADE LAW AND ENVIRONMENTAL ISSUES WITH THE 2021 PROPOSAL

A. *Initial Proposal*

The fact sheet on a potential Green Steel Deal released by the White House in 2021 raises several issues from both an environmental and an international trade law point of view. The arrangement will “limit access to countries that dump steel in our markets, contributing to worldwide oversupply,” and “be open to any interested country that...meets criteria for restoring market orientation.”¹⁸ A concept paper provided by the Biden administration in late 2022 proposed a tiered system of tariffs based on carbon-intensity that would apply to members of the Green Steel Deal, with additional tariffs imposed on products coming from non-participating countries.¹⁹ In order to participate, governments would have to commit not to overproduce steel, to limit activity by state-owned enterprises, and to ensure that their steel industries met initial threshold emissions standards – requirements that would likely exclude China from participation, as well as possibly cause near-term friction with other steel exporters like Japan and Korea who are not currently involved in the negotiations, and may be left out of an initial deal.²⁰

B. *Environmental Concerns*

From an environmental perspective, selectively incentivizing emissions reductions in steel production based on the economic policies of the steel’s country of origin does not advance the global net-zero agenda. Emissions reductions in countries that do not pursue market orientation are just as good for the climate as reductions from countries that are considered to be market oriented. Most of the current emissions from the global steel industry come from countries that might not be eligible to join the Green Steel Deal – over half of global crude steel production occurs in China, and India and Japan are two of the next largest producing countries.²¹ Most steel production in China, as well as some of the production in the EU, India, and Japan, uses blast furnace-basic oxygen furnace (BF-BOF) technology, which is the most carbon-intensive production route and accounts

¹⁶ Tucker & Meyer, *supra* note 9.

¹⁷ Mission Possible Partnership, *Making Net-Zero Steel Possible: An industry-backed, 1.5°C-aligned transition strategy*, 29-31, September 2022, <https://missionpossiblepartnership.org/wp-content/uploads/2022/09/Making-Net-Zero-Steel-possible.pdf> [hereinafter Mission Possible Partnership 2022].

¹⁸ 2021 Fact Sheet.

¹⁹ Ana Swanson, *U.S. Proposes Green Steel Club That Would Levy Tariffs On Outliers*, NEW YORK TIMES, Dec. 7, 2022, <https://www.nytimes.com/2022/12/07/business/economy/steel-tariffs-climate-change.html>.

²⁰ *Id.*

²¹ Mission Possible Partnership 2022, at 28 (noting 70% of the world’s steel is made with high-carbon BF-BOF production processes).

for a substantial portion of the total global emissions from steel.²² Lower-emission steel production from scrap recycling in electric arc furnaces (EAF), which is the predominant method used in the US, can and should be increased, but recycling will not be sufficient to meet all global steel demand over the next thirty years.²³

Addressing emissions from primary steel production will still be necessary. BF-BOF plants have a roughly 25-year investment cycle and 40-year lifespan, and can be expensive to retrofit,²⁴ so investments made in new BF-BOF plants today will continue to produce high emissions well into the 2040s. To avoid locking in these long-term emissions, it is important to signal to investors that there is a benefit from building greener facilities everywhere immediately, not just in the U.S. and the EU. A sectoral agreement that fails to address emissions from the existing BF-BOF fleet, and that does not incentivize building low-carbon production in developing economies, will struggle to produce meaningful reductions in carbon emissions from the steel industry over the next decade.

C. Trade Law Concerns

The 2021 Proposal also raises a few WTO compatibility concerns under Articles I, II, and III of the GATT, and it will be difficult to justify under any of the exceptions in Article XX.

1. GATT Art. I

Article I of the GATT provides that like products should not be treated differently based on their national origin (the most favored nations principle). The 2021 Proposal, by limiting participation only to countries with certain trade practices and imposing tariffs on the rest, will be challenged on the basis that it treats like products differently based on their country of origin – i.e., originating in a country with non-market practices will bar otherwise equally green steel from benefitting from reduced costs of trade. Under current WTO law, according “advantages” to imports from select countries that are not “immediately and unconditionally” available to like products from other member countries is prohibited.²⁵ Removing any or all of an import tariff based on carbon content is an “advantage” for low-carbon steel products that would not be immediately and unconditionally available to WTO Members who cannot join the US-EU sectoral arrangement based on their market-economy status.

2. GATT Art. II and III

In addition to Article I concerns, there are also potential Article II and III concerns with the U.S. applying a carbon-based charge to imported “dirty” steel without first implementing its own internal tax or regulation imposing charges on domestic “dirty” steel. Article II of the GATT requires that WTO Members not apply a tariff higher than

²² Ji Chen, *supra* note 3 (in China due to abundant natural coal resources and a high proportion, 90%, of steelmakers use BF-BOF production); Mission Possible Partnership 2022, at 63.

²³ Mission Possible Partnership 2022, at 31 (noting even in a high-circularity model future, an increase in crude steel demand of roughly 30% is expected).

²⁴ IEA 2020, at 45 (average duration of an investment in blast furnace is 40 years but can be extended several decades beyond that with refurbishments).

²⁵ Panel Report, *Indonesia – Certain Measures Affecting the Automobile Industry*, WTO Docs. WT/DS54/R, WT/DS55/R, WT/DS59/R, WT/DS64/R (adopted July 23, 1998) (duty and sales tax exemptions were accorded to Korean car part imports and not to US, EU, or Japanese car parts, in violation of Article I MFN principle).

what is agreed in their tariff binding. Additional fees, like pollution fees, are only permitted as long as they are charges equivalent to internal taxes or regulations. And Article III of the GATT stipulates that imported goods cannot be treated less favorably than domestic goods in either tax or regulation. Currently, the U.S. does not have an internal tax or regulation that imposes an explicit carbon-based cost on domestic steel producers, so it will be difficult to argue that any additional carbon costs imposed on “dirty” steel imports are equivalent to carbon costs paid by domestic producers.

Depending on the mechanism used to impose carbon costs, there may be some argument that differential treatment can be applied consistent with Article III – for example, categorizing imports based on production technology. The U.S. mainly produces steel with EAF technology, which is of a lower carbon intensity (on average) than BF-BOF technology, which is the primary technology used in other parts of the world.²⁶ Under Article III, like products analysis focuses on the competitive relationship between two goods in the marketplace, and changing consumer preferences and government policies may support the argument that steel produced by EAF technology (more environmentally friendly) has a different position in the market than steel produced by BF-BOF technology. Process and Production Methods (PPM) based measures have been permissible, at least to some degree, under existing WTO law (one example being the Shrimp-Turtle case).²⁷ However, even if successful, this argument would only address issues with certain imports – the U.S. would still run into WTO compatibility issues if a non-market-oriented country wanted to send its EAF production into the U.S. And, although BF-BOF facilities are less common in the US, they do exist.²⁸ Attempting to make a non-discrimination argument on the basis of production technology would also be difficult to justify from an environmental perspective because it does not differentiate between high and low-carbon producers within a technology band.

3. GATT Art. XX

Finally, the current proposal will be unlikely to succeed in justifying itself under any of the possible exceptions in Article XX of the GATT. Although reducing emissions might be necessary to protect human, animal, and plant life under Art. XX(b), restricting access to US/EU markets based on market-orientation is not necessary to achieve emissions reductions (and, as discussed above, is likely counterproductive to those aims).²⁹ This proposal also does not fit under the exception in Art. XX(g) for conservation of natural resources, because it is not imposed alongside domestic measures. And even if the U.S. does implement domestic measures to price carbon in steel production, a policy that excludes steel based on country of origin is still unlikely to satisfy the Art. XX chapeau requirement of being a least trade-restrictive means for effecting the desired conservation,

²⁶ Mission Possible Partnership 2022, at 28 (average carbon intensity of approximately 2.1 for BF route versus 0.5 for EAF route).

²⁷ Steve Charnovitz, *The Law of Environmental 'PPMs' in the WTO: Debunking the Myth of Illegality*, 27 YALE J. INT'L L. 59, 62-63 (2002).

²⁸ For example, in 2023 U.S. Steel recently restarted two blast furnaces—one in Indiana and one in Pennsylvania. See Joseph S. Pete, *U.S. Steel Restarts Blast Furnace #8 at Gary Works*, NORTHWEST INDIANA TIMES, Mar. 17, 2023, https://www.nwitimes.com/business/local/u-s-steel-restarts-blast-furnace-8-at-gary-works/article_3f325fb0-9a99-5e57-a123-9dd53bd3e658.html.

²⁹ Appellate Body Report, *Brazil – Measures Affecting Imports of Retreaded Tyres*, WTO Doc. WT/DS332/AB/R, (adopted December 17, 2007). In *Brazil Tyres*, the WTO panel determined that restrictions which undermine the purpose of the measure will likely be considered unjustifiable.

since an agreement that combats emissions without discriminating based on country of origin could be implemented with similar effectiveness from a conservation perspective.³⁰

IV. A “GREENER” GREEN STEEL DEAL COULD IMPROVE CLIMATE IMPACT AND WTO COMPATIBILITY.

Many of the environmental and trade law concerns with the current proposal are related to discrimination against green steel based on country of origin, instead of based on carbon content. The effectiveness of this deal in combatting climate change could be improved by using a carbon-based tariff calculated with technology-neutral carbon-intensity factors that reflect actual emissions,³¹ and tying the criteria for participation in the Green Steel Deal explicitly to decarbonization metrics. From a climate perspective, this structure incentivizes the greatest amount of emissions reduction worldwide, because producers in every country can reap the benefits of lowering emissions in their production process. From a political perspective, removing the focus on penalizing non-market economies that contribute to overcapacity will make finding support for this deal much more challenging. However, the U.S. and the EU have already made substantial commitments to greening their domestic industries in this decade: the Inflation Reduction Act (IRA) in the US, and the Green Industrial Plan (GIP) in the EU provide incentives for steel producers to make the types of investments that would benefit from a Green Steel Deal.³² A trade agreement that has synergies with these national climate programs, even if it does not explicitly exclude non-market economies, may still achieve many of the desired domestic economic benefits in U.S. and EU markets.³³

An effective EU-US Green Steel Deal that is primarily focused on emissions-reductions and compatible with WTO law will require 1) a tariff structure and membership criteria that drive ongoing decarbonization, 2) promulgation of standards to measure carbon intensity, 3) programs imposing costs on domestic producers that are equivalent to the carbon charge on imports, 4) mechanisms for facilitating technology transfer and transition assistance for developing economies, and 5) mechanisms for increasing investment into decarbonization in the global steel industry.

A. Design Effective Tariffs and Criteria for Participation

The Green Steel Deal should be designed to generate emissions reductions across the entire steel industry, at a rate that is designed to meet the Paris climate goals (or better).

³⁰ Appellate Body Report, *United States - Standards for Reformulated and Conventional Gasoline*, WTO Doc. WT/DS2/AB/R (adopted April 29, 1996). In *U.S. Gasoline*, a U.S. domestic measure primarily aimed at reducing air pollution was considered unjustifiable because the statutory baselines applied to foreign producers were unrelated to the actual emissions those foreign products would create.

³¹ A facility-specific carbon-intensity factor should ideally account for all major greenhouse gas emissions, not just carbon dioxide. Non-carbon-dioxide emissions can be expressed as CO₂-equivalent based on their global warming potential. Sulfur oxides, nitrous oxides, methane, and other greenhouse gases may be byproducts of steel production that should be accounted for – many countries, including the U.S. and EU, already have regulatory requirements for reporting of significant non-CO₂ GHGs.

³² Théophile Pouget-Abadie et al., *Clean industrial policies: A space for EU-US collaboration*, ATLANTIC COUNCIL: ENERGYSOURCE (Mar. 10, 2023), <https://www.atlanticcouncil.org/blogs/energysource/clean-industrial-policies-a-space-for-eu-us-collaboration/>.

³³ CRU Consulting, *OPPORTUNITIES FOR US-EU STEEL TRADE AGREEMENT: EXECUTIVE SUMMARY* (2022), https://clouncil.org/summaries/Opportunities_for_US-EU_steel_trade_agreement.pdf (concluding that a carefully designed border carbon adjustment could both improve US/EU industry competitiveness and reduce market emissions intensity).

Both the method of applying the carbon cost and the criteria for membership in the deal will have an impact on the deal's compatibility with trade law and its likelihood of driving emissions reductions.

1. Where to Set Carbon Intensity Measurement

The US's latest proposal envisages a structure where parties to the deal pay a cost based on the carbon intensity of steel traded between them, and higher costs are imposed on products imported from countries outside the deal.³⁴ There is precedent in trade law for environmental agreements that treat members inside the agreement more favorably than those who do not join the agreement – to incentivize countries to join, the Montreal Protocol had less restrictive compliance processes for members than non-members.³⁵

A carbon cost can be assessed based on an individual facility's carbon intensity, based on the average of the producing company's total carbon intensity, based on the average of the carbon intensity of steel production in the country of origin, or at an even higher level of generality (e.g., based on the average of a particular production route). Assessing a cost based on the carbon intensity of the facility where a particular ton of steel was made would be the most straightforward from a GATT Article II and III perspective, because it could be applied in a non-discriminatory fashion to all imported steel. However, from a climate perspective, this method could encourage producers to cherry-pick their cleanest steel for export and continue producing carbon-intensive steel for the domestic market. Assessing a cost based on the sectoral average of the country of the steel's production might encourage producers to invest in reducing emissions at all plants and drive greater overall reductions. However, this generates potential issues with Article III's requirement that like products not be treated differently, and Article I's requirement that imports not be treated differently based on their country of origin.

2. Criteria for Participation

Using producer-level data to calculate the fee in combination with requirements for members to reduce their total emissions may balance both concerns. The U.S. has proposed that countries meet certain minimum emissions thresholds to be part of the deal.³⁶ The Green Steel Deal could also require member countries to show declines in the national average carbon intensity of their domestic industry. This helps avoid selective exporting to take advantage of the tariffs with no net emissions reductions.

The deal should also contain avenues for membership for countries that are starting with high levels of emissions but are willing to commit to ambitious decreases. Developing countries are expected to account for an increasing share of global steel production and demand over the next several decades – by 2050 nearly twenty percent of the world's steel will be produced in India.³⁷ To be successful, a Green Steel Deal will need to take into account the development goals of low-income and lower-middle-income countries that

³⁴ Swanson, *supra* note 19.

³⁵ Timothy Meyer & Todd M. Tucker, *How the US and the EU Can Rewrite Trade Rules to Fight the Climate Crisis*, Roosevelt Institute (Mar. 15, 2023), <https://rooseveltinstitute.org/2023/03/15/how-the-us-and-eu-can-rewrite-trade-rules-to-fight-the-climate-crisis/> (discussing precedent for using membership in an environmental trading club to provide incentives for cooperation).

³⁶ Swanson, *supra* note 19.

³⁷ IEA 2020 at 14.

will account for most of the growth in emissions.³⁸ The Green Steel Deal could provide waivers of the absolute emissions thresholds for countries that are making good-faith efforts to decarbonize, as long as those efforts are backed by transparent and credible net-zero plans.³⁹

Recommendations:

- Use facility-level carbon intensity metrics to calculate the carbon tariff applicable to imported steel.
- Set criteria for participating countries that require annual reductions in total sectoral carbon-intensity.
- Provide near-term waivers for developing countries with high baseline levels of emissions who commit to credible net-zero plans.

B. Standardize Carbon Intensity Calculations

In order to implement a carbon-intensity based Green Steel Deal effectively, every production route must be assigned a carbon-intensity score. Promulgation of standards for measuring carbon intensity under this sectoral agreement is critical to avoid delays in investment and provide guidance to the steel community about what kind of production processes and inputs will qualify as “green,” and what kind of data collection will be required.

1. Use International Forums to Develop International Standards

The WTO Agreement on Technical Barriers to Trade (TBT) urges that international standards should be used where possible, to minimize the potential restrictions on trade that come from having a patchwork of bespoke standards across different national and international programs. The TBT Agreement contains a “rebuttable presumption” that any technical regulation that is prepared in accordance with relevant international standards will not be considered an unnecessary obstacle to trade.⁴⁰ The steel industry has already seen over twenty different decarbonization standard proposals introduced globally, with different boundaries and measurement methodologies.⁴¹ The International Organization for Standardization (ISO) has created some guidelines for measuring carbon emissions in steel production.⁴² Other nonprofit international organizations, such as ResponsibleSteel and the Global Steel Climate Council, and individual corporations, like ArcelorMittal, have put forward their own proposals.⁴³ Adding an additional entirely new

³⁸ Sagatom Saha et al., *Green Gridlock: How to Fix the U.S.-EU Disconnect on Climate*, FOREIGN AFFAIRS (Apr. 25, 2023), <https://www.foreignaffairs.com/united-states/green-gridlock>.

³⁹ *Id.*

⁴⁰ WTO (2009), *Technical requirements to promote the use of climate-friendly goods and technologies*, WTO-UNEP Report: Trade and Climate Change, 126-128, https://www.wto.org/english/res_e/booksp_e/trade_climate_change_e.pdf.

⁴¹ World Trade Organization (WTO) (2022), *Decarbonization standards and the iron and steel sector: how can the WTO support greater coherence?*, Trade and Climate Change Information Brief No. 7, 5, Geneva: WTO [hereinafter, WTO Decarbonization Standards Brief].

⁴² ISO 14404-4:2020, Calculation method of carbon dioxide emission intensity from iron and steel production. <https://www.iso.org/obp/ui/#iso:std:iso:14404:-4:ed-1:v1:en>.

⁴³ WTO Decarbonization Standards Brief at 17; Global Steel Climate Council (GSCC), *The Steel Climate Standard: Framework for Steel Product Certification and Corporate Science-Based Emissions Targets*, Version 1.0 Draft (Apr. 26, 2023), <https://globalsteelclimatecouncil.org/wp-content/uploads/2023/04/GSCC-Standard.pdf>.

standard in an EU-US Green Steel Deal risks exacerbating trade friction by raising costs of compliance and measurement, without necessarily achieving greater emissions reduction benefits.

In March of 2023, the WTO held a multi-stakeholder forum, including WTO Members, industry representatives, standards-setting bodies, and academic experts, to progress the global dialogue on harmonizing standards for measuring emissions from steel. The Director General of the WTO noted the WTO's "track record of easing trade frictions arising from fragmented standards," through international cooperation in the Committee on Technical Barriers to Trade.⁴⁴ Where possible, the EU-US technical working group that is tasked with designing the standards for the Green Steel Deal should look to leverage these WTO forums to engage with industry stakeholders as well as non-US/EU Members. The standard should be developed in alignment with the six principles for international standards in the TBT: transparency, openness, impartiality and consensus, effectiveness and relevance, coherence, and development dimension.⁴⁵ Transparency, openness, and impartiality and consensus will require the Green Steel Deal working group to reach out for engagement beyond just U.S. and EU stakeholders, and because the WTO is already focusing on this topic, leveraging existing WTO committees may be a productive avenue. Coherence was emphasized in the March 2023 WTO forum by industry and business leaders, who highlighted the need for "equivalence" in various green steel markets in order to streamline their investments.⁴⁶ The forum also highlighted many of the challenges faced by developing countries in balancing climate ambitions with development goals.⁴⁷ All these factors will need to be considered to ensure that the final standard is effective at reducing emissions from steel production, considering the characteristics of existing production routes and the options for new lower-carbon pathways.

2. Analyze the Scope of Emissions to Include

One of the first hurdles in creating a standard to measure carbon intensity in steel products will be where to draw the boundary for starting and stopping the measurements. International organizations, nonprofits, and industry coalitions are divided on this question – some advocate for an entire product lifecycle analysis (LCA), others stop measurement at an earlier point in the process, such as crude steel.⁴⁸ All the proposals include Scope 1 (direct) emissions; many also include Scope 2 emissions (emissions from power purchases) and some upstream material emissions.⁴⁹ Including indirect (Scope 2 and Scope 3) emissions increases the complexity of the calculation. However, measurement of Scope 2 emissions is fairly well defined, so the technical complexity of including these would likely be manageable.⁵⁰ Many large steel producers already track Scope 2 emissions for sustainability reporting, and financial statement reporting bodies

⁴⁴ *Cooperation on standards at WTO could speed up steel sector decarbonization: Trade Forum*, WTO (Mar. 9, 2023), https://www.wto.org/english/news_e/news23_e/clim_09mar23_e.htm.

⁴⁵ WTO Decarbonization Standards Brief at 20.

⁴⁶ *Cooperation on standards at WTO could speed up steel sector decarbonization: Trade Forum*, WTO (Mar. 9, 2023), https://www.wto.org/english/news_e/news23_e/clim_09mar23_e.htm.

⁴⁷ WTO Decarbonization Standards Brief at 18 (developing countries are expected to account for roughly three-quarters of future steel demand, from now through 2050).

⁴⁸ *Id.* at 7-9.

⁴⁹ *Id.*

⁵⁰ *See id.*

are increasingly moving toward requiring disclosure of these emissions as well.⁵¹ There is less current consensus on how to account for Scope 3 emissions from upstream materials. For production pathways that use coal and natural gas, the upstream methane emissions from these commodities can be significant.⁵² Promulgating an initial standard that includes Scope 1 and 2 emissions, with a targeted phase-in of certain Scope 3 upstream emissions within the next few years, may strike the right balance between providing some necessary near-term guidance to industry without sacrificing emissions-reduction ambitions.

Beyond the measurement complexities, treatment of Scope 2 emissions and some upstream Scope 3 emissions in the calculation may be a contentious issue, particularly for countries that are not starting off with a well-developed renewable power industry. The carbon intensity of electricity used by a particular steel plant is likely to be outside the control of individual steel producers – producers located in countries where renewable power generation already accounts for relatively larger share of the national power grid may receive an uplift through no additional effort of their own. In countries where there are fewer operational renewable power projects, individual steel producers that want to reduce their carbon intensity by using solar or wind power purchase agreements will have to pay a premium. Producers in these countries may feel unfairly disadvantaged on the basis of historical investment in the national electricity grid – more developed economies may have had access to more government and private capital support for building out wind and solar capacity over the past few decades than developing countries.

Although using electricity grid measurements may put some countries at an initial disadvantage, emissions from electricity in the carbon-intensity measurement will be increasingly important going forward as many new low-carbon production technologies rely heavily on electricity. Quantifying the emissions from purchased power provides incentives for steel producers, where they have the choice, to buy green electricity instead of fossil-fueled electricity. The carbon intensity of EAF steel production is primarily driven by the carbon footprint of the electricity used,⁵³ and EAF technology is expected to account for an increasingly large share of steel production. Companies interested in using hydrogen to reduce emissions in steel should also have to account for the electricity used in the electrolysis process, which can vary substantially depending on the carbon-intensity of the local electricity grid.⁵⁴ Other innovative clean production processes that are still in pilot-phase, like molten oxide electrolysis, also consume substantial amounts of electricity instead of using coal.⁵⁵

One avenue for addressing some of the issues raised by accounting for the carbon-intensity of local electricity grids, especially in developing countries, is to use some of the tariff revenue from the Green Steel Deal to help finance investment in clean power projects and grid modernization. Another option is requiring producers in developed countries to show some element of additionality in their electricity sourcing – that the

⁵¹ See, e.g., United States Steel Corporation (USSC), Sustainability: Roadmap to 2050, <https://www.ussteel.com/roadmap-to-2050>; ArcelorMittal, Sustainability: Climate Action Reports, <https://corporate.arcelormittal.com/sustainability/climate-action-reports>.

⁵² Mission Possible Partnership 2022 at 29.

⁵³ *Id.* at 28.

⁵⁴ Tessa Weiss et al., *Hydrogen Reality Check: All “Clean Hydrogen” Is Not Equally Clean*, RMI (Oct. 4, 2022), <https://rmi.org/all-clean-hydrogen-is-not-equally-clean/>.

⁵⁵ Catherine Clifford, *Microsoft and ArcelorMittal back MIT spinout trying to green the \$1.6 trillion steel industry*, CNBC (Jan. 27 2023), <https://www.cnbc.com/2023/01/27/microsoft-arcelormittal-back-clean-steel-mit-spinout-boston-metal.html>

renewable power used to create their green steel was actually added to the grid, not just displaced from its previous use.⁵⁶ By incorporating developing country perspectives as part of broader stakeholder engagement, the technical working group can explore options to make the final standard fair and inclusive, as well as ambitious enough to drive substantial change.

Recommendations:

- Leverage existing WTO forums, such as the Committee on Technical Barriers to Trade, to develop a standard for measuring carbon intensity in traded steel.
- Align the standard with the six principles for international standards in the TBT.
- Promulgate an initial standard that includes Scope 1 and 2 emissions, with a targeted phase-in of certain Scope 3 upstream emissions.
- Use some of the tariff revenue to help finance investment in clean power projects and grid modernization in countries with carbon-intensive electricity.

C. Impose A Domestic Carbon Cost on Steel.

A sectoral agreement that ties the calculation of carbon-based costs solely to carbon intensity of produced steel also reduces some of the concerns about violation of the “like products” non-discrimination requirements of GATT Article III. End use and consumer taste are two elements of traditional like products analysis, and as governments and corporations seek to improve their ESG metrics and meet Paris climate goals, the market for low-carbon steel should become increasingly distinguishable from the market for steel generally.⁵⁷ To make the Green Steel Deal even more robust from an Article III and environmental perspective, the U.S. should also implement a domestic price on carbon-intensive steel, either via tax or regulation. The EU already has an emissions trading scheme (ETS) that imposes explicit costs on domestic steel producers, who must purchase emissions allowances for emissions in excess of what the regulations permit.⁵⁸

1. Domestic Tax

For the US, imposing a domestic carbon tax would be the most straightforward route and cause the fewest potential issues with WTO compatibility. As long as the domestic tax is equivalent to the border cost, the U.S. will be compliant with Article III. And from a climate perspective, introducing a domestic cost on carbon-intensive steel production would provide additional encouragement for U.S. producers to reduce their emissions in ways that, even with all the IRA tax credits, they might otherwise not. In 2022, a group of

⁵⁶ For discussion of the importance of “additionality” in developing clean energy incentive programs, see Rachel Fakhry, *Success of IRA Hydrogen Tax Credit Hinges on IRS and DOE*, NRDC (Dec. 8, 2022), <https://www.nrdc.org/bio/rachel-fakhry/success-ira-hydrogen-tax-credit-hinges-irs-and-doe>.

⁵⁷ See Appellate Body Report, *European Communities - Measures Affecting Asbestos and Asbestos-Containing Products*, WTO Doc. WT/DS135/AB/R (adopted Apr. 5, 2001) (finding that products containing asbestos were not “like” products containing a non-carcinogenic substitute where there were consumer preferences and health benefits associated with the non-carcinogenic option).

⁵⁸ The EU currently awards “free” allowances to domestic producers to mitigate the adverse effects on domestic production versus imports but is in the process of rolling out a Carbon Border Adjustment Mechanism (CBAM) to apply ETS costs to imports and phase out free allowances. See Gary Clyde Hufbauer, *Divergent climate change policies among countries could spark a trade war. The WTO should step in.*, Peterson Institute for International Economics (Aug. 30, 2021), <https://www.piie.com/blogs/trade-and-investment-policy-watch/divergent-climate-change-policies-among-countries-could>.

Democratic Senators proposed the Clean Competition Act, a bill that would impose a charge on U.S. steel producers that were higher-carbon than the U.S. industry average, and on foreign steel producers based on the difference between the U.S. industry average and the industry average of the foreign producer.⁵⁹ Ultimately, this bill was not passed in 2022. Because the structure of the tax provides an advantage to American producers, as the U.S. steel industry is relatively cleaner than its foreign competitors,⁶⁰ the bill could possibly be reintroduced and pass in the future. However, recent attempts by Republicans to repeal clean tax credits passed as part of the IRA to “end green giveaways that distort the market”⁶¹ indicate that getting any kind of domestic carbon tax through the current Congress will be extremely challenging.

2. Domestic Regulation

Politically, it may be easier to establish domestic regulations that impose costs on U.S. producers which are arguably “equivalent” to a carbon border cost, but this is a much more difficult case to make for GATT Article III compatibility. The U.S. EPA regulates emissions from the domestic steel industry with the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Integrated Iron and Steel Manufacturing Facilities, by its authority under the Clean Air Act (CAA).⁶² NESHAP standards reflect EPA’s view of the maximum achievable control technology for hazardous pollutants, which includes carbon dioxide, as well as other greenhouse gases.⁶³ The CAA also authorizes the EPA to regulate emissions from power plants, which contribute to the Scope 2 emissions portion of the steel carbon-intensity calculation. The EPA is expected to propose a new set of ambitious regulations to limit greenhouse gas emissions from existing power plants that would require many fossil-fuel-burning operators to either use carbon capture technology or switch to greener fuels to comply.⁶⁴ Potentially, a suite of EPA standards that are strict enough to require domestic producers to invest in lowering their carbon emissions, or to pay more for inputs that are required to be low-carbon, might satisfy the Article III equivalence requirements without additional legislation from Congress. In 2021, Democrats proposed a measure based on a similar idea: calculating a carbon border tax using the “environmental cost of complying with any federal, state, regional, or local law, regulation, policy, or program” that is designed to reduce emissions in the U.S.⁶⁵

⁵⁹ Jennifer Hillman, *Congress can address competitiveness and climate change — without breaking trade rules*, THE HILL (Jul. 19, 2022), <https://thehill.com/opinion/energy-environment/3561134-congress-can-address-competitiveness-and-climate-change-without-breaking-trade-rules/>.

⁶⁰ *Id.*

⁶¹ Zack Budryk & Rachel Frazin, *Republicans seek to repeal renewable tax credits, pass energy package in debt limit proposal*, THE HILL (Apr. 19, 2023), <https://thehill.com/policy/energy-environment/3959517-republicans-seek-to-repeal-renewable-tax-credits-pass-energy-package-in-debt-limit-proposal/>.

⁶² U.S. Environmental Protection Agency (EPA), *Integrated Iron and Steel Manufacturing: National Emission Standards for Hazardous Air Pollutants*, <https://www.epa.gov/stationary-sources-air-pollution/integrated-iron-and-steel-manufacturing-national-emission> (last accessed Apr. 3, 2023); 40 CFR §63:FFFFF.

⁶³ See *Massachusetts v. EPA*, 549 U.S. 497 (2007).

⁶⁴ Timothy Puko, *EPA plan would impose drastic cuts on power plant emissions by 2040*, THE WASHINGTON POST (Apr. 22, 2023), <https://www.washingtonpost.com/climate-environment/2023/04/22/epa-power-plant-emissions-climate/>.

⁶⁵ Lisa Friedman, *Democrats Propose a Border Tax Based on Countries’ Greenhouse Gas Emissions*, THE NEW YORK TIMES (Jul. 19, 2021), <https://www.nytimes.com/2021/07/19/climate/democrats-border-carbon-tax.html>.

However, because regulations do not impose an explicit carbon price, it will be much more difficult to establish and verify the amount of a border adjustment that would actually be “equivalent to” the incremental costs domestic producers bear from compliance with U.S. regulations. And, attempting to derive a carbon price from the effects of regulation raises another trade law issue about whether regulations affecting the costs of production processes can be used to calculate a border adjustment. The application of emissions regulations acts directly on corporations, and border adjustments can only be imposed for “indirect” taxes, which are taxes on products or the consumption of products.⁶⁶ Direct taxes cannot be adjusted or rebated.⁶⁷ Regulations that directly control corporate activity may be seen as functionally equivalent to “direct” taxes, and thus not a permissible basis to impose border adjustments under Article III.

3. Implications for Art. XX Exception

It may still be worth pursuing more stringent domestic regulations to help support the case for a carbon-based tariff under one of the exceptions in Article XX. The two most likely exceptions are in paragraph (b), which covers measures necessary to protect human, animal, and plant life and health, or (g), which relates to conservation of exhaustible natural resources; both paragraphs also require satisfying the Article XX chapeau, which prohibits border adjustments from being applied as a means of arbitrary or unjustifiable discrimination, or as a disguised restriction on trade.⁶⁸ Clean air has been determined to be an “exhaustible natural resource” covered by Article XX(g)⁶⁹ and a border tax aimed at reducing carbon emissions from the production of steel products is aligned with conserving this resource. Invoking paragraph (g) also requires that restrictions on domestic production or consumption be made in conjunction with the tax applied to imports,⁷⁰ and ambitious federal regulations restricting domestic industry’s ability to consume carbon-intensive energy or produce greenhouse gases should satisfy this requirement.

The most difficult part of Article XX to surmount is the chapeau – very few measures have met both requirements.⁷¹ Here, the argument would be that the U.S. has implemented strict emissions requirements to reduce greenhouse gas emissions from its domestic industry, and a border adjustment is necessary to prevent leakage of production into countries with less-strict emissions standards. Producers in jurisdictions with laxer emissions standards will bear lower costs of compliance per ton of steel, so the border tax is not arbitrary or unjustifiable. And, in a highly competitive commodity market, a carbon border adjustment is just leveling the playing field for domestic producers who must price the cost of retrofitting their facilities and buying cleaner power into their final product, so it is not a disguised restriction on trade. From a climate perspective, as long as total emissions are being reduced, it does not matter whether the main driver is regulatory

⁶⁶ Jennifer Hillman, “Changing Climate for Carbon Taxes – Who’s Afraid of the WTO?” (2013), *Georgetown Law Faculty Publications and Other Works*, 2030, <https://scholarship.law.georgetown.edu/facpub/2030>.

⁶⁷ *See id.* at 6-7 (discussing WTO law upholding border adjustments for the types of indirect taxes that increase the price of goods, like *US-Superfund*, but not direct taxes, *US-FSC*).

⁶⁸ *Id.* at 9-10.

⁶⁹ Appellate Body Report, *United States - Standards for Reformulated and Conventional Gasoline*, WTO Doc. WT/DS2/AB/R (adopted April 29, 1996).

⁷⁰ GATT art. XX(g).

⁷¹ Hillman, *supra* note 66 at 10 (only two of more than a dozen measures invoking Art. XX have been sustained).

requirements or taxes. If both have the effect of creating equally green steel products, then Article XX should be satisfied.

Recommendations:

- Impose a domestic carbon tax that is equal to the amount of the tariff on imports.
- If a tax is infeasible, enact domestic regulations on steel production that impose costs on domestic producers which are equivalent to the carbon tariff on imports.
- If a regulation cannot be proven to impose equivalent costs, it still may support the case for an Art. XX(g) exception.

D. Facilitate Technology Transfer and Technical Capacity Building.

A Green Steel Deal should include provisions to share production technologies that reduce emissions in traded steel, and to aid producers who must build new administrative and technical capacity to gather and report the necessary data.

1. Technology Transfer

From a climate perspective, it is important to use the best available technology for new steel plants (which have forty-plus-year lifespans) to avoid locking in long term emissions which would then have to be abated through expensive retrofitting or early retirement. In addition to technologies that reduce emissions from production processes, there are also technologies that change the properties of the steel product to make it more durable and long-lasting – higher materials efficiency can reduce the need for expensive industrial-process technology changes.⁷² Not all low-carbon steel production and materials technologies will be limited by intellectual property rights: some processes, like EAF production, are commercially well-established and can be made very low-carbon by using zero-emission electricity. However, fully decarbonizing the steel sector will require the development and deployment of new, breakthrough technologies.⁷³ Giving members of the Green Steel Deal more favorable licensing terms, as part of a patent pool or other technology sharing arrangement, may encourage more countries to join the agreement as well as facilitate dissemination of “greener” processes at an accelerated rate.

2. Technical Capacity Building

Another technical consideration for members of the Green Steel Deal is the amount of data gathering, reporting, and verification that will be required to establish a product-level carbon-intensity factor. Countries like the United States may have existing administrative and technical infrastructure in place to gather these detailed measurements, but assistance for producers in countries who currently lack this infrastructure should be included. Continuous monitoring and regular verification/audit to maintain a carbon-intensity score may be expensive for individual producers, especially if the data required

⁷² International Energy Agency, *Material efficiency in clean energy transitions*, 2 (March 2019) (Material efficiency strategies result in more moderate deployment needs for low-carbon industrial process technologies to achieve the same decarbonization outcomes).

⁷³ Mission Possible Partnership 2022 at 35 (noting while steelmakers can take some steps to reduce emissions today, they cannot eliminate all emissions).

is not something that company already reports for domestic regulations. Committing to transition assistance for developing countries could be a criterion for a country's participation in the deal, or a fund could be created using some portion of the revenues collected by total Green Steel Deal tariffs.

Recommendations:

- Facilitate access to the best available low-carbon technologies through patent pooling or other technology sharing arrangements.
- Provide developing countries with technical assistance for monitoring, reporting, and verification of carbon intensity.

E. Allow Participant Governments to Create Markets for Low-Carbon Steel.

In order to decarbonize the steel industry by 2050, substantial investment is needed, and because climate change is driven by cumulative emissions, the sooner these reductions come the better it will be for the planet.⁷⁴ Deploying new technologies at an accelerated pace is expensive, and, in the absence of an established market for green products, extremely risky for investors. Government support in creating a market for green steel – through avenues like tax incentives, public-private partnerships, grants, and procurement policies – will be necessary to spur the required investment. Under current WTO law, however, most government subsidies are actionable, allowing importing countries to impose additional duties on products benefiting from those subsidies. Some agreement on what kinds of government support for steel industry decarbonization will be permitted among Green Steel Deal members, and for how long, will need to be reached to effectively manage a cohesive trade agreement.

1. Tax Incentives

Governments can support the steel industry's low-carbon transition with policies affecting both supply and demand. On the supply side, governments may make tax credits available for retrofitting or building lower-carbon production facilities. The Inflation Reduction Act in the U.S. expanded tax credits for carbon capture, use and storage (CCUS) and direct air capture (DAC) technologies,⁷⁵ which could be used to retrofit BF-BOF facilities to lower emissions in the near-term. Additionally, the U.S. Department of Energy through its Office of Clean Energy Demonstrations (OCED) will provide funding for decarbonization projects focused on hard-to-abate industrial sectors, including steel.⁷⁶ These measures will help to increase the potential supply of green steel, but steel producers will also need to have certainty that there will be sufficient demand for these products.

⁷⁴ Mission Possible Partnership 2022 at 43 (achieving emissions reductions between 2020-2030 is needed to keep the industry within a Paris-consistent 1.5°C budget).

⁷⁵ Matt Bright, *The Inflation Reduction Act creates a whole new market for carbon capture*, CLEAN AIR TASK FORCE, Aug. 22, 2022, <https://www.catf.us/2022/08/the-inflation-reduction-act-creates-a-whole-new-market-for-carbon-capture/>.

⁷⁶ Department of Energy, *Biden-Harris Administration Announces \$6 Billion to Drastically Reduce Industrial Emissions and Create Healthier Communities*, Mar. 8, 2023 (highlighting the DOE Industrial Demonstrations Program funded by the Inflation Reduction Act).

2. Procurement Policies

On the demand side, governments can help develop a market for green steel through government procurement contracts, requiring that contractors bidding for government construction projects use green steel. Billions of dollars in government guaranteed purchase contracts helped enable the unprecedented development of multiple effective COVID-19 vaccines – a process that usually takes a decade or more – in less than a year.⁷⁷ The government made big investments that were “at risk” because the funds were committed before the vaccines were proven effective, but this risk was considered necessary to accelerate the development and distribution of an important vaccine.⁷⁸

Similar advance purchase agreements could be used to drive rapid innovation in green steel. The U.S. recently established a Buy Clean Task Force, by Executive Order, which is charged with developing guidelines for federal procurement projects that prioritize American-made, low-carbon building materials.⁷⁹ Through this program, U.S. Department of Transportation and General Services Administration will also develop policies that promote use of low-carbon building materials for projects that receive federal funding.⁸⁰ The U.S. government is collaborating with state governments (twelve states so far have committed to the Buy Clean partnership) and the private sector (through the First Movers Coalition, comprised of private companies who have made green purchasing commitments) to build a robust pipeline of demand for green steel.⁸¹ Steel is a low-margin product, and incremental increases in cost of production from decarbonization may drive green steel prices up as much as twenty percent over its carbon-intensive competition.⁸² To be effective, these procurement contracts, conditional funding programs, and voluntary purchasing commitments will have to incorporate some kind of green premium.

3. WTO Compatibility

All of the above policies raise questions under current WTO law related to the use of subsidies. In the Agreement on Subsidies and Countervailing Measures (ASCM), a subsidy is defined as a financial contribution provided by a government or public body that confers a benefit upon a specific industry.⁸³ Tax credits, grants, and green premiums are all financial contributions that the government is providing that confer benefits on the green-steel industry. Remedies for subsidies include imposing countervailing duties on the subsidized product or filing of a serious prejudice action at the WTO against the government providing the subsidy.⁸⁴ Legal challenges between parties for use of these subsidies would be counterproductive to the climate goals of a Green Steel Deal. Over

⁷⁷ Simi V. Siddalingaiah, Cong. Rsch. Serv., IN11560, Operation Warp Speed Contracts for COVID-19 Vaccines and Ancillary Vaccination Materials (2021).

⁷⁸ *Id.*

⁷⁹ The White House, *Executive Order on Catalyzing Clean Energy Industries and Jobs Through Federal Sustainability*, Dec. 8, 2021, <https://www.whitehouse.gov/briefing-room/presidential-actions/2021/12/08/executive-order-on-catalyzing-clean-energy-industries-and-jobs-through-federal-sustainability/>.

⁸⁰ The White House, *FACT SHEET: Biden-Harris Administration Advances Cleaner Industrial Sector to Boost American Manufacturing and Cut Emissions*, Mar. 8, 2023.

⁸¹ *Id.*

⁸² Emma Farge, *ArcelorMittal CEO says decarbonisation would drive steel prices up 10%-20%*, REUTERS, Mar. 9, 2023, <https://www.reuters.com/business/sustainable-business/arcelormittal-ceo-says-decarbonisation-would-drive-steel-prices-up-10-20-2023-03-09/>.

⁸³ WTO Agreement on Subsidies and Countervailing Measures (ASCM), Art. I.

⁸⁴ *Id.*

the next few years, both the EU and the U.S. plan to use a mix of these policies to decarbonize their domestic steel industries, and rapid decarbonization without government intervention is very unlikely. Some agreement between members of the deal on what decarbonization subsidy policies will be actioned (versus which ones are only technically actionable) will help promote a more stable investment environment. In order to minimize concerns about market distortion from state assistance to the steel industry, this portion of the agreement should be time-bound and phased out as green steel becomes more competitive without a green premium.

4. Non-Financial Support

In addition to financial support, governments can also provide other policy and regulatory support to the green steel industry. A coherent set of policy guidelines around what constitutes green steel may help companies feel more secure that their marketing of green products will not expose them to reputational or litigation risk over greenwashing. And alignment between the international carbon-intensity measurement standard adopted in the Green Steel Deal and measurement standards being considered other government agencies that are creating rules for carbon emissions corporate disclosures, such as the Securities and Exchange Commission (SEC), may also reduce information costs and transaction costs for private corporations seeking to be part of the green steel market.

Recommendations:

- Develop a framework that participant governments to use certain tax and procurement policies to support a domestic market for green steel without fear of countervailing duties or legal action.
- Set clear boundaries for use of these subsidies, including criteria for determining when subsidies are no longer absolutely necessary to bring green steel on an equal footing with undifferentiated steel.

V. CONCLUSION

A carbon-intensity based, WTO-compatible, Green Steel Deal could help the global steel industry accelerate its net-zero transition by providing incentives for producers to reduce the carbon intensity of their product. By using a common set of carbon-intensity measurements to calculate the costs imposed on high-carbon steel, instead of other non-environmentally based criteria, the Green Steel Deal can be more compatible with the principles of nondiscrimination in the GATT Articles I and III as well as more effective at combatting climate change. To comply with the equivalence provisions in Article III, or fit under one of the exceptions in Article XX, the U.S. must also implement some program that applies a domestic cost on high-carbon steel – either through Congress by imposing a domestic carbon price, or through executive action via a regulatory agency like EPA. Negotiating a trade agreement that focuses on entirely carbon, instead of on restricting access for non-market economies, will be politically challenging. However, given the substantial commitments the U.S. and the EU have recently made to invest in greening domestic industries (the IRA and the GIP), now is the best time to act. A carbon-based steel agreement will reward domestic producers who take advantage of the incentive programs the IRA and GIP provide for green investments, which may help build sufficient political support among industry and policy stakeholders.

The first priority for a Green Steel Deal should be developing clear and transparent standards for measuring carbon produced in the steelmaking process. Input from developing countries and industry participants should be solicited as part of the standard-setting process, to ensure that the resulting standards do not create additional unnecessary administrative burdens that exacerbate fragmentation in the low-carbon steel market. Given the long lifespan of steel production facilities, the Green Steel Deal should promote technology transfer between member parties, encouraging the use of best available technologies for all new installations. Where necessary, technical assistance should be provided to producers in countries without an already well-developed system for measuring and reporting emissions data. Parties to the deal should also acknowledge the need for near-term subsidies and government support in accelerating the transition to low-carbon steel; an agreement not to take action against each other for certain uses of government spending to promote a domestic market for green steel over some period of time will minimize friction between parties with different policies. Finally, this deal should be open to all countries willing to participate in reducing emissions in accordance with these standards.

CHAPTER 7: CAN INTERNATIONAL TRADE TOOLS ACCELERATE THE DEPLOYMENT OF CARBON-NEGATIVE CONCRETE?

JESSIE ARNELL

INTRODUCTION

Concrete is one of the most widely used and consumed substances on Earth, second only to water.¹ Concrete provides structures essential to daily life, including shelter, roads, buildings, hospitals and healthcare, critical protection from natural disasters, and transportation.² Concrete's popularity is largely due to its availability, durability, and low cost.³

Concrete, however, creates a myriad of environmental problems. The emissions required for its production are astronomical. In fact, for every metric ton of cement manufactured, about 1,370 pounds of carbon dioxide is produced.⁴ For example, "if the cement industry were a country, it would be the third largest carbon dioxide emitter in the world with up to 2.8bn tonnes, surpassed only by China and the US."⁵ Producing cement creates carbon dioxide in two main ways: (1) through the chemical reaction that forms clinker and (2) fossil fuel use in heating a kiln to the extremely high temperatures required to create cement. Cement production alone makes up at least 8% of global emissions.⁶ Compared to aviation, another enormous hurdle for combating climate change, cement production creates more than double the total global emissions, with aviation accounting for roughly 2.8% of global emissions.⁷

The International Energy Agency reports that the "cement sector is the third-largest industrial energy consumer and the second-largest industrial CO₂ emitter globally... Under a scenario that considers announced carbon mitigation commitments and energy efficiency targets by countries, the cement sector would increase its direct CO₂ emissions just 4% globally by 2050, for an expected growth of 12% in cement production over the same period."⁸ However, with the global goals in line with the Paris Agreement, to keep global warming to no more than 1.5°C, emissions globally will have to reduce 45% by 2030 and reach net zero by 2050.⁹ More must be done to decarbonize the cement and

¹ Jonathan Watts, *Concrete: the most destructive material on Earth*, The Guardian (Feb. 25, 2019), <https://www.theguardian.com/cities/2019/feb/25/concrete-the-most-destructive-material-on-earth>.

² *Id.*

³ *Concrete*, MIT Climate Portal <https://climate.mit.edu/explainers/concrete>.

⁴ Kristoffer Tighe, *Concrete is Worse for the Climate Than Flying. Why Aren't More People Talking About It?*, Inside Climate News (June 24, 2022), <https://insideclimatenews.org/news/24062022/concrete-is-worse-for-the-climate-than-flying-why-arent-more-people-talking-about-it/>.

⁵ Jonathan Watts, *Concrete: the most destructive material on Earth*, The Guardian (Feb. 25, 2019), <https://www.theguardian.com/cities/2019/feb/25/concrete-the-most-destructive-material-on-earth>.

⁶ Editorial, *Concrete needs to lose its colossal carbon footprint*, Nature (September 28, 2021), <https://www.nature.com/articles/d41586-021-02612-5>.

⁷ *Aviation – Analysis - IEA*, <https://www.iea.org/reports/aviation>.

⁸ *Technology Roadmap - Low-Carbon Transition in the Cement Industry – Analysis - IEA*, <https://www.iea.org/reports/technology-roadmap-low-carbon-transition-in-the-cement-industry>.

⁹ *For a livable climate: Net-zero commitments must be backed by credible action*, United Nations Climate Action, <https://www.un.org/en/climatechange/net-zero-coalition#:~:text=T0%20keep%20global%20warming%20to,reach%20net%20zero%20by%202050..>

concrete industries, not just to use low-carbon mitigation options and energy efficiency upgrades – although those are beneficial and will also be necessary, if the ultimate goal is to avoid the worst effects of climate change, the concrete and cement industries must embrace zero carbon and carbon-negative solutions.

Due to its weight, cement and concrete are often produced locally, with more than 150 countries producing cement or clinker,¹⁰ thus making the substances somewhat less trade exposed than a number of other carbon-intensive sectors.¹¹ Innovations in concrete production must be shared and deployed quickly and widely around the world if the global community is to reduce its emissions in order to avoid the worst impacts of climate change. Countries should leverage trade tools to expedite the implementation of important decarbonization inventions like carbon-negative concrete.

A. Differentiating Between Concrete and Cement

The words concrete and cement are often used interchangeably, but the two terms refer to different, but related, materials. Concrete typically contains several ingredients, one of which is cement.¹²

Cement consists of limestone mixed with a silica source, like fly ash or industrial byproducts slag. The mixture is then fired at 2,700 degrees Fahrenheit, forming a substance called clinker. Finally, cement plants grind clinker to a fine powder and additives are mixed in to create cement.¹³ Portland cement is the type of cement used in most concrete.

Concrete, however, typically consists of cement mixed with water to create a paste, and then the paste is mixed with aggregates such as sand, gravel, or crushed stone. Once the cement and water mix, through a process called hydration, and bind with the aggregates, it becomes the strong substance known as concrete.¹⁴ So, cement combined with water and aggregates equals concrete.

B. Cement and Concrete are Ripe for Regulation and Innovation

Governments have long been trying to regulate cement and concrete's carbon intensity. For example, the European Union has an Emissions Trading System (ETS) already in place for EU producers, and the EU is now applying the ETS at the border as part of a Carbon Border Adjustment Mechanism (CBAM). The CBAM regulates cement and concrete trade in an attempt to end carbon leakage. The CBAM strives to reduce 55% of the EU industries' CO₂ emissions between 1990 and 2023.¹⁵ Because the CBAM is relatively new, cement companies outside of the European Union will now face increased

¹⁰ *CO₂ Emissions Profile of the U.S. Cement Industry*, U.S. Environmental Protection Agency and ICF Consulting, <https://www3.epa.gov/ttnchie1/conference/ci13/ghg/hanle.pdf>

¹¹ *Low and zero emissions in the steel and cement industries*, (Nov. 20, 2019), https://www.oecd.org/greengrowth/GGSD2019_IssuePaper_CementSteel.pdf.

¹² Andrew Logan, *Explained: Cement vs. concrete — their differences, and opportunities for sustainability*, Massachusetts Institute of Technology (Apr. 3, 2020), <https://news.mit.edu/2020/explained-cement-vs-concrete-understanding-differences-and-sustainability-opportunities-0403>.

¹³ *Id.*

¹⁴ *Id.*

¹⁵ Jacob Winskell, *Too taxing? How the CBAM affects cement exporters to the EU*, Global Cement (June 29, 2022), <https://www.globalcement.com/news/item/14316-too-taxing-how-the-cbam-affects-cement-exporters-to-the-eu>.

costs and lower prices, for example, the United Kingdom’s cement industry “expects to pay an extra US \$30.1 million per year on account of the CBAM.”¹⁶

The United States Congress also included a proposed emissions cap for the cement industry in the almost-passed Waxman-Markey American Clean Energy and Security Act of 2009.¹⁷ Recently the Inflation Reduction Act included a tax credit for up to \$85 per metric ton of carbon dioxide captured and sequestered, which can include technologies like sequestering carbon dioxide in concrete.¹⁸ In 2021, California also enacted bipartisan Cement Decarbonization legislation to slash carbon pollution from cement as soon as possible, but no later than 2045.¹⁹ Governments and the private sector also have a role to play in funding research and development for decarbonization technologies in the concrete and cement industries. For example, the United States Department of Energy offers opportunities for Research, Development & Demonstration Activities, including industrial efficiency and decarbonization funding opportunities, workshops and webinars, as well as technical assistance.²⁰

In addition to regulation and funding for research and development, “another role for governments to play given that state-funded infrastructure accounts for an estimated 40-60 percent of all global concrete sales is tied to their purchasing habits: we need more governments to send demand signals through public procurement targets for near-zero cement.”²¹ Thankfully, the World Economic Forum has called on policymakers to decarbonize the cement sector.²² Additionally, “France recently framed a policy to reduce emissions from cement production by 35 percent by 2030, while Japan has also released its own roadmap... Canada has committed to co-lead the Breakthrough Agenda on Cement and Concrete. And China, which produces more than half the world’s cement, is planning to expand its emissions trading scheme to include the cement sector from 2023 or 2024 onwards.”²³ Governments want to reduce carbon emissions from cement and concrete production, and trade tools could help achieve these clear goals, along with regulations and funding.

I. AN EXCITING INNOVATION: CARBON-NEGATIVE CONCRETE

If the global community plans to address and combat climate change, the current rate and scale of concrete production as it stands cannot continue. Incredibly, scientists discovered methods to create carbon-neutral concrete and even carbon-negative concrete.

A. *Carbon-free, Carbon-neutral, and Net-zero Concrete vs. Carbon-negative Concrete*

Companies and teams of scientists have suggested that cement production could be less harmful by using renewable energy or alternative fuels to power the kilns (e.g. carbon-neutral concrete) while making cement. Several companies and universities have found

¹⁶ *Id.*

¹⁷ H.R. 2454, 111th Cong. (2009).

¹⁸ H.R. 5376, 117th Congress (2022) (enacted).

¹⁹ S.B. 596, (Ca. 2021), https://leginfo.ca.gov/faces/billNavClient.xhtml?bill_id=202120220SB596.

²⁰ *Cement Manufacturing*, Department of Energy <https://www.energy.gov/eere/iedo/cement-manufacturing>.

²¹ *How to decarbonize concrete and build a better future*, GreenBiz (Feb. 16, 2023), <https://www.greenbiz.com/article/how-decarbonize-concrete-and-build-better-future>.

²² *Id.*

²³ *Id.*

innovative ways to reduce concrete production's emissions and general environmental impact through differing additives and other techniques.²⁴

Because of cement and concrete's enormous carbon intensity and contributions to global emissions, the global community has come up with several suggestions for decarbonization. Greenbiz reports that there are "two routes to low-emissions cement [that] show particular promise, each roughly halving clinker's carbon footprint. One is to decarbonize the production of clinker, the other is to avoid using it altogether. Both processes will be needed...."²⁵

However, with all of the proposed decarbonization methods for the concrete and cement industries, the focus of this paper is specifically carbon-negative concrete. By using alternative ingredients and innovative processing, some teams have discovered that carbon dioxide can be sequestered and permanently stored inside the mixture that becomes concrete, instead of released through a chemical reaction while creating the cement used to make concrete.²⁶

B. Some Carbon-negative Concrete Leaders: Brimstone Energy, Carbicrete, CarbonCure, Massachusetts Institute of Technology, and CO2-SUICOM

Brimstone Energy

Brimstone Energy is a United States-based startup currently funded by Bill Gates's Breakthrough Energy Ventures.²⁷ The United States Department of Energy's ARPA-E program provided Brimstone Energy with the initial funding and early support for the revolutionary idea.²⁸ Instead of using carbon-heavy limestone, like most cement production, Brimstone uses carbon-free calcium silicate rock to produce a "chemically and physically identical [product] to conventional portland cement, with the same quality and performance."²⁹ According to Brimstone Energy, eliminating the use of limestone in the cement process also negates the release of carbon emissions during production (other than the energy used to produce the cement), which they estimate is up to 60% of cement's overall emissions.³⁰ Additionally, calcium silicate, which Brimstone uses instead of limestone, is "a hundred times more abundant than limestone." The Brimstone process could also be less expensive than traditional limestone portland cement, potentially making it not only an environmental incentive, but a cost-effective alternative as well.³¹ Brimstone Energy also adds magnesium to the cement mixture, which is a natural carbon sink, and helps to permanently remove atmospheric carbon dioxide.³²

Brimstone Energy's production is still in early days – the company plans to start production in 2023, and the \$55 million raised from Breakthrough Energy Ventures and

²⁴ Catherine Clifford, *These scientists bonded over toilet tech. Now they're working on carbon-free cement*, (Apr. 28, 2022), <https://www.cnbc.com/2022/04/28/carbon-free-cement-breakthrough-dcvc-put-55-million-into-brimstone.html>.

²⁵ *How to decarbonize concrete and build a better future*, GreenBiz (Feb. 16, 2023), <https://www.greenbiz.com/article/how-decarbonize-concrete-and-build-better-future>.

²⁶ *Concrete*, MIT Climate Portal <https://climate.mit.edu/explainers/concrete>.

²⁷ *Brimstone | Technology*, Brimstone <https://www.brimstone.energy/technology>.

²⁸ *Blog Post | ARPA-E Investor Update Vol. 11*, Arpa-E.Energy.Gov (Jan. 5, 2023), <https://arpa-e.energy.gov/news-and-media/blog-posts/arpa-e-investor-update-vol-11>.

²⁹ *Brimstone | Technology*, Brimstone <https://www.brimstone.energy/technology>.

³⁰ *Id.*

³¹ *Blog Post | ARPA-E Investor Update Vol. 11*, Arpa-E.Energy.Gov (Jan. 5, 2023), <https://arpa-e.energy.gov/news-and-media/blog-posts/arpa-e-investor-update-vol-11>.

³² *Brimstone | Technology*, Brimstone <https://www.brimstone.energy/technology>.

others in April of 2022 is being used to build the first industrial plant to create the carbon-negative portland cement.³³ Due to Brimstone's early stage, scalability is difficult to gauge. However, the U.S. Department of Energy sees the innovation as "commercially scalable."³⁴

Brimstone Energy has filed applications for three patents, which seem to be currently pending.³⁵ Trade tools could help accelerate the use and deployment of their proprietary technology and hasten carbon emissions reductions in the cement sector.

CarbiCrete

CarbiCrete, a Canadian company, is another leader in the carbon-negative concrete space. CarbiCrete, however, has a completely different patented process that does not use cement while making concrete. Instead, CarbiCrete replaces cement with steel slag, which is an industrial by-product, and then mixes it with other materials using standard concrete mixing equipment.³⁶ CarbiCrete's mixture can then be poured into precast concrete products and cured with carbon dioxide in an absorption chamber, where the gas reacts with the steel slag and forms calcium carbonates, thus permanently sequestering the carbon dioxide. The company sources the carbon dioxide used in its absorption chambers from industrial vents.³⁷ One important note is that CarbiCrete depends on other GHG-intensive production, like steel, for its product to succeed. While CarbiCrete is an incredibly helpful innovation for upcycling high carbon byproducts, it is important that there are so many other options to achieve carbon-negative concrete because the ultimate goal is to have fewer and fewer high emitting industries and industrial byproducts.

CarbiCrete claims that their Concrete Masonry Units (CMUs) have up to 20% lower material costs, are faster to full-strength concrete (under twenty-four hours), and have up to 30% better compressive strength than conventional CMUs.³⁸ Compressive strength is important because it is the capacity of a material to withstand loads, so as not to fracture or deform. CarbiCrete also claims that a typical plant's annual carbon reductions are equivalent to 20,000 tons of sequestered carbon emissions.³⁹ Another claim from CarbiCrete is that their process allows a typical plant to save 4,400 cubic meters of water annually.⁴⁰

Currently, CarbiCrete licenses their technology to precast concrete makers and manages the existing plants' retrofits, supply of carbon dioxide, and steel slag acquisitions.⁴¹ The company also holds an active European patent for "carbonate-bonded construction products from steel-making residues and method[s] for making the same."⁴²

³³ *Blog Post | ARPA-E Investor Update Vol. 11*, Arpa-E.Energy.Gov (Jan. 5, 2023), <https://arpa-e.energy.gov/news-and-media/blog-posts/arpa-e-investor-update-vol-11>.

³⁴ *Id.*

³⁵ *US20210070656A1*, Google Patents (Aug. 13, 2019), <https://patents.google.com/patent/US20210070656A1/en>.

³⁶ *Game-Changing Concrete Technology*, CarbiCrete <https://carbicrete.com/technology/>.

³⁷ Vanessa Bates Ramirez, *This Startup Is Producing the World's First Carbon-Negative Concrete*, (Dec. 27, 2022), <https://singularityhub.com/2022/12/27/this-startup-is-producing-the-worlds-first-carbon-negative-concrete/>.

³⁸ *Game-Changing Concrete Technology*, CarbiCrete <https://carbicrete.com/technology/>.

³⁹ *Id.*

⁴⁰ Vanessa Bates Ramirez, *This Startup Is Producing the World's First Carbon-Negative Concrete*, (Dec. 27, 2022), <https://singularityhub.com/2022/12/27/this-startup-is-producing-the-worlds-first-carbon-negative-concrete/>.

⁴¹ *Carbon-Negative Concrete*, CarbiCrete <https://carbicrete.com/>.

⁴² *EP3119730A4*, Google Patents (Mar. 21, 2014), <https://patents.google.com/patent/EP3119730A4/en>.

Because CarbiCrete plans to scale using already existing concrete plants and standard equipment, the potential for scaling quickly is enormous, albeit potentially limited by its dependence on high carbon byproducts.

CarbonCure

CarbonCure, another Canadian company, retrofits existing concrete plants with their technology that allows concrete producers to inject already captured carbon dioxide into concrete while it is being mixed. When injected, the carbon dioxide “reacts with the concrete mix and becomes a mineral that is permanently embedded. Best of all, the carbon dioxide mineralization also increases the concrete’s strength, resulting in economic and climate benefits—truly a win-win solution.”⁴³ CarbonCure sets itself apart from some of the other leaders in the space with a ready-mix product, in addition to a precast option.⁴⁴ The company also sells carbon credits, as “High-Quality Carbon Removal Credits You Can Trust” and the company claims that their “award winning technologies reduce and permanently remove tens of thousands of metric tons of carbon dioxide each year. This generates high-quality carbon credits that fund the immediate adoption and further development of innovative CCUS technologies that help to decarbonize the concrete industry.”⁴⁵ CarbonCure’s website advertises the innovation as permanent, verifiable, and, importantly, scalable. The company even shares earnings from carbon credit purchases with the concrete producers who adopt their technology to encourage more use.⁴⁶

Massachusetts Institute of Technology (MIT)

MIT’s process focuses on replacing portland cement with sodium bicarbonate (baking soda), and that change allows the process called carbonation to occur earlier and absorb more carbon dioxide. The team at MIT “demonstrated that up to 15 percent of the total amount of carbon dioxide associated with cement production could be mineralized during these early stages – enough to potentially make a significant dent in the material’s global carbon footprint.”⁴⁷ The MIT team’s work highlights that the pre-curing “capacity of concrete to sequester carbon dioxide has been largely underestimated and underutilized.”⁴⁸ Professor of civil and environmental engineering Admir Masic suggests, “Our new discovery could further be combined with other recent innovations in the development of lower carbon footprint concrete admixtures to provide much greener, and even carbon-negative construction materials for the built environment, turning concrete from being a problem to a part of the solution.”⁴⁹

CO₂-SUICOM

In 2008, Kajima Corporation and three other companies in Japan jointly developed a concrete product called CO₂-SUICOM. The group found that γ -C₂S (γ -dicalcium silicate)

⁴³ *CarbonCure*, <https://www.carboncure.com/about/>.

⁴⁴ *CarbonCure*, <https://www.carboncure.com/about/technologies/>.

⁴⁵ *CarbonCure*, <https://www.carboncure.com/carbon-credits/>. CCUS is Carbon Capture, Utilization, and Storage. This suite of technologies can capture carbon dioxide emissions from industrial processes and re-use the energy or store it.

⁴⁶ *Id.*

⁴⁷ David L Chandler, *New additives could turn concrete into an effective carbon sink*, Massachusetts Institute of Technology (Mar. 28, 2023), <https://news.mit.edu/2023/new-additives-concrete-effective-carbon-sink-0328>.

⁴⁸ *Id.*

⁴⁹ *Id.*

solidifies when it comes into contact with carbon dioxide.⁵⁰ In the product, the amount of cement needed to create concrete is cut to about one third, and because of the more effective absorption process with the CO₂-SUICOM mixture, producing the concrete actually absorbs carbon dioxide from the air.⁵¹ Although CO₂-SUICOM became available in 2011, its growth has only recently taken off due to its need for special equipment for production that prevents casting-in-place.⁵²

C. Example of A Carbon-negative Concrete Current Success Story: New York City

An apartment building in Manhattan's Upper West Side is paving the way forward for carbon-negative concrete. The building captures the carbon dioxide from its two gas boilers, cools the gas into a liquid, and then transports the liquid to a concrete factory in Brooklyn where the carbon is mixed with the cement and made into concrete blocks, permanently sequestered and stored.⁵³ The New York Times profiled the building and project, quoting the chief operating officer of CarbonQuest (the company running the building's system) as saying, "This is the first carbon capture system on a building that we're aware of anywhere in the world... And we expect that it won't be the last."

Although carbon-negative concrete has enormous potential to fight climate change, the building's owner apparently installed the innovative concrete technology not out of climate concerns, but in an attempt to comply with New York City's Local Law 97,⁵⁴ one of the most ambitious climate laws in the country, which will charge buildings that exceed emissions limits progressively higher fines.⁵⁵

CarbonQuest innovated a carbon capture system, which captures about 60 percent of the building's emissions, for a residential property and even designed it to run without constant human supervision.⁵⁶ Once the captured carbon dioxide is turned into a liquid and transported to Brooklyn, a concrete manufacturer uses CarbonCure technology to inject the carbon dioxide into the concrete. The installation and initial uptake of carbon-negative cement creation, in concert with captured building emissions, serves as an initial example for a symbiotic relationship between buildings that emit carbon dioxide and new infrastructure requiring concrete.

⁵⁰ *Carbon-Negative Concrete: A Game Changer for a Sustainable Future*, JapanGov - https://www.japan.go.jp/kizuna/2022/08/carbon-negative_concrete.html.

⁵¹ *Id.*

⁵² *Id.*

⁵³ Brad Plumer, *A Huge City Polluter? Buildings. Here's a Surprising Fix.*, The New York Times (Mar. 10, 2023), <https://www.nytimes.com/interactive/2023/03/10/climate/buildings-carbon-dioxide-emissions-climate.html?smid=nytcore-ios-share&referringSource=articleShare>.

⁵⁴ The New York City Department of Buildings has not yet approved carbon capture as a solution that complies with Local Law 97, but is currently conducting studies and investigating its applicability to meet the law's emissions reduction goals.

⁵⁵ Brad Plumer, *A Huge City Polluter? Buildings. Here's a Surprising Fix.*, The New York Times (Mar. 10, 2023), <https://www.nytimes.com/interactive/2023/03/10/climate/buildings-carbon-dioxide-emissions-climate.html?smid=nytcore-ios-share&referringSource=articleShare>.

⁵⁶ Brad Plumer, *A Huge City Polluter? Buildings. Here's a Surprising Fix.*, The New York Times (Mar. 10, 2023), <https://www.nytimes.com/interactive/2023/03/10/climate/buildings-carbon-dioxide-emissions-climate.html?smid=nytcore-ios-share&referringSource=articleShare>.

II. SOLUTIONS FOR IMPLEMENTATION: HOW TO USE TRADE TOOLS LIKE TECHNOLOGY TRANSFER TO ACCELERATE THE USE OF CARBON-NEGATIVE CONCRETE

A. *Technology Transfer Imperative*

Any and all of the technological innovations listed above, including those from CO₂-SUICOM, Brimstone Energy, CarbiCrete, CarbonCure and the Massachusetts Institute of Technology should be licensed, scaled, and deployed as soon as possible. All of the technology that could be helpful needs to be distributed worldwide. Because the innovations are similar, but also somewhat different variations reaching for the same goal – carbon-negative concrete – allowing different countries and environments to access the best technological solution for their specific needs will be critical. For example, in water-starved countries, using an innovation like CarbiCrete’s product could be especially helpful, because the mixture uses carbon dioxide and steel slag in place of some of the water, and therefore uses significantly less water, a resource that many places around the world desperately need to conserve.⁵⁷

Cement and concrete are very heavy materials, and because it is expensive to transport heavy things, concrete is often produced more locally.⁵⁸ The value to weight ratio therefore makes trading of the actual product less likely (although not unheard of, especially in coastal cities⁵⁹) between many typical trade partners. Instead, companies and institutions with innovations that could accelerate the decarbonization of the built environment, particularly through such a high-emitting industry like the cement and concrete industry ought to participate in a technology transfer.

Two Case Studies: The United States and The European Union

For example, the United States primarily produces its own clinker and cement, but relies on about 15% imports.⁶⁰ In 2020, 96 plants across the United States produced cement, while the 15% of imported clinker traveled largely from Asia, Europe, and to a lesser degree, Canada and Mexico.⁶¹

Another example, the European Union imported about \$383 million worth of cement and concrete in 2020, down by 17% from \$463 million in 2019.⁶² It remains to be seen how much the European Union will import once the new CBAM requirements kick in and importers are required to purchase ETS credits.

Please see the image below for additional context on cement exporters. The imports raise the question of whether imposing a border measure or tariff on dirty cement would be influential in producers switching over to carbon-negative alternatives. A regulation like a tariff could be particularly helpful if it applies to both domestic and imported cement and concrete, because if the regulation fits under Article III;4 of the General Agreement

⁵⁷ *Game-Changing Concrete Technology*, CarbiCrete <https://carbicrete.com/technology/>.

⁵⁸ *Low and zero emissions in the steel and cement industries*, (Nov. 20, 2019), https://www.oecd.org/greengrowth/GGSD2019_IssuePaper_CementSteel.pdf.

⁵⁹ M Garside, *Cement export volume by country worldwide 2021*, Statista (Oct. 10, 2022), <https://www.statista.com/statistics/586708/cement-export-weight-globally-by-key-country/>.

⁶⁰ *Covering the US Cement deficit*, (Sept. 6, 2021), <https://www.penta.net/wp-content/uploads/2021/10/COVERING-THE-US-CEMENT-DEFICIT-IR.pdf>.

⁶¹ *Id.*

⁶² Jacob Winskell, *Too taxing? How the CBAM affects cement exporters to the EU*, Global Cement (June 29, 2022), <https://www.globalcement.com/news/item/14316-too-taxing-how-the-cham-affects-cement-exporters-to-the-eu>.

on Tariffs and Trade, it would be unlikely to face trade challenges. Such a helpful technological innovation with enormous potential for global scalability is a prime candidate for technology transfer.

Leading Countries Based on Cement Export Volume Worldwide in 2021

Country	Exports in Million Metric Tons
Turkey	38.87
United Arab Emirates	15.26
Indonesia	12.05
Japan	11.45
Saudi Arabia	9.97
Pakistan	7.41
Germany	6.88
Egypt	6.65
Spain	6.51
Canada	5.27
Greece	4.2
Tunisia	3.07
Slovakia	2.4
Malaysia	2.37
China	2.2

Source: M Garside, Cement import volume by country worldwide 2021, Statista (Oct. 6, 2022), <https://www.statista.com/statistics/586728/cement-import-weight-globally-by-key-country/>.

Trade tools can be part of the solution to expand access to and accelerate deployment and implementation of carbon-negative concrete. Some of these potential tools include: pricing tools, product standards, financing options, and intellectual property tools.⁶³ The pricing tools could include price quotas, restrictions, and barriers to dirty cement and concrete; for example, a technical restriction like a regulation to increase the prices of dirty cement, dirty concrete use, and dirty production. The financing options could include subsidies, a conveyance supported through government procurement, green funds, carbon credits, and tax breaks. Some of the intellectual property tools could include compulsory licensing, royalties, waivers, and patent pooling. This paper will specifically focus on a few intellectual property tools as options to accelerate widespread deployment of carbon-negative concrete technology: (1) patent pooling, (2) compulsory licensing and intellectual property waiver options, and (3) the United Nations Technology Mechanism.

B. Patent Pooling

The basic logic behind a patent pool is that the transaction costs of exchanging rights (as compared to one-off licensing agreements) are significantly reduced, and the patent

⁶³ Please see the headnote of Part VI of this Book: “WTO Litigation and Defenses” for more detail on “like” product standards. The question here would be: does the like product standard have to be addressed for the variations of carbon-negative concrete that are functionally the same as portland cement and/or concrete?

system can often operate more efficiently.⁶⁴ In a patent pool, organizations are typically required to license all technology patents of use in the industry and members of the patent pool can use any other member's technology.⁶⁵ Some successful examples of industries using patent pool sharing include shoe machinery, aircraft, automobile, and sewing machine.⁶⁶ Because the technology and innovation is still in early stages for carbon-negative concrete and cement, a patent pool that still includes a licensing fee from other members or royalties is likely the more enticing option that could continue to encourage innovation while also sharing the climate change-fighting innovations. With respect to carbon-negative concrete, creating a place for voluntary releases of patent rights to seriously encourage sharing of technology, like a GAVI Alliance for climate change,⁶⁷ a patent pool would give companies easier access to clearer concrete options. Instead of having to negotiate individual agreements with each potential licensor, the licensee could have a set procedure to license carbon-negative concrete technology and information to transition fully, and as the use grows, the members of the pool could adjust royalty fees accordingly. Additionally, the members could collectively agree to an incentive structure for existing concrete producers to license the technology and join the patent pool, likely in the form of a subsidy.

One main benefit to a patent pool in this field is that there are currently so many promising innovations for different ways to make carbon-negative concrete and cement, and the concrete sector is so large and universally necessary, that having a suite of options already pre-negotiated and priced would likely encourage more uptake from producers. Concrete and cement producers could simply choose the technological innovation that best fits their needs and work with that specific patent. For example, some producers will need to create pre-cast concrete, some will need ready mix, some will need cement, some will want to dispose of steel slag, and some will want to conserve water. Luckily, the suite of options provided by the innovative concrete-negative companies and organizations should be able to accommodate different needs. Trade tools can help producers sort through options, if those with the intellectual property rights created a patent pool.

C. Intellectual Property Waiver and Compulsory Licensing

If governments wanted to take a more aggressive approach than a voluntary patent pool, an agreement could consist of a version of the Trade-Related Aspects of Intellectual Property (TRIPS) waiver that was agreed to during the COVID-19 pandemic or could mandate intellectual property sharing through compulsory licensing.⁶⁸ Again, because the innovations in concrete and cement are still so new, it would be unwise to remove payouts for companies, who would then have little to no incentive to continue innovating, so the agreement should allow companies to receive royalties for use.

⁶⁴ Robert P. Merges, *Institutions for Intellectual Property Transactions: The Case of Patent Pools* (1999), 19-20).

⁶⁵ *Id.*

⁶⁶ *Id.*

⁶⁷ *GAVI Alliance*, <https://www.who.int/europe/about-us/partnerships/partners/global-health-partnerships/gavi-alliance>. The GAVI Alliance is a global health partnership aimed at accelerating equal vaccine access and introducing new immunization technology, particularly for the world's poorest countries.

⁶⁸ Aaron Cosbey, *Trade and Climate Change: Issues in Perspective*, (Sept. 24, 2008), https://www.iisd.org/system/files/publications/cph_trade_climate.pdf.

Article 31 and 31bis of the TRIPS waiver permits compulsory licensing.⁶⁹ According to the World Trade Organization, “some developing country delegations negotiating climate change issues have argued that the ‘flexibilities’ in the TRIPS Agreement are significant for access to green technology. These flexibilities are in various provisions that allow governments to relax some basic obligations of intellectual property protection, such as patent rights, under certain conditions. (One of the most widely debated flexibilities is “compulsory licensing” for pharmaceuticals....)”⁷⁰ In fact, in March 2013, Ecuador submitted a document called “Contribution of IP to Facilitating the Transfer of Environmentally Rational Technology” that makes the case for extending the TRIPS waiver to technology to combat climate change.⁷¹ Following Ecuador’s logic, extending the TRIPS waiver from pharmaceuticals to climate change-fighting technologies, especially carbon-negative concrete and cement technological innovations, through compulsory licensing could compel acceleration and uptake.

It is, however, plausible that a waiver like the COVID-19 waiver would be unnecessary, and that the enormous emissions from the concrete and cement industries constitute a “case of a national emergency or other circumstances of extreme urgency....”⁷² It seems more likely that TRIPS could apply for compulsory licensing of intellectual property climate change technological innovations instead of the comparatively narrow cement and concrete technologies. On the other hand, because of concrete and cement’s high emissions, it is not implausible and more research would be beneficial.

D. United Nations Technology Mechanism

The Climate Technology Centre and Network (CTCN) implements the Technology Mechanism of the United Nations Framework Convention on Climate Change (UNFCCC). The Centre “promotes the accelerated transfer of environmentally sound technologies for low carbon and climate resilient development at the request of developing countries. The CTCN provides technology solutions, capacity building and advice on policy, legal and regulatory frameworks tailored to the needs of individual countries.”⁷³ This program could carve out a specific carbon-negative concrete and cement program to help evaluate the feasibility of widespread adoption of the new carbon-negative concrete and cement innovations, particularly for developing countries.

A few other considerations for effective implementation that the CTCN carbon-negative concrete and cement program could carefully research include: the proposed alternative technologies and the realities of construction decisionmakers. This paper has profiled a few leaders in the space, but as the technologies begin to scale up, issues will arise and cement companies will have preferences on which technologies are most viable for their production needs. As with other climate change-fighting technologies, marketing can be deceptive.⁷⁴ Some of the emerging technologies will likely generate more emissions

⁶⁹ WTO Analytical Index, *TRIPS Agreement – Article 31bis (Practice)*, https://www.wto.org/english/res_e/publications_e/ai17_e/trips_art31_bis_oth.pdf.

⁷⁰ WTO, *Climate Change and TRIPS* https://www.wto.org/english/tratop_e/trips_e/cchange_e.htm.

⁷¹ *Id.*

⁷² SHAYERAH I. AKHTAR, CONG. RSCH. SERV., R47231, WORLD TRADE ORGANIZATION: “TRIPS WAIVER” FOR COVID-19 VACCINES 9 (2022).

⁷³ *Climate Technology Centre and Network*, United Nations Environment Programme, <https://www.unep.org/explore-topics/climate-action/what-we-do/climate-technology-centre-and-network>.

⁷⁴ *Fossil Free Media*, Fossil Free Media (Feb. 10, 2023), <https://fossilfree.media/>.

than they save when scaled, some will be unscalable, and some are necessarily carbon-intensive because they rely on the byproducts of GHG-intensive production such as steel slag (see note about CarbiCrete above). Clarity and accuracy in feasibility will be important in giving potential investors and customers the confidence that the technologies can actually scale and succeed.

On a similar note, the cement and concrete industries are often not the decisionmakers on materials used. Oftentimes, architects, engineers, developers, contractors, or others control the specifications. These entities are constrained by building codes and other regulations, some of which may be nervous about potential liability associated with deviating from historical concrete specifications. Because of these potential liability fears, government participation in regulating buy clean materials like carbon-negative cement and concrete will be critical to the deployment's success and fitting equivalent goal demands.

While the CTCN likely does not have the authority for intellectual property sharing, the Centre's technical assistance, capacity building, and knowledge sharing expertise could make it a very promising partner for one of or multiple of the intellectual property solutions above. The Centre's research could also help to provide individualized solutions for developing countries' concrete and cement production uptake.⁷⁵

III. CONCLUSION: RECOMMENDATIONS FOR EFFECTIVE AND IMMEDIATE IMPLEMENTATION

A. Co-location with Renewable Energy

As more concrete and cement plants convert materials and production to carbon-negative solutions, and as new renewable energy sources increase globally, it would be wise to co-locate the renewable energy sources with concrete and cement plants. Incentivization for co-location in new concrete plants and renewable energy projects will save costs on transmission lines. It will also be beneficial in that by co-locating, plants will not use renewable energy that is highly in demand for food production or other essential goods that has to travel further on transmission lines. Because the kilns in all new plants should unquestionably be electric and use renewable energy, proactive cost-savings like co-locating with renewable energy projects could benefit both the producer and the consumer.

B. Overcoming Cost Hurdles

One of the biggest hurdles in making much of the carbon-negative concrete and cement technology work is shockingly acquiring the CO₂ and overcoming cost hurdles with respect to capture technology. Massive investment is needed. Whether the investments are private or public, investors are unlikely to fully commit unless policymakers adopt measures to ensure that if domestic cement and concrete are subject to carbon-intensity requirements, imported cement (not facing clean requirements) cannot replace domestic cement. Some of these measures could be free allowances under cap-and-trade programs, subsidies, border adjustments, or performance standards. Additionally, more air loops will be necessary to capture the CO₂ so that companies can add it into the concrete mixture and then permanently sequester it through the sequestration and storage method within the final products. Theoretically, the total

⁷⁵ *Climate Technology Centre & Network Progress Report 2019*, UN Environment Programme (2019) https://www.ctc-n.org/sites/www.ctc-n.org/files/resources/progress_report_2020_march_rev1.pdf.

sequestration potential once the capture technology scales equals half the weight of the cement, which could be carbonated.⁷⁶ Creating a market for removed CO₂ could help encourage scaling the capture technology.

Buy-clean procurement policies will be crucial for the carbon-negative concrete industry. Capturing and storing carbon permanently is expensive and in order to bring down the cost, provisions like the Inflation Reduction Act's 45Q, the \$180 per ton tax credit/direct pay for direct air capture stored permanently is stackable and should help bring down the cost of carbon removal to make it more affordable in the United States.⁷⁷ The Bipartisan Infrastructure Law also protects and encourages low carbon materials used for carbon storage and sinks, and several states like New Jersey, New York, California, and Hawaii have followed by enacting similar laws.⁷⁸

C. The Global Community Can Solve Concrete's Emissions Problem

Concrete and cement are necessary for today's society. Concrete is in our homes, hospitals, roads, highways, and bridges. It has become an essential fixture in today's built environment. The carbon-intensive process of making these products, however, is not. Instead of contributing at least 8% of global emissions annually, the concrete industry could capture and permanently sequester carbon.⁷⁹ Widespread uptake of carbon-negative concrete innovation is a key piece of the climate puzzle that the global community should embrace.

Only 2% of cement is produced in the United States, where so many of the incentives currently exist, so using trade tools to get the carbon-negative concrete and cement technology to emerging markets will be where the fight against climate change can really be influenced.⁸⁰ Even further, governments are huge purchasers of concrete and cement, accounting for about 40% of cement and concrete.⁸¹ So, governmental agreements could actually influence the adoption of carbon-negative concrete to an enormous degree.⁸² The top cement producers in 2022 was China, by far, with India as a distant second, so in order for governmental agreements to succeed, both will need to be on board with the agreement.⁸³ At the end of the day, combatting climate change is more important than concrete production protection measures. However, by using trade tools such as technology transfer and financial incentives, the adoption of carbon-negative concrete technologies could continue to encourage innovation, be inclusive, and most importantly, combat climate change.

⁷⁶ David Roberts, *Taking carbon out of the air and putting it into concrete*, Volts (Mar. 1, 2023), <https://www.volts.wtf/p/taking-carbon-out-of-the-air-and#details>.

⁷⁷ *Id.*

⁷⁸ *Id.*; Office of the Governor, Governor Murphy Signs Legislation to Incentivize D (Jan. 30, 2023), <https://www.nj.gov/governor/news/news/562023/20230130d.shtml>.

⁷⁹ Editorial, *Concrete needs to lose its colossal carbon footprint*, Nature (September 28, 2021), <https://www.nature.com/articles/d41586-021-02612-5>.

⁸⁰ David Roberts, *Taking carbon out of the air and putting it into concrete*, Volts (Mar. 1, 2023), <https://www.volts.wtf/p/taking-carbon-out-of-the-air-and#details>.

⁸¹ INFOGRAPHIC: *En route to a green future with low-carbon steel, cement and concrete*, Industrial Decarbonization Accelerator <https://www.industrialenergyaccelerator.org/general/infographic-en-route-to-a-green-future-with-low-carbon-steel-cement-and-concrete/>.

⁸² *Id.*

⁸³ M Garside, *Cement production global 2022*, Statista (Apr. 11, 2023), <https://www.statista.com/statistics/1087115/global-cement-production-volume/>.

CHAPTER 8: ESTABLISHING A NEW INTERNATIONAL REGIME FOR WATER

BRETT DAVID GERARDI*

As global temperatures continue to rise due to climate change, the availability of fresh water will continue to decline. This water-scarcity crisis will be felt unevenly across the world, with already water-scarce countries in the Middle East and North Africa suffering the most, while water-rich countries like Russia and Canada are less affected. To address these inequities, international trade in bulk water has been suggested as a solution. However, there is a catch. It is unclear whether international trade law applies to bulk water transfers, and if it does, the trade rules would present significant obstacles towards reducing global water-scarcity by second-guessing conservation measures and reducing the flexibility of governments to react to short- and long-term crises. Therefore, bulk water transfers should be exempted from the international trade legal regime. In place of the WTO rules, international water sharing agreements and the United Nations climate framework should be relied upon and expanded to promote conservation, address disputes, and ensure an equitable allocation of water resources around the world.

INTRODUCTION

The world is facing a water scarcity crisis. Currently, over three billion people live in countries where human and environmental demand for freshwater outpaces the available resources.¹ Worse, this crisis is expected to become significantly more intense as the planet warms. Increasing temperatures due to climate change are likely to cause 72% of the global land area to become drier, weakening the ability of ecosystems to sustain human, animal, and plant life.² Extreme climatic events like floods, hurricanes, and monsoons are also expected to increase in severity, leading to the further degradation of water resources by disrupting increasingly stressed water infrastructure.³ This disruption will inevitably lead to further overdrawn which can have devastating effects on public health, economic development, and international relations.⁴ When water resources such as lakes, wells, rivers, and aquifers are diminished from overuse, the concentration of pollutants increases, leading to diseases like cholera, typhoid, and hepatitis.⁵ Further, the prolonged droughts caused by water-scarcity can elevate the risk of wildfires and lead to conflicts at the local and international level.⁶

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¹ UN-Water. 2022. *Scarcity | UN-Water*. Available at: <<https://www.unwater.org/water-facts/scarcity/>>.

² 10 New Insights in Climate Science 2020. 2022. 4: *Climate change will severely exacerbate the water crisis - 10 New Insights in Climate Science 2020*. Available at: <<https://10nics2020.futureearth.org/10-new-insights-in-climate-science/4-climate-change-will-severely-exacerbate-the-water-crisis/>>.

³ Id.

⁴ See Felter, C. and Robinson, K., 2021. *Water Stress: A Global Problem That's Getting Worse*. Council on Foreign Relations. Available at: <<https://www.cfr.org/backgrounder/water-stress-global-problem-thats-getting-worse>>.

⁵ Id.

⁶ Garthwaite, J., 2019. *The effects of climate change on water shortages*. Stanford Earth. Available at: <<https://earth.stanford.edu/news/effects-climate-change-water-shortages#gs.zgodq3>>.

The impact climate change will have on water will be felt differently throughout the world, with the Middle East, North Africa, and India potentially facing extreme water-scarcity, using up to 80% of the available surface and groundwater supply in an average year.⁷ On the other hand, while more northern countries like Canada and Russia will still be affected by climate change, these countries have vast water resources and are not expected to experience similarly severe water shortages.⁸ Thus, one way to address the worsening water-scarcity crisis is to ensure a more efficient distribution of water resources. To this end, international trade in bulk water between water-rich and water-scarce countries has been suggested as a way to achieve this efficient distribution and tackle the water scarcity crisis.⁹

However, there is a catch. As it stands, the current international trade laws present a significant obstacle for countries attempting to adapt to water scarcity issues brought on by climate change. Climate change will bring volatility and uncertainty to the availability of water resources, and in response, countries need to be able to act swiftly and retain flexibility in dealing with potential crisis. The international trade rules work against this by second-guessing the legitimacy of state action, giving greater weight to trade considerations than conservationist ones, and imposing penalties when states attempt to constrain trade to conserve domestic water supplies.¹⁰ In this vein, the trade rules create an incentive structure contrary to conservationist goals by penalizing water rich nations favoring domestic water and water-scarce nations favoring foreign water, potentially leading to overdrawing on a global scale. Thus, to increase the capacity for nations to adapt to the challenges of climate change, bulk water transfers should be exempt from the international trade law regime. In its place, international water sharing agreements between nations that share a common water resource and the international climate change framework should be used to promote conservation, address disputes, and ensure an equitable allocation of water resources around the world.

Section I of this paper will examine the ways in which water can be transferred across borders and the extent to which those transfers are subject to international trade law under the General Agreement on Tariffs and Trade (GATT). Section II discusses the consequences of applying the GATT to bulk water transfers and whether the exceptions to the agreement can be used to justify trade restrictions on water. Section III discusses international water sharing agreements and the current United Nations climate framework for water. Finally, section IV summarizes the main findings of these discussions and proposes recommendations for how the regimes of international trade law, water sharing agreements, and UN climate agreements can be used and modified to alleviate increasing water scarcity brought on by global climate change.

⁷ Dormido, H., 2019. *These Countries Are the Most at Risk From a Water Crisis*. Bloomberg.com. Available at: <<https://www.bloomberg.com/graphics/2019-countries-facing-water-crisis/>>.

⁸ Misachi, J., 2018. *Which Country Has the Most Fresh Water?*. WorldAtlas. Available at: <<https://www.worldatlas.com/articles/countries-with-the-most-freshwater-resources.html>>.

⁹ "Bulk water transfers" means water intended for potable uses, which is transported via tanker, truck, or an equivalent means from one country to another for the purposes of treatment, processing, packaging and/or human consumption; Temmerman, F., 2017. *Trade in water under international law*. Northampton, MA: Edward Elgar Publishing Limited, pp.1-24.

¹⁰ see Brown Weiss, E., 2013. *International Law for a Water-Scarce World*. Koninklijke Brill NV, p. 266-68.

I. INTERNATIONAL TRADE OF WATER

A. *Water Can Be Transferred Across Borders in Processed, Bulk, Natural, and Virtual Forms.*

To understand how, and in what circumstances, international trade rules apply to water, it is important to distinguish the different ways in which water is traded. In her book, *International Law for a Water Scarce World*, international trade legal scholar Edith Brown Weiss identifies four forms in which water crosses national boundaries: processed, bulk, natural, and virtual.¹¹ Processed water refers to water that has been taken from its natural state and converted into marketable goods like bottled water, soft drinks, and juices. This is the most common form in which water is traded internationally, and demand for it has been increasing globally for several decades.¹² These products have long been recognized as a commodity subject to international trade rules,¹³ as they are expressly recognized as such under the North American Agreement on Free Trade (NAFTA) and the later United States-Mexico-Canada Agreement (USMCA), the Harmonized Tariff Schedule of the United States (HTSUS), and the Agreement on Technical Barriers to Trade (TBT).¹⁴

However, despite the prevalence of trade in bottled water, the water-scarcity crisis remains. This has led experts to look towards another way in which water can be traded: bulk water transfers.¹⁵ Bulk water transfers reflect the conflict between trade rules and adaptation because, depending on the applicability of said rules, these transfers may pit conservational and ecological concerns against free trade.

Water also crosses international borders naturally, through rivers, lakes, and aquifers where it can then be diverted from its natural state for use within the country.¹⁶ These shared natural resources are often accounted for under international water sharing agreements which provide for their own enforcement measures, conflict resolution strategies, and payment plans.¹⁷ Whether, and the extent to which, international trade rules apply to bulk and natural water transfers remains unresolved due to the unique importance of water as an element essential to all life and the complete lack of disputes brought before the World Trade Organization's Dispute Settlement Board (DSB).¹⁸

B. *The Current Status of Water under International Trade Law is Unclear*

The issue of whether bulk water transfers are subject to international trade law depends on whether and to what extent it can be classified as a 'good' or 'product' under

¹¹ Virtual water is defined as the water used to create a service or product. Under this understanding, countries in which fresh water is scarce can ease the burden of their water systems by importing water-intensive products while water-rich countries can profit by becoming exporters of such goods. Though not discussed in this paper, virtual water transfers may be an important tool to alleviating global water scarcity, especially in the face of climate change. For more information on how virtual water transfers are handled under international trade law, see Brown Weiss, E., 2013. *International Law for a Water-Scarce World*. Koninklijke Brill NV, p. 279-84.

¹² Gualtieri, A., 2008. *Legal Implications of Trade In 'Real' And 'Virtual' Water Resources*. International Environmental Law Research Center, pg. 8. Available at: <<https://www.ielrc.org/content/w0802.pdf>>.

¹³ *Id.*

¹⁴ *Id.*

¹⁵ See Brown Weiss, *supra* note 10, at 260.

¹⁶ Brown Weiss, *supra* note 10, at 246.

¹⁷ Dinar, S. and Dinar, A., 2017. *Lessons From International Water Sharing Agreements for Dealing With Climate Change*. New Security Beat. Available at: <<https://www.newsecuritybeat.org/2017/06/lessons-international-water-sharing-agreements-dealing-climate-change/>>.

¹⁸ Gualtieri, *supra* note 12, at 8.

the GATT.¹⁹ The GATT does not contain a definition for either of these terms that would aid in answering this question, so experts first look to the ‘Harmonized Commodity Description and Coding System’ (HS) which serves as the basis for countries’ WTO schedules of commitments. While the HS contains several different classifications of water under tariff headings,²⁰ the Canadian government has clarified that the tariff schedule “does not tell us if and when water is a good; it only tells us that when water is classified as a good, it falls under a particular tariff heading.”²¹

Nevertheless, relying on the water tariff headings, most argue that the GATT covers any diversion of water from its natural state resulting from human intervention such as bottling, pumping, or the mere removal of bulk freshwater from its natural bed to convert it to a traditional good or product.²² However, Brown Weiss argues for further distinguishing based on the extent of human ‘control’ exerted on water where actions such as altering water courses to force water to flow to a destination such as damming (some degree of human intervention but not enough to make it a ‘product’) would not convert the water into a ‘product’ whereas diversions by pipeline (human intervention has removed it entirely from its natural state, thus making it a ‘product’) would.²³ A more expansive view is that when freshwater resources such as wells or lakes are put up for sale, they are already considered to be a tradable ‘product’ and thus would be subject to the GATT.²⁴ This view is consistent with the *US - Lumber* case where the Appellate Body of the WTO ruled that trees in their natural state are considered goods subject to the GATT by broadly interpreting goods to include ‘property or possessions’.²⁵ However, it is generally accepted that due to water’s uniqueness and vital role in sustaining human life, it differs from other natural resources and should therefore receive different treatment under the GATT.²⁶

Canada, Mexico, and the United States addressed this issue in relation to the NAFTA by stating that “Water in its natural state in lakes, rivers, aquifers, water basins, and the like is not a good or product, is not traded, and therefore is not and never has been subject to the terms of any trade agreement.”²⁷ While doubts exist as to the legal merit of this statement, the Canadian Department of Foreign Affairs and International Trade reaffirmed their commitment to this principle by stating that until water is ‘transformed into saleable commodities through harvesting or extraction’, it remains outside the scope of trade agreements.²⁸ Nevertheless, determining at what point this transformation occurs

¹⁹ Temmerman, *supra* note 9, at 28-50.

²⁰ *Id.*

²¹ Canadian Department of Foreign Affairs and International Trade, “Bulk Water Removals and International Trade Considerations,” 16 November 1999, in International Joint Commission, *Protection of the Waters of the Great Lakes: Final Report to the Governments of Canada and the United States*, 22 February 2000, at p.67.

²² Brown Weiss, *supra* note 10, at 260; Temmerman, *supra* note 9, at 28-50.

²³ See Stefan Lorenzmeier, *Wasser als Ware*, Augsburgsberger Rechtsstudien Band 50 (Baden-Baden: Nomos, 2008), at 53-6; Temmerman, *supra* note 9, at 28-50; Brown Weiss, *supra* note 10, at 260.

²⁴ Temmerman, *supra* note 9, at 28-50.

²⁵ See WTO, Report of the Appellate Body, *United States – Final Countervailing Duty Determination with Respect to Certain Softwood Lumber from Canada*, WT/DS257/AB/R, 19 January 2004 (hereafter referred to as *US – Lumber CVDs Final (AB)*), at paragraphs 59, 67.

²⁶ Temmerman, *supra* note 9, at 28-50.

²⁷ 1993 Statement by the Governments of Canada, Mexico, and the United States, available at <<https://publications.gc.ca/Collection-R/LoPBdP/EB/prb995-e.htm>>.

²⁸ See Szewedo, P., 2018. *Cross-Border Water Trade*. Boston: BRILL, at 90-95; *Bulk Water Removals and International Trade Considerations: Document from the Canadian Department of Foreign Affairs and International Trade, Nov. 15, 1999*,

also remains unsettled, however experts generally agree that once bulk freshwater is removed from its natural state, it is considered a tradable good subject to the GATT.²⁹

Scholars have thus noted that the question of whether or not bulk freshwater is subject to the GATT is complicated, especially because there is no case law involving water from the WTO Dispute Settlement Body (DSB).³⁰ Determining the applicability of international trade rules to water is important because it dictates the ability for water exporting countries to limit or ban exportation of their water resources and whether water importing countries can bring a claim before the WTO DSB against those restrictive measures.³¹ In the event that a dispute is submitted to the DSB, which grows more likely as water scarcity worsens and countries depend more on trade in water, it is generally believed that water will ultimately be considered as falling under the scope of the GATT.³² It is therefore crucial to understand the consequences of the application of the GATT to trade in water assuming that it is considered a 'good' or 'product' under the agreement.

II. CONSEQUENCES OF APPLYING THE GATT TO BULK WATER TRANSFERS AND THE EXCEPTIONS THAT MAY APPLY

A. *If Bulk Water is Subject to International Trade Law, Countries Will Be Restricted in How They Can Respond to Increasing Water-Scarcity.*

To the extent that water is subject to the GATT, at least four Articles are relevant: Article I on Most Favoured Nation Treatment (MFN); Article III on National Treatment; Article XI on General Elimination of Quantitative Restrictions; and Article XX on General Exceptions.³³

Under Article I, all WTO member states must be treated on an equal footing and grant each other equal treatment of like products originating or destined for the territories of all other members.³⁴ As applied to trade in water, this Article would prevent nations from imposing taxes or tariffs on water transfers above what is included in their tariff schedules in an attempt to discriminate between imports from different WTO members.³⁵ Absent the MFN provision, duties could be imposed on water imported from water-scarce countries in order to dis-incentivize their exports, or alternatively, tariffs could be lifted on water imported from water-rich countries in an effort to efficiently distribute water resources to where they are most needed. Unfortunately, to the extent that water is subject to the GATT, such policies would violate Article I and are illegal under international trade law unless an exception can be applied.³⁶

Article III sets forth the national treatment principle which holds that once goods have entered a market, no less favorable treatment can be applied to foreign goods

International Joint Commission, Protection of the Waters of the Great Lakes: Final Report To The Governments of Canada and the United States, February 22, 2000, p.67.

²⁹ Temmerman, *supra* note 9, at 28-50; *But See* Brown Weiss, E., 2008. *Fresh water and international economic law*. Oxford: Oxford University Press pg. 80 (Brown Weiss argues that at least one additional step should be taken to transform water into traditional water 'products' such as bottled water before it is subject to the GATT).

³⁰ Gualtieri, *supra* note 12, at 8.

³¹ *Id* at pg. 9.

³² *Id*.

³³ See Brown Weiss, *supra* note 10, at 263.

³⁴ General Agreement on Tariffs and Trade, Oct. 30, 1947, 61 Stat. A-11, 55 U.N.T.S. 194 [hereinafter GATT 1994].

³⁵ See *Id* at art. I.

³⁶ *See Id*.

compared to domestic goods.³⁷ Applied to trade in bulk water, this provision would require that countries tax and regulate domestic and foreign bulk freshwater trading companies alike, without any discrimination.³⁸ Thus, a water-rich country would face WTO scrutiny and penalties if it attempted to disincentivize imports from other countries by imposing stricter regulations or higher taxes on foreign bulk water goods.³⁹

The most significant conflict between water trade control measures and the GATT arises under Article XI, paragraph 1. This provision prohibits all measures other than duties, taxes, or other charges on imports and exports. Therefore, states are precluded from imposing export bans or quotas on the amount of traded water that can be exported. It is important to note, however, that the extent to which Article XI applies depends on the status of water as a good or product subject to the trade rules. If the DSB takes a position like that in *US-Lumber* and declares natural freshwater resources to be products, Article XI's prohibition on export bans would extend to these resources as well. However, as mentioned above, due to the uniqueness that water holds as a resource essential to all life, this is unlikely to be the case. Therefore, Article XI is likely to only apply if a specific transfer of bulk fresh water is considered a good or product.⁴⁰ Thus, export bans would not violate this provision up to the point at which water is considered a 'good' and subject to the GATT. Again, however, because the DSB has not settled the issue of whether freshwater resources are subject to the international trade regime or at what point enough control has been exerted over the natural resource to convert it to a 'good' or 'product,' Article XI's extent also remains unclear.⁴¹

An exception to this rule is built into Article XI under XI(2)(a) when countries face shortages of foodstuffs and other essential products, however, as will be discussed below, the extent to which this exception applies to trade in water is not entirely clear. A working paper from the International Environmental Law Research Centre (IELRC) noted that as applied to trade in water, Article XI would constrain WTO members from establishing policies or legislation to regulate or prohibit bulk water exports.⁴² Although there is no case law applying this provision to trade in water, in the *Canada Herring and Salmon* case, the DSB found that measures adopted by Canada to prohibit the export of unprocessed herring and salmon were violations of Article XI and further not justified under any GATT exceptions.⁴³ Thus, any prohibition aimed to limit water exports is in principle forbidden under Article XI unless it can be justified under the following exception.

B. Restrictions on Trade in Water May Be Justified Under the GATT in Limited Circumstances

1. Article XI, paragraph 2(a)

The GATT contains an exception to Article XI which temporarily allows export prohibitions applied to prevent or relieve "shortages of foodstuffs or other products

³⁷ *Id* at art. III.

³⁸ Temmerman, *supra* note 9, at 28-50.

³⁹ *See Id.*

⁴⁰ Brown Weiss, *supra* note 10, at 263.

⁴¹ *See* Gualtieri, *supra* note 12, at 8.

⁴² *See* Gualtieri, *supra* note 12, at 8.

⁴³ *Canada - Measures Affecting Exports of Unprocessed Herring and Salmon*, Panel Report, *Canada - Measures Affecting Exports of Unprocessed Herring and Salmon* (BISD 35S/98, 22 March 1988).

essential to the exporting contracting party.”⁴⁴ When instituting restrictions specifically on foodstuffs under this exception, countries must give “due consideration to the effects... on importing states’ food security.”⁴⁵ In the *China – Raw Materials* case, the WTO Appellate Body (AB) clarified that the language “essential to the exporting” Member requires that the product be indispensable to that particular member for a restrictive measure to be justified.⁴⁶ Furthermore, the AB held that the determination of whether a product is essential to a particular member is reviewable by the WTO panel and should take into consideration the “particular circumstances faced by that Member at the time when a Member applies a restriction or prohibition.”⁴⁷ Despite the power given to the WTO panel to second-guess a country’s determination of what it finds essential, Brown Weiss suggests that the universal importance of water means that its ‘essentiality’ is unlikely to be an issue.

Thus, because water can aid in preventing or relieving shortages of foodstuffs and can, in its own right, be considered a product essential to the exporting Member, the IELRC argues that states could temporarily halt water exports under this exception if faced with a critical shortage of water for human consumption or agricultural uses.⁴⁸ However, importantly, this exception does not apply when states seek to ban water exports on other conservational grounds. Additionally, even if states are facing shortages, they are restricted in how much they can prohibit their exports due to the requirement that they balance their own food security interests with those of the importing state.⁴⁹ Furthermore, because this exception is designed to deal with emergency situations, the exception only applies in situations where the measures imposed are temporary to relieve similarly temporary shortages.⁵⁰ Thus, while this exception may be useful in alleviating the effects of critical water shortages due to natural disasters or unforeseen droughts, it does not seem to allow countries to take precautionary measures to prevent such shortages from occurring in the first instance.

2. Article XX

Article XX of the GATT sets out general exceptions which can be invoked to justify restrictive or prohibitive measures applied to water exports that would otherwise violate other provisions of the agreement.⁵¹ According to Article XX,

‘[N]othing in this Agreement shall be construed to prevent the adoption or enforcement by a contracting party of measures: [...]

(b) necessary for the protection of human, animal or plant life or health;’ [...]

(g) relating to the conservation of exhaustible natural resources, provided that such measures are made effective in conjunction with restrictions on domestic production and consumption.’

⁴⁴ GATT 1994 at art. XI.

⁴⁵ *Id.*

⁴⁶ See WTO, Report of the Panel, *China – Measures Related to the Exportation of Various Raw Materials*, WT/DS394/R, WT/DS395/R, WT/DS398/R, 5 July 2011 at para 7.275 [hereinafter *China – Raw Materials*].

⁴⁷ *Id.* at para 7.276.

⁴⁸ Gualtieri, *supra* note 12, at 9.

⁴⁹ See GATT 1994 at art. XI.

⁵⁰ See *China-Raw Materials*, *supra* note 46, at para 7.297.

⁵¹ Gualtieri, *supra* note 12, at 9.

Like Article XI, there have been no cases regarding the applications of these exceptions to trade in water brought before the DSB.⁵² Additionally, the disputes that have been brought regarding Article XX have solely concerned import restrictions rather than restrictions on exports for conservation purposes. Due to these ambiguities, it is necessary to further understand how the (b) and (g) exceptions and the chapeau to Article XX operate to understand if they could be invoked to protect domestic water supplies.

a. Paragraph (b)

Paragraph (b) of Article XX allows states to impose trade restrictions if they are ‘necessary for the protection of human, animal or plant life or health’.⁵³ Determining whether restrictions are ‘necessary’ to achieve the legitimate objectives requires a balancing test which measures the contribution made by the compliance measure to the enforcement of the law or regulation at issue, the importance of the common interests or values protected by that law, and the accompanying impact of the law on imports and exports.⁵⁴ In these issues, the AB has stated that the more important the common interest, the easier it is to establish that a measure designed to protect those interests would be considered ‘necessary’.⁵⁵

With regards to restrictions aimed at conserving domestic water supplies, although this exception is normally invoked to justify import restrictions, the text of Article XX states that, “nothing in *this Agreement* shall prevent adoption of measures...”⁵⁶ ‘Agreement’ here refers to the GATT in its entirety, meaning that both the (b) and (g) exceptions apply to XI and its prohibition on both export and import quotas/bans.⁵⁷ Countries could clearly invoke this provision as water is certainly a ‘vital resource’ and the protection of this common interest would likely be viewed as very important, thus making it easier to establish protective restrictions as necessary.⁵⁸ To this end, scholars have argued that such restrictions could be justified as they would be necessary to protect ecosystems or alleviate water shortages for consumption or agricultural purposes.⁵⁹

b. Paragraph (g)

Paragraph (g) of Article XX allows states to impose trade restrictions relating to the conservation of exhaustible natural resources.⁶⁰ Although there is no indication in the GATT that water is specifically designated as an exhaustible natural resource, in *Shrimp-Turtle* the Appellate Body stated that the term ‘natural resources’ is evolutionary and not meant to only apply in certain specified instances.⁶¹ Following this logic, the DSB has held a variety of resources including tuna, sea turtles, and air to fit within this exception.⁶² Furthermore, in *Reformulated Gasoline*, the Appellate Body held that clean air was an

⁵² *Id.*

⁵³ GATT 1994 at art. XX.

⁵⁴ See Report of the Appellate Body, *Korea - Measures Affecting Imports of Fresh, Chilled and Frozen Beef* (WT/DS161/AB/R; WT/DS169/AB/R, 11 December 2000), paragraph 164 [hereinafter *Korea-Beef*].

⁵⁵ See *Id.* at paragraph 162; Gualtieri, *supra* note 12, at 10.

⁵⁶ GATT 1994 at art. XX (emphasis added).

⁵⁷ See *Id.*

⁵⁸ See *Korea-Beef*, *supra* note 54, at paragraph 164.

⁵⁹ Temmerman, *supra* note 9, at 28-50.

⁶⁰ GATT 1994 at art. XX.

⁶¹ See WTO, Report of the Appellate Body, *United States - Import Prohibitions of Certain Shrimp and Shrimp Products* (WT/DS58/AB/R, 12 October 1998), paragraph 130 [hereinafter *Shrimp-Turtle*].

⁶² Gualtieri, *supra* note 12, at 11.

exhaustible natural resource that could be exempted under paragraph (g) because it could be polluted.⁶³

In applying these standards to water, experts have pointed out that although the amount of water on Earth remains constant, it could certainly be argued that freshwater is finite in certain locations if there is more water being withdrawn from a source than is being replenished.⁶⁴ Along these lines, a distinction could be made between renewable bulk water resources and ones that are exhaustible through overuse. Water resources may also fall into this category when they are at risk of contamination or pollution, like air.⁶⁵

The second condition for the applicability of paragraph (g) is that the restrictive trade measure seeking exemption must 'relate to' the conservation of the resource.⁶⁶ In *Shrimp-Turtle*, the AB ruled that to determine whether a restrictive measure relates to conservation, it is important to look at the relationship between how the measure is designed to operate and the policy goal it purports to serve.⁶⁷

Finally, to satisfy paragraph (g), any ban or restriction on water exports would have to be made in conjunction with restrictions on domestic production or consumption.⁶⁸ The Appellate Body in *China-Raw Materials* found that restrictive export measures must work together with restrictions on domestic production or consumption so as to conserve an exhaustible natural resource.⁶⁹ Thus, a prohibition on water exports aimed at conservation must also be enacted in tandem with similar restrictions on domestic water transfers or other conservation measures. This would serve as another obstacle for states seeking to limit exports, however it may also provide an incentive for states to protect their domestic water supplies from export while also taking steps to conserve water for their own use.

Ultimately, if export restrictive measures are part of larger state conservation policies aimed at the protection of domestic freshwater resources, restrictions on the export of water resources that are determined to be exhaustible, either through their potential for depletion or pollution, could be justified under paragraph (g).

c. The Chapeau to Article XX

After satisfying either the (b) or (g) exceptions, restrictive water trade measures must also comply with the chapeau to Article XX which prohibits the use of trade restrictions when they "constitute a means of arbitrary or unjustifiable discrimination between countries where the same conditions prevail, or a disguised restriction on international trade."⁷⁰ The AB stated in *Shrimp-Turtle* that the Chapeau essentially operates as a test of good faith and involves the balancing of interests of the member invoking an exception under Article XX and the rights of other members so that neither of the competing rights will cancel each other out and impair the balance of rights and obligations of member

⁶³ United States - Standards for Reformulated and Conventional Gasoline (WT/DS2, 20 May 1996) [hereinafter Reformulated Gasoline].

⁶⁴ Temmerman, *supra* note 9, at 28-50.

⁶⁵ See *Reformulated Gasoline*, *supra* note 63.

⁶⁶ GATT 1994 at art. XX.

⁶⁷ See *Shrimp-Turtle*, *supra* note 61, at paragraph 137.

⁶⁸ Brown Weiss, *supra* note 10, at 265.

⁶⁹ *China - Measures Related to the Exportation of Various Raw Materials*, WTO Appellate Body, WTO Docs. WT/DS394/AB/R, WT/DS395/AB/R, WT/DS398/AB/R, 2004, paragraph 357; Brown Weiss, *supra* note 10, at 265.

⁷⁰ GATT 1994, art. XX.

states.⁷¹ As Brown Weiss points out, this essentially means that the AB will second-guess a country on whether it needs to restrict water exports to *actually* meet its own water needs.⁷² Brown Weiss further argues that, since all water ecosystems are inherently different from each other, the same conditions never prevail between countries and thus measures that restrict exports in order to protect them would not be “discrimination between countries where the same conditions prevail.”⁷³ Additionally, measures would have to be held as being taken to *actually protect* water resources rather than being a disguised restriction on trade. That determination would be made by the AB which, as Brown Weiss points out, ultimately puts a trade organization in charge of settling a clash of interests between those concerned with ensuring free trade and those trying to place barriers on trade for conservation purposes.⁷⁴ As a matter of practicality, as of 2022, only two out of forty-eight attempts to use the GATT Article XX exceptions have succeeded.⁷⁵ Thus, while the uniqueness of water may allow countries to more easily argue for their restrictive measures to be exempt, the DSB has historically not granted exemptions, and it is unclear whether they would hold any differently as applied to water.

The status of bulk water and freshwater resources under the GATT remains unclear, however if they are subject to the agreement, the ability for governments to impose restrictive trade measures to conserve their water resources and encourage efficient global distribution would be significantly impaired, and it is likely that they would not be able to justify these restrictions under the provided for exceptions. With the status of international trade in water unclear, it is important to understand how water has been dealt with under other international agreements.

III. WATER UNDER BROADER INTERNATIONAL AGREEMENTS

Regardless of the status of water under international trade rules, countries continue to develop broad international agreements committing themselves to water conservation and sharing. These agreements could be crucial to tackling the water scarcity and climate change crisis because they largely concern natural water flows, which are likely not covered by international trade law. Thus, even if bulk water is covered by the GATT, countries will still be able to freely exert control over the waters covered under these agreements and pursue policies free of WTO influence.⁷⁶ These agreements are therefore important to study because they grant insight on what countries are likely to do if they are given free control over bulk water resources

These agreements operate at two levels, the first being local water sharing agreements in which countries agree to jointly manage shared water resources, and the second being United Nations agreements on climate change.

⁷¹ See *Shrimp-Turtle*, *supra* note 61, at paragraph 158.

⁷² Brown Weiss, *supra* note 10, at 266.

⁷³ *Id.*

⁷⁴ *Id.*

⁷⁵ The only case in which the AB upheld an exception to the GATT 1994 was *U.S. – Shrimp*. The AB also held in *European Communities-Asbestos* that France’s ban on the manufacturing, sale, import, and export of asbestos did not violate WTO terms, however the basis of this ruling was that asbestos was not a “like product” compared to domestic alternative fibers. Thus, the ban did not violate the national treatment obligation and France did not need to rely on the general exception. See Rangel, D., 2022. *WTO General Exceptions: Trade Law’s Faulty Ivory Tower*. Public Citizen’s Global Trade Watch. Public Citizen, p.14. Available at: <https://www.citizen.org/wp-content/uploads/WTO-General-Exceptions-Paper_-1.pdf>.

⁷⁶ This of course assumes that the DSB will not extend *US – Lumber* to water resources and hold that natural waters, like forests, are covered by international trade rules.

A. *Water Sharing Agreements*

Water sharing agreements are treaties formed between countries that share a common water resource which determine how the resource is to be managed and allocated between the nations.⁷⁷ These agreements often include their own institutional mechanisms such as enforcement, conflict resolution, and payment plans, and the more allocation and enforcement mechanisms included within the treaty, the more effective the parties are at dealing with water scarcity.⁷⁸ Countries that maintain sovereignty over these shared water resources have crafted their water sharing agreements to meet the particular needs of the parties. Examples of this relationship can be seen in a 1966 agreement between India and Nepal wherein India planted trees upstream in Nepal to protect its own, downstream, water supplies and in a 1964 agreement where Iraq gave water to Kuwait without compensation.⁷⁹ As climate change increases water scarcity, water sharing agreements will become increasingly important as a way to deal with critical shortages as well as long-term droughts. The extra strain on these agreements that will result from climate induced water shortages has the potential to reduce cooperation thus making the situation worse.⁸⁰ Therefore, trade rules should operate so as to increase the flexibility of nations to manage crisis and implement conservationist policies rather than unnecessarily delay their decision-making process and trump other disciplines in addressing international water issues.

B. *UN Climate Agreements*

Unfortunately, the importance of water to wider climate policy has largely been ignored within the UN climate agreements to date.⁸¹ Despite the fact that 75% of the 186 Intended Nationally Determined Contributions (INDC) submitted ahead of the Paris conference mentioned water adaptation, the final agreement does not even include the word ‘water’.⁸² Upon closer inspection, however, the Paris agreement and other efforts to adapt to climate change have far-reaching implications on water scarcity.⁸³ Strategies to mitigate climate change like reforestation and carbon capture and storage through biomass rely heavily on water consumption, and these water-intensive mitigation efforts are heavily relied upon in plans like the Paris Climate Agreement which seek to limit global warming to 2°C.⁸⁴ Thus, there appears to be a disconnect between the water-intensive goals of these agreements and the lack of any formalized agreement to conserve or transfer water.

Despite the lack of concrete, legally binding plans for water conservation or sharing within the international climate framework, nations are beginning to realize the importance water *should have* in these agreements. In response to the total absence of water

⁷⁷ Dinar and Dinar, *supra* note 17.

⁷⁸ *Id.*

⁷⁹ United Nations Environment Programme (2002) *Atlas of international freshwater agreements*. Available at: <<https://wedocs.unep.org/20.500.11822/8182>>.

⁸⁰ Dinar and Dinar, *supra* note 17.

⁸¹ Dombrowsky, I., Bauer, S. and Scheumann, W., 2016. *What does the Paris climate agreement mean for water policy?*. Die-gdi.de. Available at: <<https://www.die-gdi.de/en/the-current-column/article/what-does-the-paris-climate-agreement-mean-for-water-policy/>>.

⁸² Walton, B., 2015. *Water Gained Stature at Paris Climate Talks*. Circle of Blue. Available at: <<https://www.circleofblue.org/2015/world/water-gained-stature-at-paris-climate-talks>>; United Nations / Framework Convention on Climate Change (2015) Adoption of the Paris Agreement, 21st Conference of the Parties, Paris: United Nations.

⁸³ Dombrowsky, Bauer, and Scheumann, *supra* note 81.

⁸⁴ *Id.*

in the Paris Agreement, 350 organizations from 94 countries⁸⁵ signed the Paris Pact on Water which recognizes the effects climate change has on water scarcity and that adaptation actions should be taken without delay to minimize these effects.⁸⁶ The Pact focuses its adaptation plans at the basin level⁸⁷ for rivers, lakes, and aquifers which cross international borders and seeks to (1) establish basin-wide networks for monitoring and data exchange and water information systems; (2) develop basin management plans which support a more efficient and sustainable use of water resources; (3) build institutional capacities of basin organizations; and (4) ensure adequate financing for the implementation of the action plans.⁸⁸ Further, The Marrakech Partnership,⁸⁹ has developed several Climate Action Pathways⁹⁰ that focus exclusively on water. Under these pathways, the Parties recognize that in order to reach the Paris Agreement goal of limiting warming to 1.5°C, it is necessary for the Parties to double the area of protected water-based ecosystems, restore 30% of the Earth's water-related natural ecosystems, work with civil society organizations to develop social accountability and water stewardship pilot programmes, among other plans to conserve water.⁹¹ As the Marrakech Partnership, Paris Pact, and INDCs indicate, there is a strong understanding within the international community that managing water resources is key to achieving their climate goals. However, the lack of formalization of water into the wider UNFCCC framework means that more work must be done to create moral and legal obligations for nations to conserve and trade water to meet the challenge of climate induced water scarcity.

IV. FINDINGS AND RECOMMENDATIONS

A. *International Trade Law*

Ultimately, whether freshwater resources are a 'good' or 'product' subject to GATT is an open question, but as climate change increases water scarcity, the likelihood of a dispute before the WTO DSB between nations over water increases, and in that scenario it is likely the DSB will hold water subject to the GATT.⁹² Many scholars believe that bringing freshwater within the aegis of international trade rules will have considerable

⁸⁵ Massenenet, V., 2015. *Paris Pact on Water and Adaptation - Strengthening Adaptation to Climate Change in the Basins of Rivers, Lakes and Aquifers*. Newsroom.unfccc.int. Available at: <<https://newsroom.unfccc.int/news/paris-pact-on-water-and-adaptation-strengthening-adaptation-to-climate-change-in-the-basins-of-rivers-lakes-and-aquifers>>.

⁸⁶ UN Climate Change Conference of the Parties 21, 2015. *Paris Pact on water and adaptation to climate change in the basins of rivers, lakes and aquifers*. Available at: <https://www.circleofblue.org/wp-content/uploads/2015/12/COP21_-_Paris_Pact_ENG_-_INBO_V16.pdf>.

⁸⁷ The Paris Pact defines basins as "natural areas where water flows on the surface and in the subsoil".

⁸⁸ UN Climate Change Conference of the Parties 21, *supra* note 86.

⁸⁹ The Marrakech Partnership is a mandate from the Parties to the Paris Agreement which seeks to strengthen the collaboration between governments and non-Party stakeholders to support governments in the implementation of their climate action plans. For more information on the Marrakech Partnership, see Unfccc.int. 2016. *Marrakech Partnership for Global Climate Action*. Available at: <<https://unfccc.int/climate-action/marrakech-partnership-for-global-climate-action>>.

⁹⁰ The Climate Action Pathway on Water sets out a vision for achieving sustainable use and distribution of water throughout the world in 2050 with milestones and impacts that need to be achieved to realize it. For more information on the Climate Action Pathway for Water, see Marrakech Partnership, 2021. *Water Climate Action Pathway Vision and Summary*. United Nations Framework Convention on Climate Change. Available at: <<https://unfccc.int/sites/default/files/resource/WaterPathwayVisionSummary.pdf>>.

⁹¹ *Id.*

⁹² See Gualtieri, *supra* note 12, at 9.

benefits.⁹³ Recognizing freshwater resources as a commodity will bring them in line with other 'products' containing water such as bottled beverages and agricultural products.⁹⁴ Finally, under the GATT, countries would only be able to impose trade controls such as limitations on exports if they were justifiable under the GATT exceptions. This would ensure that these restrictions are only imposed when they are necessary for human health or go towards conserving depletable water resources rather than for purely economic reasons.⁹⁵

However, as Brown Weiss has consistently argued, subjecting water resources to international trade rules reduces a nation's agency over those resources and effectively places their control into the hands of the WTO DSB, with considerable drawbacks.⁹⁶ First, if bulk transfers are subject to trade rules, governments will be constrained in their ability to protect and conserve water to ensure that sufficient water is available to protect the sustainability of these resources as well as meet the water needs of their people. Although GATT exceptions may be available, ultimately the trade community, not sovereign national governments which have a duty to ensure the availability of water to its citizens, would determine whether the restrictive measures would qualify.⁹⁷

Second, limiting national control over water resources makes long-term management of those resources more difficult. Rising temperatures, increased floods, and more severe natural disasters will make it extremely difficult for nations to predict the long-term demand for and supply of water resources. This volatility will lead to situations in which countries that have previously contracted for the export of its water resources assuming their long-term availability will be unable to restrict exports of those resources when they become stressed due to climate change, leading to a water-scarcity crisis.⁹⁸

Finally, in the place of national control, trade considerations and authorities will have considerable influence over the implementation of restrictive measures and in resolving conflicts and may lead to multifarious pronouncements. In responding to water shortages, or in enacting conservation measures, government decisions will be subject to the scrutiny of the WTO DSB in determining whether there is sufficient scientific evidence to justify those restrictions. The looming threat of having measures declared violations of international law could delay decision-making and ultimately gives trade officials, rather than governments and water experts, a significant voice in determining whether those measures should be enacted. Further, when water resources are subject to multiple international agreements, disputes could be subject to multiple forms of dispute resolution.⁹⁹ As Brown Weiss points out, this could encourage forum shopping, result in different decisions for similar disputes, and ultimately means that disputes about the allocation and use of water and the legitimacy of measures enacted to conserve resources will be made by trade bodies that lack the expertise to decide such matters.¹⁰⁰

⁹³ See *inter alia* Temmerman, *supra* note 9, at 28-50.

⁹⁴ Brown Weiss, *supra* note 29, at 80.

⁹⁵ *Id.*

⁹⁶ See *e.g.*, *Id.*

⁹⁷ *Id.* at 81.

⁹⁸ See Brown Weiss, *supra* note 10, at 268.

⁹⁹ For example, a river that crosses national borders could be subject to the GATT with conflicts being resolved by the DSB as well as water-sharing agreements with conflicts being resolved through the stipulated enforcement mechanisms/authorities

¹⁰⁰ Brown Weiss, *supra* note 29, at 82.

Bringing bulk water under the GATT promotes free trade at the expense of conservation. While the application of these rules would prevent countries from restricting trade based solely on economic grounds, countries imposing legitimate restrictions on water extraction would also risk incurring the same penalties. Policy considerations concerning water must be made solely by governments and experts closest to their impacts based on whether the policies would alleviate or worsen water availability. If countries that make wise economic and conservation choices are subject to litigation and penalties for those choices, it will add additional delay to their decision-making process and force them to take into consideration concerns beyond what is best for their country in that moment. This has historically been a benefit of the WTO, and for most environmental issues, compelling governments to consider factors other than what is in their best interest at the current moment is valuable.

However, given the unique and life-sustaining properties of water, these delays and outside influences will only lead to further water shortages and inhibit governments' ability both to manage water resources over the long-term and to respond to sudden shortages. Additionally, the potential upsides of bringing water under the GATT may lead to further problems. While some experts argue that restricting a country's ability to favor or limit imports/exports from other targeted nations will allow the unrestricted transfer of water across borders, this could be detrimental. As mentioned previously, the goal of international trade in water should be to allocate these vital resources to where they are needed most. To meet this goal, nations would have to be allowed to favor imports/exports from water-rich countries and disfavor imports/exports from water-scarce countries to incentivize global efficient resource allocation and disincentivize water-scarce nations from overdrawing non-replenishable water sources. This would be presumptively illegal under international trade law.¹⁰¹

Thus, bulk freshwater transfers and water resources in their natural state should be exempted from international trade agreements. Exempting these resources from international trade law will allow governments to have full agency over waters within their borders, allow for trade restrictions to conserve these resources, and place their control into the hands of governments and experts rather than trade bodies. Further, exempting water from trade rules would not necessarily mean that countries would stop trading water with each other, as there would still be an economic incentive to engage in trade in water when doing so does not threaten the depletion of a nation's own resources. However, because restrictions could be freely imposed without scrutiny, this could lead nations to ban exports entirely to hoard their water for their own uses in fear of instability caused by climate change. Legal and moral obligations to engage in water transfers thus must be taken up by other international agreements.

B. International Water-Sharing and UN Climate Agreements

In the absence of trade rules forcing water transfers between countries, water-sharing agreements can be relied on to ensure a country's water resources are well managed and that their water needs are met. While a nation's capacity for cooperation under these agreements will be strained by climate change, if crafted correctly, water-sharing agreements have the potential to increase cooperation between nations and allocate water

¹⁰¹ See generally GATT 1994.

where and when it is needed.¹⁰² A working paper from the World Bank researching how climate change will affect these agreements found that water-sharing agreements are most effective when they contain flexible allocation mechanisms that clearly stipulate how water is to be divided and adapt to changing water availability conditions, enforcement mechanisms such as monitoring, conflict resolution, and joint commissions, adaptation mechanisms that anticipate variability in droughts and floods such as water allocation adjustments and immediate consultations between the respective states, and self-enforcement mechanisms like side-payments, benefit-sharing, and issue-linkage which further bind the parties to the agreement by making it costlier to renege on the terms and provide benefits from cooperation.¹⁰³

However, water-sharing agreements, regardless of their effectiveness, are limited in scope to only covering resources that cross borders and thus cannot provide for situations where water-scarcity issues affect entire networks of water systems and nations. Additionally, the stresses put onto water systems by climate change can cause cooperation between nations to break down which significantly reduces the effectiveness of these agreements.¹⁰⁴ Formally incorporating conservation and restoration plans like those in the Paris Pact and Marrakech Partnership into the UNFCCC framework can help alleviate global water scarcity as it puts these commitments into a pre-existing structure where legal and moral pressures can be applied to ensure nations meet their goals. Incorporating conservation and restoration goals into broader climate agreements will make it clear that water and climate are inextricably linked both because higher temperatures increase water scarcity and because mitigation measures rely heavily on water resources. The Marrakech Partnership's Climate Action Pathway envisions that conservation, restoration, and sustainable water provision and allocation will be enough to provide universally accessible, safe, and adequate water supplies to everyone. However, it does not provide for alternative solutions when these strategies are simply not enough or are not followed through on and countries still experience water-scarcity.¹⁰⁵

In addition to bringing conservation and restoration into the climate framework, there should also be a structure in which all parties agree to transfer water in the event of droughts and shortages where water-sharing agreements are insufficient. To this end, the principle of Common But Differentiated Responsibilities (CBDR) within the UNFCCC may be of use. Under this principle, the international community shares a common responsibility for protecting the climate system, with responsibilities for addressing that challenge differentiated among the nations of the world based on their level of capacity.¹⁰⁶ This concept of equity could be extended to water by stating that nations with greater water reserves or greater capacity to transfer their water resources should bear greater responsibility in sending water to less water-rich countries in times of crisis. The CBDR provision as it exists is controversial because it exempts developing economies such as China, India, and Brazil from any type of legally binding emissions reduction commitment,

¹⁰² See Dinar, S., Katz, D., De Stefano, L. and Blankespoor, B., 2014. *Global Analysis of the Resilience of International River Treaties to Increased Water Variability*. Climate Change, Conflict, and Cooperation. The World Bank Development Research Group. Available at: <<https://documents1.worldbank.org/curated/en/310371468325276499/pdf/WPS6916.pdf>>.

¹⁰³ *Id.* at 5-8.

¹⁰⁴ For more information on how climate change will affect nations' capacity to cooperate with each other see *Id.* at 3-5.

¹⁰⁵ See Marrakech Partnership, 2021, *supra* note 90.

¹⁰⁶ Daniel A. Farber, Cinnamon P. Carlarne, *Climate Change Law* pg. 73.

however as applied to water these issues could be resolved by focusing solely on current capacity to transfer water resources rather than historic contributions to climate change.¹⁰⁷

Ideally the provisions of water conservation and contribution within the UNFCCC framework would be legally binding, but where legal enforcement mechanisms are not feasible, enshrining these principles in global agreements will give interested parties leverage to hold governments accountable when they fail to meet their obligations.¹⁰⁸

CONCLUSION

As water scarcity increases due to climate change, countries need to be able to act swiftly and retain flexibility in dealing with potential crisis. Subjecting water to international trade rules will limit the agency and flexibility countries have over their freshwater resources by empowering the WTO to second-guess the legitimacy of conservationist measures and impose penalties when the justifications are deemed inadequate. The potential for countries to suffer further economic consequences for taking action to reduce water scarcity will influence government decision-making processes, substitute environmental expert opinion for trade considerations, and reduce the ability for governments to take swift action. Ultimately, the trade law regime will limit a country's ability to conserve water and to tackle the root cause of water-scarcity. Thus, to effectively deal with this crisis, water must be exempted from the international trade legal regime. This exemption will grant countries greater flexibility in responding to crisis when it appears and in crafting policy for long term resource management.

In its place, international water sharing agreements and the international climate change framework should be used and expanded to promote conservation, address disputes, and ensure an equitable allocation of water resources around the world.

¹⁰⁷ *See Id.*

¹⁰⁸ Providing space for civil society organizations to hold governments and key stakeholders accountable is an important goal of the Marrakech Partnership. For more information, *see* Marrakech Partnership, 2021, *supra* note 90.

CHAPTER 9: PROMOTING INTERNATIONAL TRADE IN GREEN ELECTRICITY UNDER WTO RULES: ISSUES, CHALLENGES, AND OPPORTUNITIES

YANG GUO*

I. INTRODUCTION

Modern societies run on electricity. Global electricity consumption has steadily increased, driven by technological change, population growth, surging demand from emerging economies, and electrification of least developed countries. At the same time, electricity is the main source of energy-related green-house gas (GHG) emissions, accounting for around twenty-five percent of emissions in the United States and globally. Around sixty-two percent of electricity used in the United States is produced from fossil fuels, mostly coal and natural gas.¹ Decarbonization of the electricity sector is thus crucial to any serious effort to mitigate the climate crisis, and the primary means of doing so is to integrate more electricity produced from renewable energy sources (RES), or green electricity, into the electrical grid. However, output from some renewable energy (RE) technologies, such as solar and wind energy, can vary considerably in a short amount of time (depending on whether the wind is blowing or the sun shining), leading to supply instability. In addition, RES are often location-specific, limiting the number of end users that can be supplied. Cross-border trade addresses both the intermittency and penetration problem, by granting countries and regions access to a more diversified portfolio of power plants in a wider geographic area. Preliminary results from the European Union (EU) internal electricity market, one of the most integrated regional markets worldwide, confirm the importance of trade in increasing RE output and consumption.

While electricity trade is still a minor affair, the market is definitely growing. EU Member States now trade more than fourteen percent of their final electricity consumption.² Germany, the EU's largest economy, is now a net electricity exporter.³ A profound change in energy markets is underway, one that moves away from large, centralized generating installations running on fossil fuels to flexible, decentralized production from RES. Cross-border trade will both be the inducer of this transformation and its most direct result. For example, the EU indicated that “the Union would most effectively meet its renewable energy targets through the creation of a market framework that rewards flexibility and innovation.”⁴ To achieve flexibility, “regulatory authorities

* Georgetown University Law Center, J.D. 2023; Brown University, B.A. 2018.

¹ USEPA, *Sources of Greenhouse Gas Emissions*, [https://www.epa.gov/ghgemissions/sources-greenhouse-gas-emissions#:~:text=Electricity%20production%20\(25%20percent%20of,mostly%20coal%20and%20natural%20gas](https://www.epa.gov/ghgemissions/sources-greenhouse-gas-emissions#:~:text=Electricity%20production%20(25%20percent%20of,mostly%20coal%20and%20natural%20gas) (last updated: Apr. 14, 2022).

² Vaclav Smil, *The Trade in Electricity: Far less of it is traded long distance than fossil fuels, but the market is definitely growing*, IEEE SPECTRUM (Mar. 31, 2021), <https://spectrum.ieee.org/the-trade-in-electricity>.

³ *Id.*

⁴ Directive (EU) 2019/944 of the European Parliament and of the Council of 5 June 2019 on common rules for the internal market for electricity and amending Directive 2012/27/EU, para. 9, <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32019L0944>.

should facilitate cross-border access for new suppliers of electricity from different energy sources as well as for new providers of generation, energy storage and demand response.”⁵

While electricity producers and service providers did not used to pay too much attention to trade rules and regimes, times are changing. As electricity markets increasingly span national borders, domestic incentive programs and regulations will come into crossroads with trade rules. It is therefore crucial to preemptively consider how to use trade rules to facilitate, instead of hamper, the generation and transmission of green electricity. This is an opportune moment for policymakers to design a sustainable electricity market for the future using trade rules.

This paper will first provide an overview of public support schemes for green electricity as well as their underlying rationale. It will then examine how the relevant rules in the General Agreement on Tariffs and Trade (GATT), the Agreement on Subsidies and Countervailing Measures (ASCM), and the General Agreement on Trade in Services (GATS) can affect the production of green electricity and provision of electricity-related services across borders. While examining current WTO rules and jurisprudence, this paper will also provide some recommendations on what could be done in the future, drawing especially on regional experiences including lessons from the EU.

II. PUBLIC SUPPORT SCHEMES FOR GREEN ELECTRICITY

Public support is indispensable both for kickstarting the switch from electricity produced with fossil fuels (black electricity) to electricity generated with RES (green electricity) and upscaling green electricity production and distribution. Government incentives that “create consumer confidence, insulate investors from some financial risks, and overcome the lack of supply chains and other supportive infrastructure” are crucial to the development of the clean energy sector.⁶ Furthermore, policies that reduce costs, while optimizing electricity transfer “through space (by incentivizing grid extension and integration) and time (by incentivizing storage)” will be necessary in mature markets.⁷

The overproduction of black electricity and underproduction of green electricity is a market failure, which is exacerbated by heavy fossil fuel subsidies that averaged \$290 billion annually from 2017 to 2019.⁸ Left to themselves, market forces, while helpful in optimizing resource allocation, cannot engender massive industrial transformation.⁹ But it is exactly a massive industrial transformation that is needed to fundamentally re-envision how societies supply and consume electricity sustainably. Public support can internalize both the positive externalities of green electricity – achieving economic development and job creation with clean energy – and the negative externalities of black electricity – pollution, health costs, and carbon emissions.

Public support schemes can be price- or quantity-based.¹⁰ FITs are probably the most widely used form of support mechanism for green electricity. They are contracts

⁵ *Id.* at para. 13.

⁶ USITC, *Renewable Energy and Related Services: Recent Developments*, 6-4, <https://www.usitc.gov/publications/332/pub4421.pdf> (2013).

⁷ *Id.*

⁸ Jeffrey Weiss & Claire Schachter, *Phasing Out Fossil Fuel Subsidies: Any Prospect for Meaningful Multilateral Action?*, STEPTOE GLOB. TRADE POL’Y BLOG (Aug. 27, 2021), <https://www.steptoeglobaltradeblog.com/2021/08/phasing-out-fossil-fuel-subsidies-any-prospect-for-meaningful-multilateral-action/>.

⁹ DANNY CULLENWARD & DAVID VICTOR, *Making Climate Policy Work* 10 (2020).

¹⁰ They include but are not limited to feed-in-tariffs (FITs) and premiums, quota obligations, tax incentives and public financing, price support mechanisms, green certificates, public tenders or auctions, net metering, research and development grants, earmarks, loan guarantees, donations, or government support in-kind. *See*

guaranteeing a payment rate (e.g., dollars per kWh) to RE producers for a period of around fifteen to twenty years.¹¹ The rate is usually above market price to encourage investment in RES-generation. Because RE ventures are often capital-intensive with high up-front costs and high ratios of fixed to variable costs, FITs are effective instruments to boost investor confidence.¹² Quota obligations require utilities, electricity suppliers, consumers, or other market participants to purchase a pre-determined minimum share or an absolute quantity of green electricity or pay a penalty fine.¹³ Also known as Renewable Portfolio Standards (RPSs), they encourage RE-generators to engage in competitive bidding and supply the required amount of green electricity at the lowest cost.¹⁴ Quotas are usually enforced with RE certificates, such as “green certificates” used in EU countries.¹⁵

Tax incentives are used to promote RE investment because relatively speaking they are politically easier to implement. Using a differentiated electricity taxation scheme that charges a higher rate for black electricity and lower rate for green electricity could be an efficient steering mechanism that places less burden on public finances.¹⁶ Tax incentives in the US include the investment tax credit for renewable energy (Internal Revenue Code section 48) and the renewable electricity production credit (IRC section 45A).¹⁷ While countries are free to tax domestic corporations however they like, they may run afoul of trade obligations when they try to apply taxes to imports or provide rebates for exports. A differentiated tax scheme that imposes a higher tax on imported black electricity could violate paragraphs two and four of Article III of the GATT. Meanwhile, a tax incentive given to a domestic green electricity producer who then exports that electricity could be challenged as an illegal subsidy.

III. IS ELECTRICITY A GOOD OR A SERVICE?

The categorization of electricity as either a good or a service is important because it would determine which WTO provisions (GATT and ASCM impacting goods versus GATS impacting services) would apply. The distinct characteristics of electricity – it is intangible, must be consumed immediately after production, and relies on fixed infrastructure for transmission – set it apart from other energy goods.

Currently, there is no collective consensus on whether electricity is a good or a service under WTO norms.¹⁸ WTO law does not contain specific provisions on electricity, but electricity is defined as a good in the Harmonized System (HS) Nomenclature classification under the heading code 2716 Electrical energy.¹⁹ And because WTO tariff

USITC, *supra* note 6, at 6-1-11; Manuel Sanchez Miranda, *Liberalization at the Speed of Light: International Trade in Electricity and Interconnected Network*, J. INT'L ECON. L. 67, 90 (2018).

¹¹ USITC, *supra* note 6, at 6-5.

¹² *Id.* at 6-5.

¹³ Sherzod Shadikhodjaev, *Promotion of Green Electricity and International Dispute Settlement: Trade and Investment Issues*, 49 INT'L L. 343, 346 (2016).

¹⁴ USITC, *supra* note 6, 6-6.

¹⁵ Kateryna Holzer et al., *Promoting Green Electricity through Differentiated Electricity Tax Schemes*, in INTERNATIONAL TRADE IN SUSTAINABLE ELECTRICITY 358, 356-389 (Thomas Cottier & Ilaria Espa eds., 2017).

¹⁶ *Id.* at 357.

¹⁷ USITC, *supra* note 6, at 6-10.

¹⁸ Daria Boklan & Olga Belova, *Trade in Electricity under WTO and EAEU Law: Compatibility of Two Legal Regimes*, 13 J. WORLD ENERGY L. & BUS. 129, 132 (2020).

¹⁹ *Id.*

schedules followed the definition, electrical energy qualifies as a good and is subject to the GATT and ASCM.²⁰

However, storage, transmission, and distribution are also services. Because electricity transportation networks are often also the producers and traders of energy products, they might not be service providers in the classical sense, such as telecommunications service providers.²¹ WTO jurisprudence has clarified, however, that the application of GATT and GATS is not mutually exclusive, and the electricity sector might be a unique case in which both sets of rules apply. The Appellate Body (AB) stated that in addition to measures falling exclusively within the scope of the GATT or the GATS, there is yet a third category of measures “that involve a service relating to a particular good or a service supplied in conjunction with a particular good.”²² Because many vertically integrated electricity companies perform multiple functions related to production, transmission, distribution, and storage, WTO rules that affect both the trade in goods (GATT and ASCM) and services (GATS) are relevant.

IV. USING TRADE RULES TO FACILITATE GREEN ELECTRICITY GENERATION

Public support for green electricity production could run afoul with the GATT and the ASCM, but there are several ways to reconcile support schemes with trade rules. First, green and black electricity should not be categorized as “like” products. Second, governments can avoid local content requirements (LCRs) and open up national support schemes to foreign producers. Third, the GATT Article XX and GATS Article XIV exceptions should apply to policies with the primary goal of mitigating climate change. Fourth, the ASCM should be revisited and a GATT Article XX-like exception could be introduced.

A. *Green and black electricity are not “like” products*

Domestic support schemes for green electricity, whether in the form of tax deductions or other regulations, could be vulnerable under the Most Favored Nation (MFN) obligation under GATT Art. I or the National Treatment (NT) obligation under GATT Art. III: 2 and 4, which regulate internal taxes and internal regulations. For example, taxes on imported black electricity that are not imposed on domestic green electricity could violate NT.²³ Similarly, FIT programs that grant green electricity a lower tariff rate would discriminate against imported black electricity.²⁴

One way to defend these support measures is to differentiate green and black in the “likeness” analysis through non-physical aspects (NPA) of the product – namely green processes and production methods (PPMs).²⁵ This likeness analysis also applies to ASCM Art. 6.3(a). While the legal status of non-product-related PPMs is ambiguous under WTO jurisprudence, in *European Communities – Measures Affecting Asbestos and Asbestos Containing*

²⁰ Orlando Federico Cabrera-Colorado, *Increasing U.S.-Mexico Cross-Border Trade in Electricity by NAFTA's Renegotiation*, 39 ENERGY L.J. 79, 91 (2018).

²¹ Yulia Selivanova, *Interconnections in Energy Transportation: Implications for International Trade Law*, in INTERNATIONAL TRADE IN SUSTAINABLE ELECTRICITY 201, 193-222 (Thomas Cottier & Ilaria Espa eds., 2017).

²² WTO, Report of the Appellate Body, *European Communities—Regime for the Importation, Sale and Distribution of Bananas*, WT/DS27/AB/R, 9 Sep. 1997, para. 221.

²³ Miranda, *supra* note 10, at 91.

²⁴ *Id.*

²⁵ See Holzer et al., *supra* note 15, at 365; Christiane R. Conrad, PROCESSES AND PRODUCTION METHODS (PPMs) IN WTO LAW: INTERFACING TRADE AND SOCIAL GOALS 12 (2011).

Products (EC – Asbestos), the AB identified four criteria in analyzing likeness. They are: “(i) the properties, nature and quality of the products; (ii) the end-uses of the products; (iii) consumers’ tastes and habits – more comprehensively termed consumers’ perceptions and behaviour – in respect of the products; and (iv) the tariff classification of the products.”²⁶ The analysis hinges on “whether, and to what extent, the products involved are – or could be – in a competitive relationship in the marketplace.”²⁷

The AB ruled that evidence relating to health risks may affect consumers’ tastes and habits as well as the competitive relationship between allegedly like products.²⁸ Just like the health risk posed by asbestos, the environmental impact of electricity’s generation method may well be relevant in determining the competitive relationship between green and black electricity, despite their same end use. This is especially true if the consumer is looking to fulfill a RE quota, and thus has a strong preference for RES-generated electricity. Many jurisdictions now require disclosure as to the source of electricity powering consumers’ homes. The EU now requires suppliers to specify in bills the contribution of each energy source to the electricity purchased by the final consumer, including the contribution of each energy source to the overall energy mix of the supplier.²⁹ A regime of “guarantees of origin” (GOO) – an electronic document verifying that energy is produced from RES – is used to implement this policy.³⁰ Energy producers using RES earn GOO, and suppliers and large energy consumers buy them to show that they are selling or consuming green energy.³¹ The demand for GOO in Europe rose by eight percent in 2020 to a record high of 735.1 TWh, compared to 332.6 TWh in 2015 and 182.4 TWh in 2010.³² As such, environmental impact is having an increasingly significant effect on consumers’ purchasing decisions and the competitive dynamic between green and black electricity. Using similar reasoning in *EC – Asbestos*, it can be convincingly argued that green and black electricity are not “like” products, and so green electricity support schemes would not violate the MFN and NT provisions of the GATT.

B. Governments should minimize local content requirements and make national support schemes available to foreign operators

LCRs can afoul with the NT provision as illustrated by *Canada – Renewable Energy / Canada – Feed-In Tariff Program* (hereinafter *Canada – FIT*). Under the Canadian Government’s FIT Program, generators of solar or wind-power-based electricity are paid a guaranteed price under twenty- or forty-year contracts if they meet the “Minimum Required Domestic Content Level” for installation of related equipment.³³ The AB agreed with Japan and the EU that the LCR requirement violates Article III:4. Although the imported product in this case is electricity generation equipment, a similar LCR requirement that discriminates against imported electricity (i.e. conditioning eligibility for

²⁶ WTO, Report of the Appellate Body, *European Communities – Measures Affecting Asbestos and Asbestos Containing Products*, WT/DS135/AB/R, 5 Apr. 2001, para. 101.

²⁷ *Id.* at para 103.

²⁸ *Id.* at para 115.

²⁹ Directive (EU) 2019/944, *supra* note 4, at Annex I, para. 5.

³⁰ Balkan Green Energy News, Record high demand for guarantees of origin in 2020 in EU (Feb. 17, 2021), <https://balkangreenenergynews.com/record-high-demand-for-guarantees-of-origin-in-2020-in-eu/>.

³¹ *Id.*

³² *Id.*

³³ Shadikhodjaev, *supra* note 13, at 348.

the FIT Program on domestic content level of generation equipment) would most likely also violate the NT principle.

Governments can also avoid trade frictions by making RE programs open to all eligible operators – domestic and foreign. EU case law and legislation serve as a point of reference. In cases where FIT programs, green certificates, or quota obligations were inapplicable to imported electricity or foreign suppliers from other EU Member States, the Court of Justice of the European Union (CJEU) held that such territorial restrictions did not violate the EU’s principle of free movement of goods because the electricity markets in the region had not fully merged.³⁴ However, the Advocate General disagreed, arguing that limiting access to national support schemes would undermine the objective of “[integrating] green energies into the internal electricity market” by “promot[ing] cross-border exchanges of green electricity.”³⁵ In the most recent *Directive on Common Rules for the Internal Market for Electricity*, the European Parliament sided with the Advocate General’s view that “[t]he refined regulatory framework needs to contribute to overcoming the current problems of fragmented national markets which are still often determined by a high degree of regulatory interventions ... [which] have led to obstacles to the supply of electricity on equal terms as well as higher costs in comparison to solutions based on cross-border cooperation and market-based principles.”³⁶ As the European Parliament recognizes, opening up national support schemes to foreign system operators is crucial to achieving flexible and efficient decarbonized generation. Doing so would also ensure compliance with the WTO rules.

C. GATT Art. XX Exceptions Should Apply

Public support schemes for green electricity should come under the ambit of the GATT Art. XX exceptions. The relevant provisions would be Art. XX: b – “necessary to protect human, animal or plant life or health,” or Art. XX: g – “relating to the conservation of exhaustible natural resources.” Under paragraph (b), a measure must be *necessary* for achieving the objective of protecting environmental health, while under paragraph (g), a policy only needs to *relate to* the objective of conserving natural resources. However, paragraph (g) has an additional requirement that a measure must be taken “in conjunction with restrictions on domestic production and consumption,” meaning that any support scheme that excludes imported black electricity must be applied to domestic black electricity.³⁷ In the context of a FIT Program or differentiated electricity tax that supports green electricity, the phasing out of domestic production and consumption of black electricity would satisfy this requirement.

Finding that public support for green electricity relates to the objectives under paragraphs (b) or (g) of GATT Art. XX is only the first step of the analysis. The measure also must comply with the conditions of the introductory paragraph (chapeau) of Article XX.³⁸ The measure cannot be “a means of arbitrary or unjustifiable discrimination between countries where the same conditions prevail, or a disguised restriction on

³⁴ Sherzod Shadikhodjaev, *Regulation of renewable energy trade in the megaregionals era: Current issues and prospects for rule-making reforms*, in GOVERNING SCIENCE AND TECHNOLOGY UNDER THE INTERNATIONAL ECONOMIC ORDER 170, 160–182 (Shin-yi Peng et al. eds., 2018).

³⁵ Court of Justice of the European Union, C-573/12, *Ålands vindkraft AB v. Energimyndigheten*, Opinion of Advocate General Bot, 28 Jan. 2014, para. 87.

³⁶ Directive (EU) 2019/944, *supra* note 4, para. 8.

³⁷ WTO, Article XX of GATT 1994, para. g.

³⁸ Holzer et al., *supra* note 15, at 371.

international trade.”³⁹ For example, a support scheme that discriminates between electricity posing the same environmental risks (i.e. green electricity produced from different RES) would be deemed an arbitrary discrimination under the chapeau.⁴⁰ Similarly, discriminatory policies such as LCRs will make any RE support schemes hard to justify under Article XX.⁴¹ Nevertheless, there is nothing in the text of Article XX suggesting that a non-discriminatory green electricity support scheme such as differentiated tax rates or FIT programs cannot be justified under Article XX exceptions. This is a powerful conclusion because Article XX can come to the defense in cases where the likeness analysis fails under Article III.

D. The ASCM Should Better Accommodate Green Subsidies

Government support schemes for green electricity could also be challenged under the ASCM. In *Canada-FIT*, the complainants argued that Canada violated Articles 3.1(b) and 3.2 because the FIT Program with the LCR is a subsidy within the meaning of Article 1.1. The AB in *Canada-FIT* eventually concluded that the FIT Program is *not* a subsidy. While this holding created breathing room for FIT Programs and other public support schemes, it is an incomplete attempt to shelter green measures from ASCM liabilities. Many scholars have suggested that there should be a GATT Art. XX-like carve-out for green energy subsidies.⁴² As the European experience demonstrates, creating a regional energy market with joint public stimulus programs can maximize benefits from clean energy while minimizing trade-distorting effects.

While the AB was motivated to find the LCR in breach of WTO obligations, it also wanted to avoid finding the FIT Program a subsidy.⁴³ To be a subsidy, a measure must: (1) be granted by a government; (2) confer a financial contribution; and (3) be economically beneficial. The AB found that the FIT Program was a financial contribution granted by the government, but that it did not bestow a benefit to RE producers and was thus not a subsidy. The AB reached this conclusion by defining the green and conventional electricity markets as being separate. This market definition “is central to, and a prerequisite for, a benefit analysis.”⁴⁴

The AB looked at factors that might differentiate green and black electricity on the demand-side, including “the type of contract, the size of the customer, and the type of electricity generated (base-load *versus* peak-load).” Furthermore, because the Government of Ontario is offering a guaranteed price only for green, not black, electricity, the two products are not in direct competition. On the supply-side, wind power and solar energy generators have different cost structures, operating costs and characteristics from other electricity producers.⁴⁵ Because conventional generators have larger economies of scale

³⁹ WTO, Article XX of GATT 1994, preamble.

⁴⁰ Holzer et al., *supra* note 15, at 372.

⁴¹ Douglas Nelson & Laura Puccio, *Nihil novi sub sole: The Need for Rethinking WTO and Green Subsidies in Light of United States – Renewable Energy*, WORLD TRADE R. 491, 492 (2021).

⁴² See, e.g., *id.*; Aaron Cosbey & Petros C. Macroidis, *A Turquoise Mess: Green Subsidies, Blue Industry Policy and Renewable Energy: The Case for Redrafting the Subsidies Agreement of the WTO*, 17 J. INT’L ECON. L. 11 (2014); Luca Rubini, *ASCM disciplines and recent WTO case law developments: what space for “green” subsidies?*, in INTERNATIONAL TRADE IN SUSTAINABLE ELECTRICITY, 311-335 (Thomas Cottier & Ilaria Espa eds., 2017). (2015).

⁴³ Cosbey & Macroidis, *supra* note 42, at 31.

⁴⁴ WTO, Report of the Appellate Body, *Canada - Certain Measures Affecting the Renewable Energy Generation Sector/Canada - Measures Relating to the Feed-in Tariff Program (Canada - Renewable Energy/Canada - Feed-in Tariff Program)*, WT/DS412/AB/R / WT/DS426/AB/R, 24 May 2013, para. 5.169.

⁴⁵ *Id.* at para. 5.174.

and operate with lower costs, they can exercise price constraints on renewable generators and easily out compete them.⁴⁶ Therefore, wind- and solar PV-generated electricity can only come into existence with government regulation. “It is often the government’s choice of supply-mix of electricity generation technologies that creates markets for wind- and solar PV-generated electricity.”⁴⁷ Critically, “the definition of a certain supply-mix by the government cannot *in and of itself* be considered as conferring a benefit.”⁴⁸

Perhaps in consideration of the outcome in *Canada – FIT*, the United States did not invoke the ASCM in the panel proceedings on the Jawaharlal Nehru National Solar Mission in *India – Solar Cells*, a similar long-term government purchase agreement with solar power developers.⁴⁹ The AB’s market definition sets a benchmark for the benefit analysis. And what it did in *Canada – FIT* was to create a “new” or “green” market as the relevant benchmark. However, some sticky issues remain. First, the AB never articulated how to determine when a renewable electricity market could be characterized as an established, instead of a new, market.⁵⁰ For example, would the appropriate benchmark be the number of RE suppliers in the market, the production cost of green electricity, or its market price? The case also comes close to condoning infant industry protection measures in the name of establishing new markets. Furthermore, a relatively generous FIT scheme could still be considered a subsidy when compared to less generous support schemes in other jurisdictions, as both would be considered to operate within the same market for green electricity.⁵¹

These issues reveal a deeper problem – the ASCM, on its face, fails to accommodate many climate change mitigation actions, including RE subsidies.⁵² One solution could be to introduce an GATT Art. XX-like set of acceptable objectives to the ASCM, with additional prescriptive restrictions specific to subsidies.⁵³ While LCRs could have greater environmental benefits than costs, governments should try to avoid them if a GATT Art. XX chapeau-like measure were to be introduced. An exception clause has the benefit of being more general, thus giving more leeway to the WTO dispute settlement organs to make case-by-case determinations.⁵⁴ Another possibility might be to create a temporary carve-out for green energy subsidies, with a gradual phase-out schedule as green products become more prevalent and competitive in the marketplace.⁵⁵

The EU Clean Energy Directive sets an example for reform. Recognizing the need to integrate more green electricity into the grid, the EU legislator and the Commission encourage public support at the Member State level, to be granted under the principle of non-discrimination. It allows Member States to impose “public service obligations” on market players in the electricity sector, which encompasses “environmental protection, including energy efficiency, energy from renewable sources and climate protection.”⁵⁶ It further stresses that any financial compensation or other forms of compensation and

⁴⁶ Id. at para. 5.174.

⁴⁷ Id. at para. 5.175.

⁴⁸ Id. at para. 5.175.

⁴⁹ Shadikhodjaev, *Regulation of renewable energy trade in the megaregionals era*, *supra* note 34, at 170.

⁵⁰ Cosbey & Macroidis, *supra* note 42, at 28.

⁵¹ Id. at 28.

⁵² Shadikhodjaev, *Regulation of renewable energy trade in the megaregionals era*, *supra* note 34, at 171.

⁵³ Cosbey & Macroidis, *supra* note 42, at 46.

⁵⁴ Garcia Marin Duran, *Sheltering Government Support to “Green” Electricity: The European Union and the World Trade Organization*, 67 INT’L & COMP. L.Q. 129, 161 (2018).

⁵⁵ Shadikhodjaev, *Regulation of renewable energy trade in the megaregionals era*, *supra* note 34, at 171.

⁵⁶ Directive (EU) 2019/944, *supra* note 4, at Art. 9:2.

exclusive rights must be granted in a “non-discriminatory and transparent way.”⁵⁷ The WTO rules should not punish countries for subsidizing their green electricity producers; rather, the ASCM should introduce a carveout for subsidies with climate protection goals.

V. USING TRADE RULES TO FACILITATE FAIR ACCESS TO ELECTRICITY RELATED SERVICES

Once generated, electricity needs to be connected to the grid and transported in a timely manner. Electricity by nature is difficult to store but must nevertheless be available on demand. Furthermore, compared to other modes of transportation (i.e. vessels, airplanes, cars, trains), the electrical grid has limited capacity. Coordinating and regulating electricity-related services entailed in delivery is challenging even on a national scale, let alone across multiple jurisdictions. The lack of cross-border coordination in the provision of electricity-related services in large part explains why electricity trade has been puny compared to trade in fossil fuels.

Two problems must be addressed with regards to electricity related services: first, there must be more investment in highly capital-intensive infrastructure projects; second, there must be non-discriminatory grid access and provision of other services.⁵⁸ In terms of transmission, trade rules should account for both free access to in-country electricity-related infrastructure in the importing country, as well as free transit where electricity must cross multiple borders to arrive at its final destination.⁵⁹ The relevant WTO rules applicable to electricity transmission and other related services are rules on transit in GATT Art. V and GATS disciplines related to energy services. The existing WTO rules are insufficient to guarantee the adequate infrastructure and services needed for cross-border trade to happen at scale. A new round of GATS negotiations that introduces additional commitments on energy services could be helpful in addressing competition issues and third-party grid access.⁶⁰ More regional cooperation, such as preferential trade agreements (PTAs), can also deepen WTO commitments on energy transit and services.

A. Free Transit under GATT Article V

GATT Article V:2 guarantees “freedom of transit through the territory of each contracting party, via the routes most convenient for international transit,” without imposing discriminatory or unreasonable regulations and charges.⁶¹ A country cannot discriminate based on “the flag of vessels, the place of origin, departure, entry, exit or destination, or on any circumstances relating to the ownership of goods, of vessels or of other means of transport.”⁶² A preliminary question is the definition of “transit,” which Article V:1 stipulates as “the passage across [a] territory ... [which] is only a portion of a complete journey beginning and terminating beyond the frontier of the Member across whose territory the traffic passes.”⁶³ Under this definition, when one country exports electricity, which passes through the territory (or territories) of transit, and ends up in its final destination—the country of importation – GATT Art. V applies only to the

⁵⁷ *Id.* at Art. 9:4.

⁵⁸ Selivanova, *supra* note 21, at 194.

⁵⁹ Shadikhodjaev, *Regulation of renewable energy trade in the megaregionals era*, *supra* note 34, at 173.

⁶⁰ Selivanova, *supra* note 21, at 218.

⁶¹ WTO, Article V of GATT 1994, para. 2.

⁶² Lothar Ehring & Yulia Delivanova, Energy Transit, in *REGULATION OF ENERGY IN INTERNATIONAL TRADE LAW: WTO, NAFTA AND ENERGY CHARTER 124*, 109-203 (Yulia Selivanova ed., 2011).

⁶³ WTO, Article V of GATT 1994, para.1.

movement of electricity through the territory of the third party (or parties) that is neither the exporter nor importer. The definition of transit that requires a good to both enter and exit a country means that GATT Art. V most likely would not cover grid access in importing countries in which the traded electricity is “downloaded” and used. This definitional constraint first and foremost limits the applicability of GATT Art. V to ensuring nondiscriminatory grid access in the importing country.

There are also doubts as to whether the GATT transit provisions apply to energy products and materials at all, especially to gas and electricity, which require transportation via fixed infrastructure.⁶⁴ But as explained in Part III, these products are “goods” within the GATT definition. In addition, the broad definition of “traffic in transit” in GATT Art. V:1 indicates that an express reference to a particular transport mode such as electrical grid is not needed for the provision to apply.⁶⁵

Beyond its limited scope, GATT Art.V also fails to address capacity constraints in transit. Because of the time and large capital investments involved in grid construction projects, electrical grids are usually not constructed with large extra capacities in mind, but rather to serve the needs of specific projects.⁶⁶ Capacity constraint raises two issues, neither of which is adequately addressed by GATT Article V. The first concerns the allocation of existing capacity. It is clear under the obligations of MFN and NT that a country cannot discriminate between transiting goods based on foreign/domestic ownership or the means of transport.⁶⁷ However, it is less obvious whether countries can prioritize domestic (or import/export) transportation over transit.⁶⁸ During the Doha Round trade facilitation negotiations, the European Communities wanted to tighten this standard of non-discrimination and proposed that Members must accord to traffic in transit “treatment no less favorable than that accorded to domestic goods, exports and imports, and their movement.”⁶⁹ Even with this heightened standard, Art. V alone is insufficient to address the specific issues related to congestion management, but its guiding principle would be helpful to further negotiations in regional agreements.

The second issue raised by capacity constraint is the construction of new infrastructure. While Art. V guarantees freedom of transit within *existing* transmission networks, it neither requires nor incentivizes Members to improve or expand existing networks.⁷⁰ Infrastructure construction on a sovereign state’s territory remains largely within the state’s discretionary power.⁷¹ And it is highly unlikely that an exporting country could argue for the right to build grids in the territory of a transit country that does not have sufficient transmitting capacity.⁷² In addition, building electricity grid is costly. The construction cost of one kilometer of an overhead 500-pus-kilovolt high-voltage direct-current (HVDC) line could be up to \$2 million.⁷³ Burying the cables underground or under the ocean further drives up the cost. Therefore, although GATT Art. V outlines the basic

⁶⁴ Selivanova, *supra* note 21, at 213.

⁶⁵ *Id.* at 214-15.

⁶⁶ *Id.* at 216.

⁶⁷ *Id.* at 217.

⁶⁸ *Id.*

⁶⁹ Ehrling & Selivanova, *supra* note 62, at 159.

⁷⁰ Boklan & Belova, *supra* note 18, at 138.

⁷¹ Cabrera-Colorado, *supra* note 20, at 91.

⁷² Boklan & Belova, *supra* note 18, 138.

⁷³ Smil, *supra* note 2.

principle of freedom of transit, it falls short in addressing the specific infrastructural needs of electricity trade.⁷⁴

Given the uniqueness of electricity transmission, the general GATT obligation must be supplemented by other international agreements that specifically target the infrastructural needs of electricity trade. One such instrument is the Energy Charter Treaty (ECT), an agreement on trade and investment issues in the energy sector signed by fifty-three governments, including the EU, but not the US or China.⁷⁵ While GATT Art. V does not explicitly cover energy transit through fixed infrastructure, the ECT expressly defines “transport facilities” through which energy transit takes place to include high-voltage electricity transmission grids and other specific fixed energy facilities.⁷⁶ Art. 7 of the ECT encourages contracting parties to cooperate in “(a) modernizing Energy Transport Facilities necessary to the Transit of Energy Materials and Products; (b) the development and operation of Energy Transport Facilities serving the Areas of more than one Contracting Party; (c) measures to mitigate the effects of interruptions in the supply of Energy Materials and Products; (d) facilitating the interconnection of Energy Transport Facilities.”⁷⁷ Compared to the GATT, which merely imposes a negative requirement on countries to refrain from denying the freedom of transit, the ECT imposes a positive obligation on countries to take necessary measures to facilitate transit.⁷⁸ However, the ECT provisions are still very general. Investments are necessary in the long-term to fundamentally resolve congestion and bottleneck problems. Investment frameworks have been established under regional agreements, especially in the EU, as discussed below.

B. Regional Cooperation in Building Fixed Infrastructure

The incentive to improve green power infrastructure has emanated from the regional level. The European Commission passed Regulation (EU) No 347/2013 on guidelines for trans-European energy infrastructure (the Trans-European Networks-Energy / TEN-E Regulation) to address lagging investment in large cross-border infrastructure projects.⁷⁹ The highlight of the TEN-E Regulation is the development of strategic cross-border projects called Projects of Common Interest (PCIs). As of December 2020, 95 PCIs have received €4.7 billion of funding through the EU budget. To obtain PCI-status, a project must have “a significant impact on the energy markets and market integration in at least two EU countries (or an EU and EEA country)” and contribute to “climate goals by diversifying energy sources and integrating renewables.”⁸⁰ These infrastructural projects benefit from “accelerated planning and permit granting, a single national authority for obtaining permits, improved regulatory conditions, lower administrative costs owing to streamlined environmental assessment processes, increased public participation through consultations and increased visibility to investors.”⁸¹

⁷⁴ Boklan & Belova, *supra* note 18, 138.

⁷⁵ Shadikhodjaev, *Regulation of renewable energy trade in the megaregionals era*, *supra* note 34, at 174.

⁷⁶ Ehring & Selivanova, *supra* note 62, at 165.

⁷⁷ Energy Charter Agreement, Article 7, para. 2.

⁷⁸ Ehring & Selivanova, *supra* note 62, at 166.

⁷⁹ Tim Schittekatte et al., *Making the TEN-E Regulation Compatible with the Green Deal: Eligibility, Selection, and Cost Allocation for PCIs*, European University Institute (2020).

⁸⁰ JRC Science for Policy Report, *Projects of common interest in the priority thematic area of smart grids deployment*, 7 (2021).

⁸¹ *Id.*

An example is the SINCRO.GRIDS project – a smart grid investment in the territory of Slovenia and Croatia.⁸² The electricity transmission system operators (TSOs) and distribution system operators (DSOs) in both countries were facing challenges of over-voltage and lack of flexibility resources needed to integrate the increasing decentralized RES in both regions.⁸³ They thus decided to cooperate and established the SINCRO.GRID. The goals of the project include integrating green electricity into the transmission and distribution systems in both countries, improving voltage quality, increasing the inclusion of ancillary services, expanding capacity of existing transmission lines, and upgrading the observability of transmission and distribution grids.⁸⁴ The project also includes a battery electricity storage system and a virtual cross-border control center.⁸⁵ The overall investment costs of the project is around €88.6 million, of which €40.5 million, or 51% of the cost, are funded by the Connecting European Facility of the EU. As the EU experience shows, investment in regional and megaregional energy infrastructure can help to deepen multilateral commitments to freedom of transit and achieve meaningful cross-border market harmonization and integration.

C. Reduce Trade Barriers to Electricity Related Services

Finally, foreign suppliers might face barriers when trying to access transmission, storage, distribution, and other electricity-related services in the importing country. Regulation of access to services on fair and equitable terms is crucial to cross-border electricity trade.⁸⁶ The GATS applies to measures affecting trade in services, which includes energy-related services. Although neither the 1991 Services Sectoral Classification List,⁸⁷ nor the 1991 United Nations Central Product Classification (CPC) contain a separate section for energy services, they are still covered by these classification instruments.⁸⁸ In the W/120, three subsectors refer explicitly to energy, and the one most relevant to electricity is the “services incidental to energy distribution” under CPC 887, which applies to “transmission and distribution services on a fee or contract basis of electricity ... to household, industrial, commercial and other users.”⁸⁹ In addition, there are other energy-related activities not exclusive to the energy industry, which are covered under other sectors of the W/120, in particular business services, construction, distribution and transport services.⁹⁰ Thus, nearly all relevant services along the electricity supply chain are covered by either the CPC and W/120.⁹¹

The GATS does not contain a definition of services but indicates in Article I:2 that there are four modes of supply, all of which are relevant to the electricity sector. Cross-border trade (mode 1) covers advisory and consulting services, such as remote monitoring

⁸² Sincro.Grid, <https://www.sincrogrid.eu/en/About-the-Project> (last visited May 10, 2022).

⁸³ *Id.*

⁸⁴ *Id.*

⁸⁵ *Id.*

⁸⁶ Selivanova, *supra* note 21, at 198.

⁸⁷ Services Sectoral Classification List, Note by the Secretariat, MTN.GNG/W/120 (10 Jul. 1991) (here in after “W/120”).

⁸⁸ WTO, Council for Trade in Services, Energy Services: Background Note by the secretariat, S/C/W/311, 12 Jan. 2010, 10.

⁸⁹ *Id.*

⁹⁰ Mireille Cossy, *Energy Services under the General Agreement on Trade in Services*, in REGULATION OF ENERGY IN INTERNATIONAL TRADE LAW: WTO, NAFTA AND ENERGY CHARTER 271-272, 267-317 (Yulia Selivanova ed., 2011).

⁹¹ WTO, Council for Trade in Services, *supra* note 88, at 12.

and diagnosis services for RES generators, or virtual cross-border control center that controls and forecasts RES generation. Consumption abroad (mode 2) may be of limited relevance, as it involves the actual movement of consumers and properties. An example could be the repair of energy equipment in a foreign country. Establishment of a commercial presence (mode 3) is key in the electricity sector. It covers the establishment of electricity or RES facilities overseas or investment in an existing foreign firm. Mode 4 commitments facilitate the temporary transfer of intra-corporate personnel supplying services.

GATS commitments on market access under Article XVI and national treatment under Article XVII address many restrictions affecting energy services. In most cases, transportation networks are controlled by powerful, vertically integrated private companies who operate like natural monopolies. Even after market liberalization and unbundling, these companies could still use their market power to impede new entrants and skew competition. Typical barriers to a foreign supplier could include excessive access fees and discriminatory allocation of network capacities by TSOs, in addition to non-transparent terms and conditions for calculating fees and usage conditions.⁹² To address the prevalence of natural monopolies in the energy market, GATS Article VIII:1 stipulates that Members shall ensure that a monopoly supplier “does not, in the supply of the monopoly service in the relevant market, act in a manner inconsistent with that Member’s obligations” under Article II (MFN) and its specific commitments.⁹³ However, few commitments have been made by WTO Members in this respect.⁹⁴

Against this backdrop, the Background Note by the Secretariat of the Council for Trade in Services suggested that “it might be useful to consider additional rules for energy services, which would complement specific commitments and help to ensure a level-playing field among suppliers.”⁹⁵ These rules could come in the form of either an Annex to the GATS on Energy Services or a Reference Paper, devised by interested Members and made available for adoption by all Members on a voluntary basis.⁹⁶ The paper could include elements such as:

“(i) a regulatory framework ensuring transparency in the adoption and implementation of rules, regulations and technical standards; (ii) non-discriminatory third-party access (TPA) to, and interconnection with, networks, grids and other essential infrastructure; (iii) establishment of a regulator which is independent of, and not accountable to, any supplier;⁹⁷ (iv) non-discriminatory and timely information on data relevant for transportation and transmission of energy, such as prices, transmission capacity, etc.; and (v) requirements preventing certain anti-competitive practices for energy services in general.”⁹⁸

⁹² Selivanova, *supra* note 21, at 198.

⁹³ WTO, Council for Trade in Services, *supra* note 88, at 20.

⁹⁴ Selivanova, *supra* note 21, at 199.

⁹⁵ WTO, Council for Trade in Services, *supra* note 88, at 20.

⁹⁶ *Id.* at 20.

⁹⁷ On the third element of an independent regulator, the Agency for the Cooperation of Energy Regulators (ACER) is an example of such a regional supervisory body in Europe, and could serve as a prototype for other regions. ACER is charged with regulatory oversight of “technical and regulatory issues which require regional coordination,” including implementing network codes and guidelines, cooperation within regional coordination centers, monitoring wholesale energy market integrity and transparency, exemptions for new electricity interconnections, and more. Regulation (EU) 2019/942 of the European Parliament and of the Council establishing a European Union Agency for the Cooperation of Energy Regulators (5 Jun. 2019).

⁹⁸ WTO, Council for Trade in Services, *supra* note 88, at 20.

Apart from the WTO multilateral framework, preferential trade agreements (PTAs) can deepen liberalization in energy services. For example, the USMCA guarantees for U.S. investors, service suppliers, and other companies the benefits of Mexico’s historic 2013 energy reforms, which liberalized the previously state-controlled, vertically integrated electric market to allow for full participation and competition by private companies, while integrating more RE into the grid.⁹⁹ Annex 12-D of the USMCA envisages harmonization of energy performance standards and test procedures through cooperation “on energy performance standards and related test procedures in order to facilitate trade among the Parties and advance energy efficiency.”¹⁰⁰ Recently, the Mexican Congress struck down President López Obrador’s proposed Energy Reform which would have reversed the 2013 reforms and granted the Federal Electricity Commission exclusive access to 54% of the electricity market, up from its current 38% share.¹⁰¹ The reform would have been a major environmental setback because it would eliminate many preferential clean energy purchase programs and butchered foreign investment projects in RES in favor of dirtier state-produced energy sources.¹⁰² The USMCA ended up being a powerful tool of opposition. The U.S. Trade Representative Katherine Tai made clear that the U.S. would seek recourse under the USMCA if Mexico went ahead with this protectionist legislation, which would put more than \$10 billion U.S. investment in Mexico, much in RE installations at risk.¹⁰³ As this incident shows, PTAs could be effective deterrents against protectionist measures and encourage trade and investment in green electricity.

VI. CONCLUSION

Electricity consumption will only grow as our societies become more digitalized and electric vehicles become more of a norm than a novelty. How to sustainably meet the increased demand for electricity will be a challenge for policymakers, but also an opportunity to design an electricity market of the future that taps into flexible generation through RES. While trade in electricity has been puny so far compared to trade in other energy products, more integrated national grids have paved the way for regional electricity systems, such as the EU internal electricity market, the Integrated Power System (IPS), the Southern African Power Pool (SAPP), and the Central American Power System (SIEPAC).¹⁰⁴ Based on current consumption trends and estimated impact of technological innovations, experts envision that over a long period of time, increasing cross-border transmission that covers greater distances and larger scale might lead to the creation of regional super-grids, and perhaps eventually, a globally interconnected network.¹⁰⁵ While the global grid might be an ambitious goal for the very distant future, concrete steps can be taken today to facilitate electricity trade between neighboring countries and within regions, with a focus on promoting trade and investment in green electricity. This paper

⁹⁹ USMCA, Energy and Energy Products Fact Sheet, <https://ustr.gov/sites/default/files/files/Press/fs/USMCA/USMCA-Energy.pdf>.

¹⁰⁰ USMCA, Article 12.D.4.1.

¹⁰¹ Wilson Center, *Mexico Needs an Energy Reform, But Not This One*, <https://www.wilsoncenter.org/event/mexico-needs-energy-reform-not-one>.

¹⁰² *Id.*

¹⁰³ Andrew Baker, *Biden Trade Rep Said Considering All Options as \$10B U.S. Energy Investment at Risk in Mexico*, NATURAL GAS INTELLIGENCE (Apr. 6, 2022), <https://www.naturalgasintel.com/biden-trade-rep-said-considering-all-options-as-10b-of-u-s-energy-investment-at-risk-in-mexico/>.

¹⁰⁴ Thomas Cottier & Ilaria Espa, *Introduction and Overview*, in INTERNATIONAL TRADE IN SUSTAINABLE ELECTRICITY 4-5, 1-17 (Thomas Cottier & Ilaria Espa eds., 2017).

¹⁰⁵ *Id.* at 5.

has looked at how WTO rules, namely the GATT, ASCM, and GATS can facilitate and possibly encourage long-distance trade in green electricity. It has posited where the current rules fall short and put forward some policy recommendations based on regional experiences. By doing so, this paper hopes to contribute to the constructive dialogue studying and envisaging the future of sustainable electricity trade. The regulation of electricity generation and transportation takes place at the local, national, and transnational level. This paper is limited in its scope by mainly examining the WTO rules, while not delving deeply enough into the other levels of governance. A future study could examine how international trade rules interact with regional and national regulations under this multilevel governance structure.

CHAPTER 10: PROMOTING RESPONSIBLE TRADE IN CONSUMER PLASTICS TO SUPPORT THE DEVELOPMENT OF A CIRCULAR PLASTICS ECONOMY

ANNE MARIE MILLER*

I. ORIGINS OF THE PLASTICS ECONOMY

It is hard to imagine a world without plastic, yet its history is relatively new. Plastics were developed in the early twentieth century, only reaching the commercial consumer market in the 1950s.¹ Plastics production exponentially accelerated, with half of all plastics ever made manufactured in the past thirteen years.² The recent history of plastics serves as a reminder that despite the massive scale of the plastics pollution crisis, “we are not helpless. What we did, we can undo.”³ Inger Andersen, Executive Director of the U.N. Environment Programme recalled:

[I]n the space of one human lifetime, we have created a massive problem. I remember my mother telling me about sitting in a café immediately after Denmark had been liberated, before I was born. At the table next to her were two American businessmen with colourful blocks made from a strange new material. As she eavesdropped, the curious 18-year-old schoolgirl heard them say, “This is plastic. This is the future.”

These businessmen foresaw only a future of profit and convenience. They did not foresee a future – now our present – in which plastic pollution is everywhere, from the deepest ocean trench to the highest mountain peak. We see this pollution. We feel its climate impacts. We live with the sheer waste of taking a versatile, durable material and making it disposable – losing all value instead of retaining it.

Now we must make the wrong-headed way we manufacture and use plastic the past.⁴

Since the 1970s, the rate of plastics production has grown faster than that of any other material.⁵ Global dependence on this functional, durable, lightweight, and inexpensive material has swelled to unmanageable proportions as plastics waste streams far outpace environmentally sound waste management infrastructure. Only 9% of the seven billion tonnes of plastics waste generated has been recycled.⁶ Nearly 76% of plastics, including single-use plastics, end up in landfills or are discarded in nature.⁷ The

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¹ Plastics Industry Association. History of Plastics.

² Geyer, et al. (2017) Science. Production, use, and fate of all plastics ever made.

³ Andersen (2022) A leap forward for environmental action

⁴ Andersen (2022) A leap forward for environmental action

⁵ UNEP. Our Planet is Choking on Plastic.

⁶ UNEP. Our Planet is Choking on Plastic.

⁷ Geyer (2020) Chapter 2 Production, use and fate of synthetic polymers

remaining plastic waste is incinerated, creating damaging consequences for human and environmental health.⁸

In just over a decade of unbridled plastics production, billions of tons of plastics have already leached toxic chemicals into the environment, overwhelmed oceans with hazardous microplastics, and polluted the air through incineration. Marine plastics pollution has garnered international concern, with an estimated 11 million metric tonnes of plastic currently entering the ocean each year and projected to triple by 2040.⁹ By the time you finish reading this report, the equivalent of over a dozen garbage trucks full of plastic will have been dumped into the ocean.¹⁰

The plastics pollution crisis also adds billions of tonnes of greenhouse gas (GHG) emissions to the atmosphere annually. In 2019, plastics generated 1.8 billion tonnes of GHG emissions, which is set to more than double to 4.3 billion tonnes by 2060.¹¹ If plastics were a country, it would be the fifth largest emitter.¹² By 2050, plastics are projected to account for an outsized 15% of the global annual carbon budget under the Paris Agreement.¹³

A. The Role of Trade in the Plastics Economy

Trade is central to addressing the issue of global plastics pollution. No country is untouched by the trade in plastics, which accounts for approximately 5% of global trade.¹⁴ In 2021, trade in plastics reached a staggering \$1.2 trillion, which represents the transboundary movement of nearly 370 million metric tonnes of plastics.¹⁵ While *trade* in plastics is not a proxy for plastics *production*, over 60% of certain categories of plastics products (i.e. synthetic textiles) enter the global market.¹⁶ Plastics trade is multidirectional and multifaceted throughout plastics' lifecycle, from fossil fuel feedstock to final manufactured goods, and plastics waste. As such, international trade is a powerful tool to address plastics pollution through regulatory coordination, multilateral and plurilateral agreements, and unilateral actions that empower governments to cooperatively address this serious environmental challenge.

In March 2022, during the fifth session of the United Nations Environmental Assembly (UNEA-5.2), a landmark resolution was passed to End Plastic Pollution by 2040 (UNEA Resolution 5/14) and reach an internationally legally binding agreement by 2024.¹⁷ Lauded as “the most significant environmental multilateral deal since the Paris accord”¹⁸ UNEP Executive Director, Inger Andersen called on Members and the International Negotiations Committee (INC) to “explore all options” and adopt a full life-cycle approach to forge clear provisions that are legally binding.

⁸ UNEP. Our Planet is Choking on Plastic.

⁹ UNEP. From Pollution to Solution

¹⁰ UNEP. Plastic Pollution

¹¹ OECD. Plastic leakage and GHG Emissions are Increasing

¹² World Resources Institute. Top four emitters include: China, US, India, and Russia.

¹³ Barrowclough et al. (2022) Transforming the Global Plastics Economy

¹⁴ UNCTAD (2022) Global Plastics Trade hits record \$1.2 trillion

¹⁵ UNCTAD (2022) Global Plastics Trade hits record \$1.2 trillion “To give a sense of the relative scale, global cotton fabrics exports were just US\$12.9 billion in 2017; paper exports amounted to US\$170.5bn in 2019; glass and glassware US\$76.5 billion; and pharmaceutical products amounted to US\$392.9bn in 2019.” - Global Trade in Plastics

¹⁶ UNCTAD (2022) Global Plastics Trade hits record \$1.2 trillion

¹⁷ UNEP (2022) Historic Day to Beat Plastic Pollution

¹⁸ Andersen (2022) A leap forward for environmental action

B. Scope and Purpose

This paper aims to explore trade policy options that support plastics circularity by shifting economic incentives away from the unsustainable extraction of virgin fossil fuels for primary plastics production towards efficient resource use that recaptures the lost economic value inherent in plastics waste. This paper will also highlight challenges and opportunities faced by the United States, which holds enormous purchasing power as the top importer of intermediate and final manufactured plastics products, synthetic textiles, and plastics packaging.¹⁹ The U.S. is also a top two exporter of plastics waste.²⁰ As such, the U.S. is in a uniquely powerful position to reverse the plastics pollution crisis and lead international markets towards a net-zero plastics economy.

Tremendous efforts are currently underway at the international policy level to address the serious environmental and humanitarian threat that plastics pose. This paper aims to coalesce some of these efforts to identify best practices and inform this trade policy exploration. The Paris Agreement set an ambitious goal to keep global warming below 1.5 degrees Celsius. The trajectory of the plastics sector will play a materially significant role in whether this global target is achieved. The following three high-level targets, inspired by current international policy efforts, may serve as useful anchors to guide the development of specific, legally binding multilateral provisions across the full lifecycle of plastics: **(1) commit to recycled polymers targets of at least 25% of production by 2030, (2) end plastics pollution by 2040, and (3) decarbonize the plastics sector to reach net zero by 2045.**

This paper begins by identifying key drivers of the current plastics pollution crisis and the obstacles that have thwarted previous efforts towards circularity. First and foremost, plastics circularity requires policy change that economically disincentivizes single-use and virgin plastics products, incentivizes reuse and high-value non-toxic materials, and expands the scope and scale of advanced plastics recycling. Carefully crafted trade policy that takes a whole systems approach to creating the right economic incentives for circularity across the plastics lifecycle is critical to scaling existing technology solutions and achieving an end to plastics pollution.

The SDGs require concerted efforts to address the triple planetary crises of: (1) climate change, (2) nature and biodiversity loss, and (3) pollution and waste.²¹ The plastics sector contributes to each of these crises and must shift its trajectory to become part of a low-carbon circular economy. Through the right market incentives and the liberalization of existing technological advancements in recycling, bioplastics, and plastics manufacturing powered by renewable energy, the plastics sector can decarbonize and achieve net zero by 2045. Biodiversity loss and pollution can both be addressed while simultaneously accelerating decarbonization efforts through intelligent product design policy standards. Product design standards developed by a policy panel that include waste management industry specialists, as well as scientists can significantly improve recycling rates, eliminate toxins from the environment, and end plastics pollution. Such an approach is a necessary compliment to the independent science-policy panel established by UNEA Resolution 5/8 for chemicals, waste, and prevention of pollution.²²

¹⁹ UNCTAD Global Trade in Plastics

²⁰ UNCTAD Global Trade in Plastics

²¹ Andersen (2022) A leap forward for environmental action

²² UNEA Resolution 5/8

II. KEY DRIVERS OF THE PLASTICS ECONOMY

Understanding the drivers of the plastics economy is a critical first step to addressing plastics pollution and crafting effective policy responses. Yet the absence of multilateral agreement on key definitions, international standards, and an adequately granular Harmonized Commodity Description and Coding System (HS) pose significant challenges to transparency and data collection regarding the trade flow of plastics across its complex lifecycle.

In 2020, UNCTAD and the Graduate Institute launched a Plastics Database as a “first attempt to quantify and map global trade flows across entire life cycles of plastics . . . compil[ing] data on a far broader set of plastics-related inputs and products than those commonly used.”²³ Previously, plastics trade data only accounted for non-hidden flows found in H.S. Chapter 39 Plastics and Articles Thereof.²⁴ The UNCTAD Plastics Database goes beyond H.S. Chapter 39 to include: (1) input flows, such as flows in feedstocks used in the production of primary plastics; and (2) semi-hidden flows, such as synthetic textiles, rubber, and other plastics products that can be identified under other chapters of the H.S.²⁵

The Plastics Database revealed that plastics trade was 40% higher by value and 25% higher by volume than previous estimates.²⁶ While these findings more accurately approximate plastics trade, they still represent an underestimation since they do not include “embedded” or “hidden” plastics found in computers, electronics, car components, packaging to transport goods, home appliances, etc. Hidden flows and other gaps in data (i.e., countries that do not self-report data) continue to obscure the true scope and scale of plastics trade and limit policy makers’ pollution mitigation objectives. Methodologies to trace these unaccounted hidden flows are in development.²⁷ In 2020, Revision 13 updated H.S. Chapter 39, yet significant work remains for the HS to be used as an effective tool for plastics trade policy solutions.²⁸

A. *Plastics’ life-cycle analysis*

The UNCTAD Plastics Database tracks trade flows across the plastics’ lifecycle in five stages: (1) primary forms of plastics (i.e. fossil fuel feedstock, chemical additives, resin pellets, and synthetic fibers), (2) intermediate forms of plastics (i.e. primary plastics assembled into larger elements such as sheets, films, plates and yarns), (3) manufactured plastic goods – intermediate (i.e. parts for cars, household appliances, or woven synthetic textiles), (4) manufactured plastic goods – final, and (5) plastics waste.²⁹ These five stages inform a life-cycle approach to understanding the drivers of plastics pollution.

Downstream, or “end-of-pipe” drivers of plastics pollution include the lack of capacity for environmentally sound waste management and adequate recycling facilities. Midstream drivers include product design flaws such as unnecessary single-use plastics and other poorly designed, low-value plastics that are difficult, cost-prohibitive, or even

²³ UNCTAD Global Trade in Plastics

²⁴ UNCTAD Global Trade in Plastics

²⁵ UNCTAD Global Trade in Plastics

²⁶ UNCTAD Global Trade in Plastics. Including semi-hidden flows from other H.S. chapters may over-state plastic quantities of intermediate and final plastic products already accounted for during earlier stages of the products’ life-cycle. Figures based on 2018 data.

²⁷ UNCTAD Global Trade in Plastics.

²⁸ H.S. Chapter 39. See also §III(C)(ii) of this paper.

²⁹ UNCTAD. Global Trade in Plastics.

toxic to recycle. Upstream drivers include structural issues such as fossil fuel subsidies that promote unsustainable production and consumption practices, as well as limit the economic viability of plastics recycling and plastics substitutes.

1. Upstream: Fossil fuel subsidies, toxic additives, and carbon emissions

Plastics production begins with the extraction of fossil fuels which, together with additives that may or may not be toxic, form the feedstock for over 98% of virgin plastics.³⁰ By 2050, CO₂ emissions from the plastics sector are forecast to rise 90% accounting for 20% of total oil consumption (assuming current plastic demand trends continue).³¹ Trade policy measures that encourage the decarbonization of the plastics sector can have a significant impact on mitigating GHG emissions to achieve international commitments made under the Paris Agreement.

Decoupling plastics production from fossil fuels will require significant policy intervention to create market conditions that promote: (1) recycled plastics, (2) bioplastics, (3) plastics alternatives, and (4) plastics production fueled by renewable or clean energy sources. Fossil fuel subsidies distort and externalize the true costs of virgin plastics, which limit the economic viability for recycled plastics, bioplastics, and alternatives. The costs associated with sorting plastics by resin-type, deodorization, extrusion, and so on, currently outweigh the value of recycled plastics output when compared with manufacturing plastics products solely from virgin fossil fuel-based feedstocks. Additionally, bioplastics and plastics alternatives cost two to three times that of virgin polymers.³²

This market distortion encourages unsustainable production and consumption practices, as the petrochemical industry prepares to invest US\$400 billion for 80 megatons of new production capacity for virgin plastics (from 2020 through 2024).³³ International efforts to restrict global warming to 1.5 degrees Celsius and reduce production of virgin plastics create the risk that these assets will become stranded due to regulatory changes.³⁴ The EU has banned several types of single-use plastics.³⁵ Eight states in the U.S., as well as thirty-four African countries have also banned single-use plastic bags.³⁶ While these efforts demonstrate positive legislative acts to reduce the level of plastics production, consumption, and pollution, “bans like Europe’s only account for about 5% of plastics demand.”³⁷

Undeterred, the petrochemical industry prepares to increase fossil fuel flows through the soaring plastics industry, even as the energy sector continues to transition towards clean and renewable sources.³⁸ Shell invested US\$6 billion in a new ethane cracking plant in Monaca, Pennsylvania that opened in November 2022 to produce an additional 1.6 million tons of plastics annually.³⁹ The facility is expected to reach full operating capacity this year.⁴⁰ For this facility, Shell received a US\$1.6 billion tax break while officials in Ohio

³⁰ UNEP. Our Planet is Choking on Plastic.

³¹ Barrowclough et al. (2022) Transforming the Global Plastics Economy

³² Electricity-based plastics and their potential demand for electricity and carbon dioxide

³³ Carbon Tracker (2020) The Future’s Not in Plastics

³⁴ Carbon Tracker (2020) The Future’s Not in Plastics

³⁵ Gardiner (2019) The Plastics Pipeline - Yale

³⁶ Gardiner (2019) The Plastics Pipeline - Yale

³⁷ Gardiner (2019) The Plastics Pipeline - Yale

³⁸ Carbon Tracker (2020) The Future’s Not in Plastics

³⁹ Gardiner (2019) The Plastics Pipeline - Yale

⁴⁰ AP News (2022) Shell Ethane Cracker

and West Virginia vie for additional ethane cracking facilities to bring industrial jobs to their respective states.⁴¹ The tri-state region has enough ethane to supply four more cracking facilities like Shell's.⁴² An analyst remarked, "unless production slows, they'll just find something else to wrap plastic in" whether consumers want it or not.⁴³

As these ethane cracking facilities are built, investors will want to maximize profitability, which means operating at or near maximum output levels. Strong regulatory measures with clear phase-out provisions must be enacted immediately to put investors and the petrochemical industry on notice that these capital expenditures are better allocated to support the transition towards a more circular plastics economy rather than risk billions of USD worth of stranded assets, or worse, environmental degradation beyond repair from the successful operation of these facilities. Plastics waste is expected to present an annual financial risk of US\$100 billion by 2040.⁴⁴ Critical investment to expand recycling capacity and environmentally sound waste management remain inadequate, disproportionately impacting developing nations as the largest importers of plastics waste.⁴⁵

2. Midstream: The high cost of poor product design

The global plastics market is valued at \$580 billion (in 2020) with the annual global cost of municipal solid waste management at \$38 billion (in 2019).⁴⁶ Product design policy that eliminates toxic additives and promotes the use of high-value plastics for cost-effective mechanical recycling can unlock enormous economic opportunity and create over 700,000 jobs, mainly in the global south.⁴⁷ By 2040, a comprehensive circular economy approach could reduce virgin plastic production by 55%, save governments US\$70 billion, reduce 80% of the volume of plastics entering oceans, and reduce 25% GHG emissions.⁴⁸ Realizing these incredible benefits requires the elimination of single-use virgin plastics and design policy standards that addresses the greatest challenges associated with recycling plastics.

Plastics recycling is highly nuanced and requires specific recycling methods⁴⁹ and specialized equipment⁵⁰ due to the wide variety of chemical additives used to create a range of plastics compositions. Most material recovery facilities (MRFs) will only accept very limited types of high-value plastics,⁵¹ like those most commonly found in plastic bottles. MRFs often lack the capacity to process thin and flexible plastics that require special equipment. Mixed and multilayered plastics, plastics containing toxic chemical additives, or plastic waste contaminated by food are also often unrecyclable.

⁴¹ Gardiner (2019) *The Plastics Pipeline* - Yale

⁴² Whitfield (2018) *Petrochemical Cluster: A bright future for the tristate region*

⁴³ Gardiner (2019) *The Plastics Pipeline* - Yale

⁴⁴ UNEP. *From Pollution to Solution*

⁴⁵ See §II(A)(iii)

⁴⁶ UNEP. *From Pollution to Solution*

⁴⁷ Andersen (2022) *A leap forward for environmental action*

⁴⁸ Andersen (2022) *A leap forward for environmental action*

⁴⁹ i.e., mechanical recycling, chemical recycling, or energy recovery through pyrolysis

⁵⁰ Resin identification code: 3-6; includes: Polyvinyl Chloride – PVC, Low-Density Polyethylene – LDPE, Polypropylene – PP, and Polystyrene – PS. Examples: cling wrap, hoses, packaging film, butter tubs, ketchup bottles, etc.

⁵¹ Resin identification code: 1 and 2; includes: Polyethylene Terephthalate – PET or High Density Polyethylene – HDPE.

Plastics that are recyclable can generally only be recycled once or twice through primary and secondary mechanical recycling (i.e., from bottle-to-bottle). This is unlike glass, aluminum, and other metals, which can theoretically be recycled indefinitely because they do not degrade during the recycling process.⁵² A plastic PET bottle, by contrast, undergoes degradation when recycled due to an extrusion process that leads to thermo-oxidative and shear-induced chain scission.⁵³ Extrusion shortens the polymer chain length and lowers its mechanical properties, strength, and processability.⁵⁴ While advancements in recycling technology continue to improve this process, degradation of the polymer chain is currently mitigated by the addition of virgin plastics polymers. Under average recycling conditions the recycled PET bottle output will have a seventy-to-thirty ratio of virgin-to-recycled plastics, respectively.⁵⁵

Beyond primary and secondary mechanical recycling, recycled plastics enter tertiary chemical recycling, which returns the polymers to its monomeric feedstock to produce certain types of fuel.⁵⁶ Plastic polymers unfit for tertiary recycling enter quaternary recycling, which recovers energy through incineration or pyrolysis processes.⁵⁷ All levels of plastics recycling involve petrochemicals; primary and secondary recycling requires the addition of fossil fuel-based virgin plastics feedstock, while tertiary and quaternary “recycling” involve the polluting combustion of plastic polymers for energy. Effective product design should account for the limitations of plastics recycling. First, the overall volume of plastics placed in the economy must be reduced within sustainable limits by eliminating unnecessary single-use plastics and products designed for planned obsolescence.

For plastics that cannot be reduced, design should aim to maximize resource efficiency by optimizing recycling rates through product design standards that limit the types of additives and polymers used in production. Plastics alternatives can also minimize the volume of plastics in the economy but should be carefully considered using a life-cycle analysis (LCA) which includes the amount of energy and resources required to manufacture plastics replacements. For instance, studies comparing thin plastic grocery bags with more durable cotton or paper alternatives, have shown that cotton totes have the worst environmental impact and need to be reused 7,100 times to equal the environmental impact of a plastic bag when considering the full environmental impact under LCA.⁵⁸ Organic cotton bags fare even worse and need to be reused 20,000 times.⁵⁹ While thin plastic bags become insidious and harmful forms of plastics waste, they require far less energy to produce than paper or cotton. This simply underscores the importance of an LCA when comparing “green” alternatives to plastics, to better understand which materials should be used in particular circumstances to achieve a net positive impact on the environment.

⁵² EPA (2019) Advancing Sustainable Materials Management “Plastics recycling rates are far less than the recycling rates for materials like steel (70%), aluminum (49%), and corrugated boxes (88%).”

⁵³ Schyns et al. (2021) Mechanical Recycling of Packaging Plastics.

⁵⁴ Schyns et al. (2021) Mechanical Recycling of Packaging Plastics.

⁵⁵ Schyns et al. (2021) Mechanical Recycling of Packaging Plastics.

⁵⁶ Schyns et al. (2021) Mechanical Recycling of Packaging Plastics.

⁵⁷ Schyns et al. (2021) Mechanical Recycling of Packaging Plastics.

⁵⁸ Cho (2020) Columbia University – Plastic, paper, or cotton

⁵⁹ Cho (2020) Columbia University – Plastic, paper, or cotton

3. Downstream: Environmental degradation, human rights, and the marine plastics crisis

Nearly 80% of the global plastics waste trade is generated by developed nations.⁶⁰ Plastics waste trade primarily flows laterally (although this is shifting) with the majority of trade occurring between the U.S., EU, and Southeast Asia.⁶¹ High-income countries export millions of tons of plastics waste each year, as their domestic waste management capacity fails to keep pace with the increasing volume of plastics consumed within their borders.⁶² Waste pickers in importing nations face increased risks of illness and human rights violations, as they provide a low-cost solution to the throwaway consumer culture of high-income nations.

Wealthier nations create double standards by externalizing the health and environmental impacts on the most vulnerable.⁶³ France recently passed legislation to stop the export of chemicals prohibited domestically, even as the EU continues to export toxic industrial waste “resulting in widespread infringements of human rights to life, dignity and freedom from cruel, inhuman and degrading treatment in low and middle-income countries.”⁶⁴

The lack of any oversight mechanism regarding the recycling rates of exported plastics waste has led to international concern that these trade flows channel vast quantities of plastics waste into the oceans and the natural environment. Developing nations often struggling to manage their own waste streams are disproportionately affected by the environmental and human health hazards of the plastics waste trade. As a result, the import of single-use plastics, and other plastics products significantly exacerbate the existing environmental burden on countries that lack capacity, infrastructure, and resources to manage (even their own) plastics waste.

a. Marine Plastics Crisis and Human Health

Plastics are the “largest, most harmful and persistent fraction of marine litter, accounting for at least 85% of total marine waste.”⁶⁵ Plastics reduce valuable marine ecosystem service by at least US\$500 billion to US\$2.5 trillion each year, not including social and economic losses from industries like tourism and shipping.⁶⁶ Microplastics and nanoplastics have become so pervasive that these plastics particles are inhaled through the air, absorbed by the skin, and consumed through food and water.⁶⁷ Microplastics are found in human lungs, livers, spleens, kidneys and even the placenta of newborn babies.⁶⁸ While the full impact on human health remains unknown, these chemicals are known to lead to endocrine disruption, developmental disorders, reproductive abnormalities, and cancer.⁶⁹ Waste workers, indigenous communities, and those living in coastal communities

⁶⁰ UNCTAD. (2022) Global Plastics Trade hits record \$1.2 trillion

⁶¹ Barrowclough et al. (2022) Global Trade in Plastics. *2018 numbers, before China’s ban on plastic waste imports took effect

⁶² Barrowclough et al. (2022) Global Trade in Plastics.

⁶³ UN Human Rights (2022) States must stop exporting unwanted toxic chemicals to poorer countries.

⁶⁴ UN Human Rights (2022) States must stop exporting unwanted toxic chemicals to poorer countries.

⁶⁵ UNEP. From Pollution to Solution

⁶⁶ UNEP. From Pollution to Solution

⁶⁷ ACS (2020) Methods for microplastics, nanoplastics and plastic monomer detection and reporting in human tissue

⁶⁸ ACS (2020) Methods for microplastics, nanoplastics and plastic monomer detection and reporting in human tissue

⁶⁹ UNEP. From Pollution to Solution

or near incineration facilities are at much higher risk. In recognition of these detrimental health and environmental impacts, China imposed a ban on most plastics waste imports. Given the complexity of environmentally sound waste management coupled with the low economic benefits and technical limitations of recycling plastics, China adopted its National Sword Policy in 2018.⁷⁰

b. China's National Sword Policy & the International Response to Plastics Waste

For decades, China was the largest importer of plastics waste.⁷¹ In the 1980s, plastics waste served as a valuable means of bolstering China's domestic resource shortages.⁷² This steady supply of high-quality materials provided cost savings and energy efficiency for the Chinese manufacturing industry by reducing production of products from virgin resources.⁷³ The Chinese recycling industry also saw high-profits until the rapid expansion of low-value plastics products overwhelmed recycling infrastructure and led to concern for the harmful health impacts of mismanaged imported plastics waste.⁷⁴

In 2018, China implemented the National Sword policy, which bans twenty-four waste materials including eight types of post-consumer plastics waste.⁷⁵ As plastics waste exports were diverted to neighboring Southeast Asian nations like Thailand and Malaysia, subsequent bans were implemented.⁷⁶ The bans forced exporting nations to recognize the magnitude of their plastics waste streams and prompted international dialogue regarding plastics pollution. The Informal Dialogue on Plastic Pollution and Environmentally Sustainable Plastics Trade (IDP) launched in 2020 to “explore how enhanced cooperation in the WTO could contribute to global, regional and domestic efforts to reduce plastics pollution and promote the transition to more environmentally sustainable trade in plastics.”⁷⁷

The WTO Dialogue is co-sponsored by 75 members, representing roughly 75% of global trade in plastics.⁷⁸ Notably absent are the United States and Saudi Arabia, which represent the top two exporting countries for primary plastics.⁷⁹ Since UNEA's historic resolution to End Plastics Pollution, countries have split on how the legally binding treaty should be forged. The High Ambition Coalition to End Plastic Pollution includes over 40 countries, including the EU Members, Norway, Britain, Canada, Uruguay, Rwanda, and Ghana, which are in favor of a treaty based on mandatory global standards, bans, and restrictions on plastics.⁸⁰

The U.S., Saudi Arabia, Australia, and others have started their own coalition advocating for a treaty that resembles the Paris Agreement, in favor of a country-driven approach to architect their own “national action plans” as the “primary mechanism” for countries to contribute to the treaty.⁸¹ However, the U.S. approach lacks an enforcement mechanism, “coordinated curbs on virgin plastics production, and universal design

⁷⁰ Katz (2019) Piling Up: How China's Ban on Importing Waste Has Stalled Global Recycling

⁷¹ Igini (2022) What are the consequences of China's import ban on global plastic waste?

⁷² Igini (2022) What are the consequences of China's import ban on global plastic waste?

⁷³ Igini (2022) What are the consequences of China's import ban on global plastic waste?

⁷⁴ Igini (2022) What are the consequences of China's import ban on global plastic waste?

⁷⁵ Igini (2022) What are the consequences of China's import ban on global plastic waste?

⁷⁶ Igini (2022) What are the consequences of China's import ban on global plastic waste?

⁷⁷ Informal Dialogue on Plastics Pollution, Background

⁷⁸ Birkbeck et al. (2022) Tess Policy Brief: WTO Dialogue on Plastics Pollution: Overview and State of Play

⁷⁹ Global Trade in Plastics

⁸⁰ Geddie (2022) Reuters – US Seeks Allies as split emerges over global plastics pollution treaty

⁸¹ Geddie (2022) Reuters – US Seeks Allies as split emerges over global plastics pollution treaty

standards to increase the recyclability of plastics.”⁸² Trade policy measures that do not require U.S. Congressional ratification should be explored as the lack of political will for an internationally legally binding treaty aimed at curbing plastics production and pollution, pose a significant challenge to U.S. participation in ending plastics pollution.

c. The Basel Convention Plastic Waste Amendments

In 2019, 187 members to the Basel Convention adopted the Plastic Waste Amendments and launched the Plastic Waste Partnership to support the environmentally sound management of plastics waste.⁸³ The Basel Convention regulates hazardous waste to ensure it is “managed in a manner which will protect human health and the environment against the adverse effects which may result from such wastes.”⁸⁴ Effective January 2021, the Plastic Waste Amendments include: (1) types of plastics waste presumed to be hazardous and therefore subject to prior informed consent (PIC) procedure;⁸⁵ (2) plastics waste presumed to not be hazardous and not subject to PIC procedure;⁸⁶ and (3) all other plastics that require special consideration and subject to PIC procedures.⁸⁷ Under the Plastic Waste Amendments, exporters of hazardous and mixed plastics waste streams must comply with PIC procedures, which include: (1) notification, (2) consent and issuance of movement document, (3) transboundary movement, and (4) confirmation of disposal.⁸⁸ PIC procedures serve as a form of international oversight by requiring the importer to confirm environmentally sound disposal of plastics waste.

Exporters must also show they either lack technical capacity for environmentally sound management domestically or that the importing nation requires the plastics waste stream as raw material for recycling or recovery industries, or other approved circumstances.⁸⁹ The Plastic Waste Partnership furthers these commitments by providing technical support and guidelines for the environmentally sound management (ESM) of waste together with the ESM Framework.⁹⁰

While this marks an important milestone in global governance as the first successful multilateral environmental agreement (MEA) to manage plastics waste trade, enforcement relies entirely on Member countries to voluntarily establish domestic legislation and regulations to enforce compliance with the Convention. The United States is one of the few countries that have not ratified the Convention, and is unlikely to ratify in the near future.⁹¹ The U.S. is also the largest producer of plastics waste, generating 42 million metric tons of plastics waste per year (nearly 290 pounds per person).⁹² Without ratification, the U.S. is limited in its ability to enforce compliance with the Plastic Waste Amendments and to prosecute plastics waste exporters that trade in violation of its provisions.

⁸² Geddie (2022) Reuters – US Seeks Allies as split emerges over global plastics pollution treaty

⁸³ GEN (2021) Geneva Beat Plastic Pollution Dialogues

⁸⁴ Article II of Basel Convention

⁸⁵ Basel Convention Annex VIII, with a new entry A3210

⁸⁶ Basel Convention Annex IX, with new entry B3011 replacing B3010

⁸⁷ Basel Convention Annex II, with new entry Y48, catchall provision that covers all other plastic waste and mixed plastic waste that is not included in A3210 or B3011

⁸⁸ Controlling transboundary movements

⁸⁹ Controlling transboundary movements

⁹⁰ Controlling transboundary movements

⁹¹ Basel Convention

⁹² Global Ocean Plastic Waste. Congressional Report

Enforcing the Convention may also give rise to outstanding legal questions of WTO compatibility.⁹³ For example, the Convention prohibits “Parties from trading in [plastics waste] subject to PIC with non-Parties, except under the terms of an agreement or arrangement provided for by Article 11 of the Convention.⁹⁴ Without an applicable exception under Article 11, it may be considered a violation of GATT Article I (Most Favoured Nation Treatment) for a country that is a signatory to the Basel Convention to “refuse a shipment of a waste product from a country . . . which is *not* a signatory . . . while accepting a shipment of an equivalent [‘like’] product from [a] country . . . that *is* a party to the convention.”⁹⁵ While “no trade-related measures taken by governments in the context of MEAs have been the explicit subject of any trade challenges”⁹⁶ to date, enforcing minimum environmental standards set by MEAs like the Basel Convention face numerous challenges due to the voluntary nature of commitments and the uneven domestic ratification of signatories.

III. CONTOURS OF A CIRCULAR PLASTICS ECONOMY

A circular economy is critical to achieving emissions mitigation goals set forth by the Paris Agreement while continuing to meet the needs of our modern economy. The heaviest emitting industries at the foundation of our economy include plastics, cement, steel, and aluminum.⁹⁷ Global transformation of these heavy emitting industries towards a more circular economy has the potential to reduce 3.6 billion tonnes of CO₂ per year by 2050, which represents nearly 45% of baseline emissions.⁹⁸ The transition to a circular economy is also estimated to represent a US\$4.5 trillion global growth opportunity by 2030.⁹⁹ Plastics have the largest potential to improve circularity given the currently low recycling rates (less than 10%). Mechanical recycling of plastics can also substantially decarbonize new plastics production by reducing CO₂ emissions by 30-40% when compared with emissions associated with virgin polymer production.¹⁰⁰

Plastics consumption increases as economies develop and populations grow, with global plastics production projected to double to over 800 million tons per year by 2050.¹⁰¹ Policy measures that incentivize re-use and recycling can provide up to 60% of the world’s plastics demand, cutting CO₂ emissions by half.¹⁰² Achieving a more circular plastics economy requires transformation at every stage of the plastics lifecycle, including a sharp reduction in production.

Single-use plastics have become a target for policymakers, as outright bans on plastic bags seek to reduce the volume of unnecessary plastics packaging that become insidious forms of microplastics pollution. Product design using high-value materials that are easy to sort and clean, coupled with increased investment in advanced recycling facilities that expand the scope and scale of collection and recycling, can transform plastics recycling into an economically viable industry. Policy measures that establish a quota system for

⁹³ Birkbeck (2021) Greening International Trade

⁹⁴ Basel Convention

⁹⁵ Birkbeck (2021) Greening International Trade

⁹⁶ Birkbeck (2021) Greening International Trade

⁹⁷ Material Economics (2018) The Circular Economy: A Powerful Force for Climate Mitigation

⁹⁸ Material Economics (2018) The Circular Economy: A Powerful Force for Climate Mitigation

⁹⁹ WEF (2019) It’s time for the circular economy to go global

¹⁰⁰ Plastic Waste Makers Index - Minderoo

¹⁰¹ Material Economics (2018) The Circular Economy: A Powerful Force for Climate Mitigation

¹⁰² Material Economics (2018) The Circular Economy: A Powerful Force for Climate Mitigation

minimum recycled content can also help incentivize investment in recycling facilities by ensuring market demand for secondary plastics output.¹⁰³

Enormous economic value is currently lost in the plastics economy. Circularity maximizes resource efficiency by capturing the inherent commercial value of plastics waste streams while mitigating emissions and the energy intensive production of primary materials. Effective trade policy supporting the transition from a take-make-waste business model to one that recaptures or recycles the economic value of plastics packaging material used only once, can unlock an estimated US\$80–120 billion in lost value to the global economy annually.¹⁰⁴ Trade measures may also address barriers to circularity across the lifecycle of plastics by liberalizing resource efficient products and technology.

For developing nations, plastics offer a path to development, increased quality of life, and an expansion of economic opportunity. Policy measures supporting a circular plastics economy must consider the impacts that production and reporting standards for plastics products may have on developing nations and LDCs. Investment in technical capacity, training, and the liberalization of recycling technology must also be prioritized for developing nations that have become the dumping grounds for plastics waste.

A. The complimentary role of MEAs and TAs to promote circular plastics trade

A multilateral approach to addressing the global problem of plastics pollution provides the benefit of international coordination on policy measures aimed at phasing out virgin, single-use plastics and other unrecyclable or toxic plastics from international trade. Yet, the enforceability of multilateral environmental agreements (MEAs) is limited due to the voluntary nature of MEA commitments, which must be ratified domestically to create a legally binding enforcement mechanism. For example, the U.S. signed the Stockholm Convention in 2001 but has never domestically ratified the Convention and therefore lacks the authority to enforce the full implementation of its provisions.¹⁰⁵

Some nations have sought to spur ratification of MEAs by conditioning trade agreements (TAs) to countries that ratify and implement MEA commitments.¹⁰⁶ Recently, several EU members have threatened to vote against ratification of the EU-Mercosur trade agreement until Brazil has satisfactorily ratified Paris Agreement commitments through sufficient domestic legislation.¹⁰⁷ By conditioning legally binding TAs on the domestic ratification of MEA provisions, regional plurilateral TAs can encourage the adoption and enforceability of voluntary MEAs, while MEAs lay the foundation for global coordination to prioritize multilateral environmental targets, cooperative monitoring mechanisms, technology transfer, and other commitments that support an end to plastics pollution. As such, new and existing MEAs may be carefully crafted or amended to support the three broad targets *supra*,¹⁰⁸ while new and existing TAs are conditioned upon ratification of MEA provisions.

¹⁰³ Material Economics (2018) *The Circular Economy: A Powerful Force for Climate Mitigation*

¹⁰⁴ Ellen MacArthur Foundation *The New Plastics Economy*

¹⁰⁵ UNIDO Stockholm Convention “global treaty to protect human health and the environment from persistent organic pollutants (POPs).”

¹⁰⁶ Birkbeck (2021) *Greening International Trade*

¹⁰⁷ Birkbeck (2021) *Greening International Trade*

¹⁰⁸ Three high-level objectives: (1) commit to recycled polymers targets of at least 25% of production by 2030, (2) end plastics pollution by 2040, and (3) decarbonize the plastics sector to reach net zero by 2045.

Although multilateral agreement has distinct advantages for addressing a global crisis, plurilateral regional TAs as well as unilateral action by nations can quickly initiate critical action to limit virgin plastics production and mitigate the plastics pollution crisis. Further, multilateral consensus may ultimately prove inadequate to respond to the mounting environmental crisis in a timely manner. Delaying action to cut back plastics production and consumption by even five years is estimated to increase plastics pollution in the ocean by approximately 80 million metric tonnes.¹⁰⁹

B. Upstream Policy Measures

1. Adapting the Montreal Protocol to phase-out virgin plastics polymer production

Decarbonizing the plastics industry requires the decoupling of plastics production from fossil fuels. Over 90% of plastics are made from virgin fossil-fuel feedstock and represent about 6% of global oil consumption.¹¹⁰ Under business-as-usual projections, the plastics sector will account for 15% of the global annual carbon budget by 2050.¹¹¹ Over a third of all plastics manufactured each year are single-use plastics.¹¹² Single-use plastics are particularly harmful because they are generally used only once and are difficult to recycle because they are made of low-value plastic material, are often contaminated by food, or mixed with other packaging materials, dyes, and toxic chemicals which cannot safely be recycled. Unsurprisingly, the vast majority of single-use plastics are discarded with “around 90% of all plastic waste ever produced . . . used only once.”¹¹³ Single-use plastics waste is largely exported to developing nations that lack the capacity for environmentally sound management, creating grave environmental and human health hazards. Upstream policy measures that rein in plastics production within sustainable levels are critical to achieving a more circular plastics economy.

The Montreal Protocol on Substances that Deplete the Ozone Layer has been touted as one of the most successful examples of trade-related cooperation.¹¹⁴ This treaty regulates the production and consumption of ozone depleting substances (ODS), and has successfully phased out ODS like CFCs through a flexible start-and-strengthen approach that enables the “gradual strengthening of controls over time as new information and alternatives become available.”¹¹⁵ Taking a similar start-and-strengthen approach, the production and consumption of virgin plastic polymers could be regulated and largely phased out of international trade.¹¹⁶

Adapting the Montreal Protocol for plastics first requires the categorization of virgin plastics by polymer type (in an annex as “controlled substances”) with new polymers

¹⁰⁹ WEF (2020) How Multiple Countries are Working Together to End Plastic Pollution by 2040

¹¹⁰ WEF (2016) The New Plastics Economy – this is the equivalent to the consumption of the global aviation sector

¹¹¹ WEF (2016) The New Plastics Economy

¹¹² Source of Plastic Waste Plastic Waste Makers Index

¹¹³ Gabriel et al. (2022) Achieving Sustainable Production and Consumption of Virgin Plastic Polymers_FrontiersIn

¹¹⁴ Birkbeck (2021) Greening International Trade

¹¹⁵ Gabriel et al. (2022) Achieving Sustainable Production and Consumption of Virgin Plastic Polymers_FrontiersIn

¹¹⁶ Gabriel et al. (2022) Achieving Sustainable Production and Consumption of Virgin Plastic Polymers_FrontiersIn

added via Decisions by the Parties without need for further ratification.¹¹⁷ Once plastic polymers are categorized, Parties are required to report on the production and consumption of each “controlled substance.”¹¹⁸ As with the Montreal Protocol, developing nations may receive technical and financial assistance to comply with mandatory reporting obligations.¹¹⁹ The feasibility of gathering this data is greatly aided by the fact that there are only approximately 300 virgin polymer producers worldwide, with 100 producers accounting for nearly 90% of all single-use plastics production.¹²⁰

Based on these reports, Parties then adopt restrictions on annual production and consumption of controlled substances at certain baseline levels that serve as a cap, followed by a ‘phase-down’ to lower aggregate levels of production and consumption over time.¹²¹ Setting the baseline and subsequent phase-down of virgin polymers to target levels that require recycled polymers constitute at least 25% of plastics production by 2030, will likely result in a temporary freeze on virgin polymer production while simultaneously generating substantial market demand for secondary plastics. Controls on virgin polymer production may also be tailored to phase-down unrecyclable plastic polymers first.

Plastics can be broken down into two broad categories: (1) “thermoplastics, which can be melted and remolded (~80%),” and (2) “thermosets, which cannot be remelted and remolded (~20%).”¹²² By initially targeting hard to recycle plastics (thermosets), low-value plastics (single-use), and plastics containing “high concentrations of toxic chemicals for which alternatives are readily available”¹²³ a phase-out schedule optimized for circularity can be achieved to end plastic pollution by 2040 and decarbonize the plastics industry by 2045.

2. Expanding Stockholm Convention POPs to include toxic additives commonly used in plastics production

Plastics containing toxic additives that are unsafe to recycle cannot support a circular plastics economy and pose enduring risk to human and environmental health. The Stockholm Convention is a “global treaty to protect human health and the environment from persistent organic pollutants (POPs). POPs are chemicals that remain intact in the environment for long periods, become widely distributed geographically, accumulate in the fatty tissue of living organisms and are toxic to humans and wildlife.”¹²⁴ These toxic chemical additives are prime candidates for inclusion as POPs because they can linger in

¹¹⁷ Gabriel et al. (2022) Achieving Sustainable Production and Consumption of Virgin Plastic Polymers_FrontiersIn Modeled after Article 2 of Montreal Protocol which imposes control measures on production and consumption of “controlled substances” listed in Annexes A, B, C, E, and F

¹¹⁸ Gabriel et al. (2022) Achieving Sustainable Production and Consumption of Virgin Plastic Polymers_FrontiersIn Based on reporting requirements of Article 7 of the Montreal Protocol. “*Production*’ should refer to the amount of virgin plastic a country produces, with ‘consumption’ referring to the amount of virgin plastic a country consumes, calculated as production plus imports minus exports of virgin plastics.”

¹¹⁹ Gabriel et al. (2022) Achieving Sustainable Production and Consumption of Virgin Plastic Polymers_FrontiersIn

¹²⁰ Plastic Waste Makers Index 2023_Mideroo Foundation

¹²¹ Gabriel et al. (2022) Achieving Sustainable Production and Consumption of Virgin Plastic Polymers_FrontiersIn

¹²² Shieh et al. (2020) Cleavable comonomers enable degradable, recyclable thermoset plastics

¹²³ Gabriel et al. (2022) Achieving Sustainable Production and Consumption of Virgin Plastic Polymers_FrontiersIn Such as polyvinyl chloride (PVC), polystyrene (PS), polyurethane (PUR) and polycarbonate (PC), which collectively comprise 30% of total market share.

¹²⁴ UNIDO Stockholm Convention

the environment for hundreds to over a thousand years, accumulate in marine life, and are widely distributed geographically.¹²⁵ Some studies estimate that humans ingest up to one credit card's worth of plastic per week.¹²⁶ Certain types of plastics are known to be endocrine disrupters that lead to various diseases.¹²⁷

Exposure to microplastics have become so universal that “almost everyone has endocrine disrupting chemicals in their bodies.”¹²⁸ While these additives perform useful functions in plastics including PVC, PS, PP, PU and Nylon, as flame retardants, plasticizers, and heat or UV stabilizers, safer alternatives currently exist to replace many of these applications.¹²⁹ Phasing out these harmful chemicals that render plastics products unsafe to recycle by including them as POPs under the Stockholm Convention supports market-demand for toxic-free alternatives, investment in the development of substitutes, and promotes a circular plastics economy.

3. Applying the Montreal Protocol licensing system, prohibition of trade with non-Parties, and critical-use exemptions to the regulation of virgin plastics polymers

A cross-border licensing system, similar to the one implemented in the Montreal Protocol and the Basel Convention, supports monitoring the flow of virgin plastics polymers and prevents these substances from being traded illegally.¹³⁰ Under a licensing system, only licensed companies can produce, import, or export, controlled substances, thereby banning the unlicensed (and unregulated) production, import, and export of virgin plastics polymers.¹³¹ Provisions prohibiting trade of controlled substances with non-Parties, modeled after Article 4 of the Montreal Protocol, also work to maximize participation and compliance.¹³² Finally, exemptions for critical-use applications (i.e. for use in the medical industry) allow a country to use a specific amount of controlled substance for a period of time and provide flexibility for plastics considered essential for society until alternatives are available and commercialized to replace the use of controlled substances.¹³³

¹²⁵ Chamas et al. (2020) Degradation Rates of Plastics in the Environment

¹²⁶ Pletz (2022) Ingested Microplastics_Science Direct

¹²⁷ SDG Knowledge Hub (2021) Household Plastic Products Disrupt Endocrine System, Threaten Human Health

¹²⁸ SDG Knowledge Hub (2021) Household Plastic Products Disrupt Endocrine System, Threaten Human Health

¹²⁹ Buyle (2012) An ecological alternative to PVC in fabric

¹³⁰ Gabriel et al. (2022) Achieving Sustainable Production and Consumption of Virgin Plastic Polymers_FrontiersIn

¹³¹ Gabriel et al. (2022) Achieving Sustainable Production and Consumption of Virgin Plastic Polymers_FrontiersIn

¹³² Gabriel et al. (2022) Achieving Sustainable Production and Consumption of Virgin Plastic Polymers_FrontiersIn “The Montreal Protocol was the first to receive UN treaty to receive universal ratification.”

¹³³ Achieving Sustainable Production and Consumption of Virgin Plastic Polymers_FrontiersIn “

C. *Midstream Policy Measures*

1. **Adapting plurilateral Carbon Clubs to phase-out virgin, single-use plastics and incentivize resource efficient plastics product design**

Voluntary, multilateral agreement has historically taken years to achieve¹³⁴ and can also induce free-riding, whereby “countries have an incentive to rely on the . . . reductions of others without making costly domestic reductions themselves.”¹³⁵ The concept of a Carbon Club addresses these concerns as countries “unilaterally and sequentially introduce [border adjustment taxes] on their imported goods. Thus a Carbon Club entails a set of parallel unilateral measures – not a single negotiated arrangement.”¹³⁶ As more countries join a Carbon Club, the incentive to join becomes greater.¹³⁷

Adapting the model of a plurilateral Carbon Club to address the plastics pollution crisis can strengthen and even catalyze multilateral efforts. To start a Plastics Club, nations may take unilateral action to impose a border adjustment tax through a differentiated tariff schedule with the aim of reducing or eliminating the use of virgin single-use plastics, encouraging trade in bioplastics and plastics alternatives, and economically incentivizing trade in recycled plastics. A differentiated tariff schedule provides varying degrees of market access that promote plastics circularity, domestically capturing lost economic value inherent in plastics waste and creating thousands of new jobs. While governments may choose to take immediate unilateral action, regional cooperation through legally binding trade agreements are necessary to avoid leakage of undesirable plastics products to neighboring markets.

Harnessing market forces to shift virgin plastics production through unilateral and plurilateral regulations via the formation of a Plastics Club, can quickly send a powerful message to the commercial markets. The IMF has reported that “a carbon tax is the ‘single most powerful’ way to combat climate change.”¹³⁸ Setting strong product standards that require minimum recycled content coupled with phasing out fossil fuel-based single-use plastics will give shareholders of the world’s corporations clear financial incentives to divest from the production of virgin plastics and to invest in the circular plastics economy.¹³⁹

a. *Banning single-use plastics: WTO compliance considerations*

The GATT Article XI generally prohibits WTO Members from imposing export or import bans on goods “made effective through quotas, import or export licenses or other measures” subject to limited exceptions.¹⁴⁰ Governments may, nonetheless impose a ban on primary, fossil fuel-based, single-use plastics “provided any restrictions equally apply

¹³⁴ Vetter (2022) As The World Heats Up Could ‘Carbon Clubs’ Supercharge Climate Action? “*The Paris Agreement has taken years to negotiate and we still have countries submitting NDCs [emissions reductions targets] using incomparable frameworks.*”

¹³⁵ Nordhaus (2020) The Climate Club

¹³⁶ Adams, et al. (2022) The Carbon Club revisited: Harnessing enterprise and trade to decarbonize the global economy.”

¹³⁷ Helm, et al. (2012) Trade, climate change, and the political game theory of border carbon adjustments

¹³⁸ Newburger (2019) A carbon tax is ‘single most powerful’ way to combat climate change, IMF says

¹³⁹ Harvey (2021) Regulate business to tackle climate crisis, urges Mark Carney “You can have strong regulation for the future, then the financial market will start investing today, for that future. Because that’s what markets do, they always look forward.”

¹⁴⁰ Birkbeck (2021) Greening International Trade

nationally and do not discriminate between exporters.”¹⁴¹ India, the fifth highest generator of plastic waste in the world, attempted to impose a ban on a small fraction of its single-use plastics accounting for 2-3% of India’s total plastics waste while exempting big businesses like Pepsico and CocaCola.¹⁴² India’s ban failed after three months due to a lack of community-level support and little to no government assistance for those impacted by the new regulations to transition to affordable alternatives.¹⁴³

China has also implemented a ban on certain categories of single-use plastics which will be phased in over a five-year period beginning in 2020.¹⁴⁴ Implementing a ban in phases creates a better chance that the ban will succeed by providing impacted industry time to come into compliance. It seems unlikely that the U.S. would be able to pass a meaningful federal ban on single-use plastics since it was one of the few countries that opposed an “initial proposal to phase-out single-use plastic by 2025” during the Fourth UN Environment Assembly, where 170 countries pledged to “significantly reduce” the use of plastics by 2030.¹⁴⁵ If the U.S., as the largest importer of plastics packaging, were to phase-in a domestic ban on several categories of single-use plastics made from virgin polymers and applied the ban equivalently to all single-use plastics imports, this would send a strong signal to international markets to slow production of virgin plastics for single-use applications.

In the absence of an equivalent domestic ban, the U.S. could still impose a ban on fossil fuel-based single-use plastics imports under an Article XX(b) exception as a measure “necessary to protect human, animal or plant life or health” or an Article XX(g) exception for measures “relating to the conservation of exhaustible natural resources if such measures made effective in conjunction with restrictions on domestic production or consumption.”¹⁴⁶

Given the vast data showing the harmful human and environmental impacts of plastics waste pollution, a ban on fossil fuel-based single-use plastics would likely fit under one or both of these paragraphs. However, the measure must also satisfy the introductory paragraph ‘chapeau’ to qualify as an Article XX exception; a high standard to meet as only two cases have prevailed.¹⁴⁷ A ban must also be carefully crafted to satisfy WTO principles of non-discrimination and transparency.¹⁴⁸ A country imposing a ban or other environmental measure may also seek to undertake good faith consultations with trading partners prior to implementation to avoid trade tensions and disputes.¹⁴⁹

b. Leveling the playing field between primary and secondary plastics

The GATT does allow export and import restrictions through duties and taxes as long as they do not violate WTO principles of national treatment (which prohibits discrimination between foreign and domestically produced goods) and most-favoured nation (which prohibits discrimination among trading partners).¹⁵⁰ Through the use of a

¹⁴¹ Birkbeck (2021) Greening International Trade

¹⁴² Deshpande (2022) Three Months On, India’s Single-Use Plastic Ban a Dud

¹⁴³ Deshpande (2022) Three Months On, India’s Single-Use Plastic Ban a Dud

¹⁴⁴ WEF (2020) China has announced ambitious plans to cut single-use plastics

¹⁴⁵ UNEA Pledge (2019)

¹⁴⁶ GATT

¹⁴⁷ (1) U.S. Shrimp-Turtle Case and (2) EC Asbestos Case

¹⁴⁸ Birkbeck (2021) Greening International Trade

¹⁴⁹ Birkbeck (2021) Greening International Trade

¹⁵⁰ GATT

differentiated tariff schedule, governments may vary the degree of market access provided to unsustainable fossil fuel-based, single-use, virgin plastics by charging high tariffs, thereby indirectly combating fossil fuel subsidies that distort the true cost of “cheap” virgin plastics. Governments may also lower or eliminate tariffs and non-tariff barriers to trade for plastics alternatives, like bioplastics, and high-value plastics waste to incentivize the trade in secondary plastics.

Through a differentiated tariff schedule, preferential market access may be granted to sustainably produced plastics products that meet certain environmental standards such as containing 25% minimum recycled content. For example, the EFTA-Indonesia trade agreement bases its preferential tariff treatment on the compliance of specific voluntary environmental standards for palm oil production.¹⁵¹ Domestic measures that impose equivalent taxes on local products, to tariffs charged on imported “like” products bring the border adjustment tax and differentiated tariff schedule on plastics into compliance with WTO national treatment. Border adjustment tax measures must also be carefully crafted to avoid discrimination among trading partners, and to avoid unfairly disadvantaging developing nations through costly compliance requirements.

Tax revenues may be invested in greening Aid-for-Trade for developing nations by providing technical assistance, training, infrastructure, and capacity building to assist these nations transition to a circular plastics economy and comply with any new international treaty obligations. Domestically, revenues may also support the development of plastic-free products, refill stations, plastics alternatives, and other advancements in recycling technology that promote a circular plastics economy.

Whether governments may differentiate between “like” products based on the sustainability of production and process methods (PPMs) is not yet settled.¹⁵² This debate is particularly difficult in cases where no physical trace of any differentiation is left in the end-product, also known as non-product related PPMs (NPR PPMs).¹⁵³ While PPMs are not prohibited per se under the GATT, there has been a “chilling effect” for PPM-based trade measures given the legal uncertainties surrounding WTO compliance.¹⁵⁴ Developing nations have long opposed the use of NPR PPMs, fearing a slippery slope to protectionist measures that developed nations may use to discriminate against developing nations’ imports that are unable to comply with costly reporting requirements.¹⁵⁵ Resolving this legal debate could, however, assist nations in distinguishing “like” products based on environmental and social considerations, including human rights. PPM-trade measures sensitive to the diversity of circumstances in producing countries should take a flexible approach that focuses on environmental outcomes rather than the use of specific methods of technologies, especially those that may be unaffordable or unavailable in developing nations.¹⁵⁶ Common but differentiated responsibilities may also be relevant to temporarily exempt developing nations transitioning to a more circular plastics economy.

Suggestions for addressing the uncertainty surrounding PPMs include amending the WTO TBT agreement or issuing a declaration on PPMs by the WTO Ministerial

¹⁵¹ Birkbeck (2021) Greening International Trade

¹⁵² Birkbeck (2021) Greening International Trade

¹⁵³ Birkbeck (2021) Greening International Trade. NPR PPM example: the amount of carbon emitted during production of steel, or plastics.

¹⁵⁴ Birkbeck (2021) Greening International Trade

¹⁵⁵ Birkbeck (2021) Greening International Trade

¹⁵⁶ Birkbeck (2021) Greening International Trade

Conference.¹⁵⁷ Yet these suggestions are both unlikely to succeed due to the required multilateral consensus of all WTO members.¹⁵⁸ The lack of consensus on definitions, international standards, and official classifications are among the major challenges impeding multilateral coordination on the plastics pollution crisis. Another suggestion is for the introduction of rules of methods of production (ROMP) where “production methods could be based solely on government regulations” thus enabling goods from anywhere in the world the benefit of trade preferences via lower tariffs for products that conform to specified production methods.¹⁵⁹

A government ROMP requiring a minimum 25% recycled content would dramatically impact the demand for secondary plastics inputs. ROMP requirements might also incentivize the production of plastics or bioplastics using renewable energy sources, to decarbonize the plastics industry. Finally, a WTO Climate Waiver (similar to the TRIPS Waiver on IP obligations designed to support access to generic drugs for developing countries) can also fast-track a temporary waiver of WTO obligations in “carefully defined and limited circumstances to certain kinds of measures that relate to climate actions” to support the circularity of plastics by expanding the use of trade measures to differentiate between products made with primary fossil fuel-based plastics and products made with secondary plastics and bioplastics.¹⁶⁰

2. Updating official classifications to support the implementation of MEAs, TAs, and domestic policy measures for plastics circularity

The Harmonized Commodity Description and Coding System (HS) developed by the World Customs Organization (WCO) is used by over 200 countries and covers over 98% of all merchandise products traded internationally.¹⁶¹ The HS is commonly used by governments for tariff negotiations and other trade policy measures, yet it does not differentiate plastics products or plastics waste based on sustainability criteria.¹⁶² The lack of a sufficiently granularized HS has left governments “repeatedly hamstrung in their efforts to liberalize trade in certain environmental goods and to implement MEAs.”¹⁶³ HS updates to support trade policy promoting a circular plastics economy may include distinctions between plastics products by polymer type, chemical composition, and secondary plastics content. These distinctions in the HS may then be relied upon in a differentiated tariff schedule to provide preferential market access to products containing secondary plastics, easily recyclable plastics, or bioplastics. Restrictions and phase-outs of plastics products containing toxic chemicals, single-use virgin plastics, thermosets, and other unrecyclable plastics may be implemented based on the updated HS to spur demand for products designed for circularity.

Additionally, ‘fast-stream’ customs mechanisms for high-value secondary plastics commodities can promote commercially viable recycling markets supporting the circular economy.¹⁶⁴ To support such a ‘fast-stream’ mechanism, the HS code would need to make a distinction between hazardous and non-hazardous plastics wastes (destined for

¹⁵⁷ Birkbeck (2021) Greening International Trade

¹⁵⁸ Birkbeck (2021) Greening International Trade

¹⁵⁹ Birkbeck (2021) Greening International Trade

¹⁶⁰ Birkbeck (2021) Greening International Trade

¹⁶¹ Birkbeck (2021) Greening International Trade

¹⁶² Birkbeck (2021) Greening International Trade

¹⁶³ Birkbeck (2021) Greening International Trade

¹⁶⁴ Birkbeck (2021) Greening International Trade

recycling). The Basel Convention's Plastic Waste Amendments subject hazardous and non-hazardous plastics waste to different restrictions, yet the HS code does not currently make any such distinction, thereby limiting the efficiency of the secondary plastics trade.

a. Support for customs officials to implement border controls for plastics circularity

Greening trade flows to restrict or ban unsustainable single-use primary plastics and plastics containing toxic chemicals, while promoting the flow of secondary plastics and plastics alternatives will require considerable investments in technical assistance, training, and capacity building of customs authorities. Revenues generated by a differentiated tariff schedule may also be allocated to support customs officials. The WCO hosts the Green Customs Initiative to "prevent the illegal trade in environmentally sensitive commodities and substances," such as ODS and toxic chemicals.¹⁶⁵ Enforcing the regulation of primary plastics and toxic chemical additives commonly used in plastics, could also be achieved through the support of the WCO Green Customs Initiative.

b. Promoting plastics circularity through international standards for plastics product design

Creating ISO or other international standards for plastics product design can also support circularity as a powerful tool in MEAs and regional TAs. The EU is currently attempting to set standards for all packaging through a proposed revision to its legislation on Packaging and Packaging Waste as part of the EU Green Deal's Circular Economy Action Plan.¹⁶⁶ Through this measure, the EU hopes to reduce unnecessary packaging and to standardize packaging to maximize recyclability, thereby reducing the need for virgin materials.¹⁶⁷ Establishing international standards for plastics product design that bans unrecyclable toxic additives and standardizes materials to maximize recyclability can significantly increase plastics circularity and reduce dependence on fossil fuel resource extraction.

Governments may also adopt MEAs, TAs, and domestic policy measures in compliance with the ISO or other international standard as defined by the TBT to receive the benefit of a safe harbour, or rebuttable presumption that these measures are also in compliance with the TBT. Codifying voluntary and non-binding ISO standards as minimum environmental requirements embodied in national law further provides governments with mandatory and legally binding plastics product design requirements within their respective markets. The adoption of such international standards can help to clarify confusion around the recyclability of various plastics and bioplastics.

For example, in the U.S. there is currently no mechanism to compost bioplastics or plastics marked as "compostable" because these cannot be recycled with other fossil fuel-based plastics and require a high heat industrial composting facility to break down.¹⁶⁸ Bioplastics and compostable plastics are marked under resin identification code 7, which is a catchall identification code for all miscellaneous plastics making it extremely difficult for curbside recycling programs to distinguish recyclable and non-recyclable plastics within this code. Therefore, these bioplastics and compostable plastics largely end up in

¹⁶⁵ Birkbeck (2021) Greening International Trade

¹⁶⁶ European Commission (2022) European Green Deal: Putting an end to wasteful packaging, boosting reuse and recycling

¹⁶⁷ European Commission (2022) European Green Deal: Putting an end to wasteful packaging, boosting reuse and recycling

¹⁶⁸ Beyond Plastics The False Promise of Bioplastics and Compostable Plastics

landfills or incinerated. Adopting international product design standards that distinguish between plastics by polymer type and chemical composition can maximize circularity and create economies of scale for the secondary plastics market as well as ensure that each type of plastic polymer is handled in the most resource efficient and environmentally sustainable manner.

D. Downstream Policy Measures

1. Raising capital for ESM through internationally coordinated extended producer responsibility (EPR) regulations

EPR regulatory schemes shift responsibility to producers “for reducing environmental impacts of products throughout their whole lifespan, including the post-consumer end of life stage of the product’s life.”¹⁶⁹ Yet growing plastics waste exports and inadequate waste management capacity in developed and developing nations, highlight the inefficiency of EPR schemes that operate solely within national boundaries.¹⁷⁰ Current EPR schemes are limited by companies claiming to have met their EPR responsibilities when waste is exported, or circumventing national EPR regulation by exporting goods to neighboring markets without such regulations.¹⁷¹ Coordinating EPR regulation internationally can help address these issues by ensuring that companies are required to show that exported waste was recycled or managed in an environmentally sound manner.¹⁷²

Companies producing single-use plastics that generate significant quantities of waste that are subject to EPR regulations may consider eliminating unnecessary packaging to reduce costs of ESM. EPR may also incentivize designing products that are easily recyclable, free from toxic chemical additives, and use materials like PETE or HDPE, that do not require advanced recycling equipment. Producers of plastics waste considered ‘hazardous’ under the Basel Convention may be charged high fees under EPR regulation. Revenues raised from EPR schemes in developed nations can then be invested to support ESM of plastics waste including the expansion of recycling infrastructure in developing nations.

IV. CONCLUSION

Achieving a circular plastics economy depends on the dramatic reduction in plastics produced. Through the complementary implementation of MEAs, regional TAs, and unilateral action by governments, plastics production and consumption can be brought within sustainable levels to achieve an end to plastics pollution by 2040. However, this goal can only be accomplished if governments take immediate action and commit to robust and legally binding obligations at UNEA-6, addressing the full lifecycle of plastics production, design, and disposal, as nations agreed.

Ending plastics pollution requires decarbonizing the plastics sector and decoupling plastics production from the fossil fuel industry. Mandatory secondary plastics content requirements and economic incentives including tax credits for using renewable energy in production and recycling processes can reduce dependence on fossil fuels. Imposing taxes on primary plastics production will also serve to indirectly combat fossil fuel subsidies and

¹⁶⁹ Birkbeck (2021) Greening International Trade

¹⁷⁰ Birkbeck (2021) Greening International Trade

¹⁷¹ Birkbeck (2021) Greening International Trade

¹⁷² Birkbeck (2021) Greening International Trade

directly create commercial incentives for secondary plastics. Complementary updates for a sufficiently granular HS code, and the adoption of international standards for plastics products design (promoting materials that are easily recyclable, high-value, and toxic-free) will support MEAs and TAs that promote circularity and enable efficient enforcement of legally binding measures at the level of domestic customs.

Clear trade policy measures promoting plastics circularity will also incentivize investment in expanding waste management capacity to adequately manage the entire range of plastics product types produced and the volume of plastics manufactured. Environmentally sound waste management and recycling that is safe for the humans processing plastic waste streams, safe for the environment, and safe for any subsequent use, can provide developing nations with economic opportunity and new jobs in the circular plastics economy while maintaining the integrity of human rights.

“Plastics are fossil fuels in another form and pose a serious threat to human rights, the climate & biodiversity. . . . I call on countries to look beyond waste and turn off the tap on plastic.” – António Guterres

TRADE POLICY MEASURES TO PROMOTE PLASTICS CIRCULARITY	
UPSTREAM	
<u>Proposed Trade Policy Measure</u>	<u>Goal</u>
Montreal Protocol 'start-and-strengthen' approach	Phase-out virgin plastics, decouple from fossil fuels
Categorize virgin plastics by polymer type as "controlled substances" and adopt restrictions on annual production/consumption	Optimize phase-out for plastics circularity by targeting hard to recycle plastics (thermosets), low-value plastics (single-use), and plastics containing "high concentrations of toxic chemicals for which alternatives are readily available"
Cross border licensing system; require license to produce, import, or export, controlled substances	Monitor the flow of virgin plastics polymers and ban the unlicensed (and unregulated) production, import, and export of virgin plastics polymers
Stockholm Convention: expand POPs to include commonly used toxic additives	Phase-out harmful chemicals that render plastics unsafe to recycle and support market-demand for toxic-free alternatives
MIDSTREAM	
<u>Proposed Trade Policy Measure</u>	<u>Goal</u>
Adapt Carbon Club model to impose a border adjustment tax through a differentiated tariff schedule	Reduce or eliminate the use of virgin single-use plastics, encourage trade in bioplastics and plastics alternatives, and economically incentivize trade in recycled plastics
Set strong product standards that require minimum recycled content via differentiated tariff schedule and preferential market access	Provide clear financial incentives to divest from the production of virgin plastics and to invest in the circular plastics economy
Differentiate 'like' products based on sustainability of production through NPR PPMs and/or via government ROMPs requiring a minimum of 25% recycled content	Create market demand for secondary plastics; distinguish "like" products based on environmental and social considerations, including human rights
Update HS to include distinctions between plastics products by polymer type, chemical composition, and secondary plastics content	Provide preferential market access to products containing secondary plastics, easily recyclable plastics, or bioplastics
	Phase-out plastics products containing toxic chemicals, single-use virgin plastics, thermosets, and other unrecyclable plastics
	'Fast-stream' customs mechanisms for high-value secondary plastics commodities, promote commercially viable recycling markets

<p>Use tax revenues to invest in technical assistance, training, and capacity building of customs authorities and the WCO Green Customs Initiative</p>	<p>Enforce the regulation of primary plastics and toxic chemical additives commonly used in plastics</p>
<p>Set international standards for plastics product design similar to those in the EU Green Deal's Circular Economy Action Plan</p>	<p>Reduce unnecessary packaging, standardize packaging to maximize recyclability, reduce the need for virgin materials Enable adoption of MEAs, TAs, and domestic policy measures in compliance with the international standard (as defined by the TBT) to receive the benefit of a safe harbour</p>
<p>Codify voluntary and non-binding ISO standards as minimum environmental requirements embodied in national law</p>	<p>Provide governments with mandatory, legally binding plastics product design requirements within their respective markets</p>
<p>DOWNSTREAM</p>	
<p>Proposed Trade Policy Measure</p>	
<p>Coordinate EPR regulation internationally</p>	<p>Goal Require companies to document that exported waste was recycled or managed in an environmentally sound manner</p>
<p>Design EPR regulation to charge higher fees to producers of plastics waste considered 'hazardous' under the Basel Convention</p>	<p>Incentivize plastics product design that is easily recyclable, free from toxic chemical additives, and use high-value materials like PETE or HDPE, that do not require advanced recycling equipment</p>
<p>Invest revenues from EPR schemes in developed nations to support ESM of plastics waste</p>	<p>Expand recycling infrastructure in developing nations to support ESM</p>

***Planetary Crisis: Key**

- CC = Climate Change
- NBL = Nature and Biodiversity Loss
- PW = Pollution and Waste

****High-level Targets: Key**

- 30 = Recycled polymers targets of at least 25% of production by 2030
- 40 = End plastics pollution by 2040
- 45 = Decarbonize the plastics sector to reach net zero by 2045

CHAPTER 11: DECARBONIZATION THROUGH CRITICAL MINERALS: THE LANGUAGE OF FREE TRADE AGREEMENTS AND THE U.S. INFLATION REDUCTION ACT

ISAAC BLOCH*

I. INTRODUCTION: CRITICAL MINERALS, TRADE, AND CLIMATE CHANGE

Climate change may be the defining crisis of our era.¹ Practical solutions are needed to transition to a green global economy, and, in particular, mineral deposits will play a central role in combatting climate change.² Certain critical minerals reside at the economic nexus of renewable energy, battery storage, and transportation.³ This latter category, transportation, accounts for a fifth of world-wide carbon emissions,⁴ and in the United States amounts to a greater percentage of emissions than any other sector of the U.S. economy.⁵ All major car manufacturers have plans in place to address this reality by transitioning to electric fleets.⁶ In order to create electric vehicles powered by renewable energy, automakers must produce electric battery cells.⁷ Lithium-ion batteries, either in their current formulations or through potential innovations, are the preferred way to store electricity in vehicles due to their weight-to-energy ratio.⁸ Given these factors, the demand for lithium and other key minerals is likely to grow by multiple factors over the coming decades.⁹ Access to critical minerals will thus be essential to powering the transportation networks of a future world economy.

* Yale, B.A. and Georgetown University, J.D.; I am grateful to Professor Jennifer Hillman for her feedback and guidance on the concepts in this chapter, and to Loriane Damian for her assistance.

¹ See, e.g., NAT'L INTEL. COUNCIL, CLIMATE CHANGE AND INTERNATIONAL RESPONSES INCREASING CHALLENGES TO U.S. NATIONAL SECURITY THROUGH 2040 (2021), <https://perma.cc/HZM6-ZJJD4>; CHASE SOVA ET AL., CTR. FOR STRATEGIC & INT'L STUD., CLIMATE CHANGE AND FOOD SECURITY: A TEST OF U.S. LEADERSHIP IN A FRAGILE WORLD (2019), <https://perma.cc/39E6-NRWZ>; Oleg Smirnov et al., *Climate Change, Drought, and Potential Environmental Migration Flows Under Different Policy Scenarios*, 57 INT'L MIGRATION REV. 36 (2023), <https://doi.org/10.1177/01979183221079850>; NAT'L OCEANIC & ATMOSPHERIC ADMIN., 2022 U.S. BILLION-DOLLAR WEATHER AND CLIMATE DISASTERS IN HISTORICAL CONTEXT (2023), <https://perma.cc/4GSD-JGUA>.

² INT'L ENERGY AGENCY, THE ROLE OF CRITICAL MINERALS IN CLEAN ENERGY TRANSITIONS (2022), <https://perma.cc/4NC4-6M82>.

³ *Id.* at 24-26, 46-48, 50-51; see also Melissa Barbanell, *Overcoming Critical Minerals Shortages Is Key to Achieving U.S. Climate Goals*, WORLD RES. INST. (May 3, 2023), <https://perma.cc/NVE9-8FVJ>.

⁴ Hannah Ritchie, *Cars, Planes, Trains: Where Do CO2 Emissions from Transport Come From?*, OUR WORLD IN DATA (Oct. 6, 2020), <https://perma.cc/NN4K-JZ3H>.

⁵ U.S. CONG. BUDGET OFF., EMISSIONS OF CARBON DIOXIDE IN THE TRANSPORTATION SECTOR (2022), <https://perma.cc/6R5W-DSGW>.

⁶ Jim Motavalli, *Every Automaker's EV Plans Through 2035 and Beyond*, FORBES (Oct. 4, 2021), <https://perma.cc/STR4-JNAL>.

⁷ U.S. DEP'T OF ENERGY, *Alternative Fuels Data Center: Batteries for Electric Vehicles* (accessed May 11, 2023), <https://perma.cc/9J9F-ZYGP>.

⁸ See, e.g., PAYNE INSTITUTE, SO, YOU WANT TO MAKE BATTERIES TOO? 4 (2020), <https://perma.cc/4UXC-3H7Y>; INT'L ENERGY AGENCY, *supra* note 2, at 93-94; but see Keith Bradsher, *Why China Could Dominate the Next Big Advance in Batteries*, NY TIMES (Apr. 12, 2023), <https://perma.cc/U8EX-ABYF>.

⁹ INT'L ENERGY AGENCY, *supra* note 2, at 46-47.

The location of critical minerals themselves also raises environmental, labor, and development issues, given the type of mining processes that are necessary for their extraction. Many critical minerals are found outside the United States, with some reserves held in the least developed countries.¹⁰ Currently accessible lithium reserves primarily exist, in order of abundance, in Chile, Australia, Argentina, and China.¹¹ There are also vast lithium resources in Bolivia, which, for political and economic reasons, remain isolated from the world market, but which are estimated to be equal to the world's total lithium reserves combined.¹²

Processing of critical minerals implicates international trade concerns as well. In its natural form, lithium can exist in different solid or briny deposits, meaning that a diverse set of technologies is required in order to mine and refine the material into a battery-grade component.¹³ In regard to refining raw lithium, China is far and away the global leader.¹⁴ Once the material is refined, industrial manufacturers in China, Japan, and South Korea take lithium and its compounds to produce the components necessary for lithium-ion batteries.¹⁵ The final step of battery assembly largely takes place in in China, Europe, and the United States.¹⁶

Given the challenges of mining and production, and the complexity of the international lithium market, the United States has adopted a plan for securing access to lithium and other critical minerals.¹⁷ The United States views access to critical minerals as essential to combatting climate change. It also recognizes that the supply chains of critical minerals represent a national security concern, given the future role that electric batteries will play in running the economy. In Part II, this chapter discusses how the Inflation Reduction Act (IRA) is designed to spur the adoption of electric vehicles at the national level, while simultaneously fortifying supply chains of critical minerals with traditional allies of the United States.

Part III analyzes the approach of the IRA under principles of international law. It briefly discusses how the implementation of the IRA raises potential violations of the General Agreements on Tariffs and Trade (GATT) treaty. Free trade agreements (FTAs) may be written in a way to avoid violations of GATT while complying with IRA's requirements, and this chapter discusses specific model language that such FTAs could incorporate. Additionally, international principles of environmental protection, labor rights, and development are considered in the context of lithium mining and the implementation of these FTAs. A case study of Bolivia is discussed, given the country's history of colonial mining exploitation and more recently instituted worker and

¹⁰ International law has established a framework for analyzing the rights of so-called "least developed countries," which is a term of art. See OFF. OF THE HIGH COMM'R ON HUM. RTS., *The Right to Development and Least Developed Countries* (accessed May 11, 2023), <https://perma.cc/6VTG-9Z4Y>.

¹¹ U.S. GEOLOGICAL SURV., MINERAL COMMODITY SUMMARIES 2022: LITHIUM, at 2 (2022), <https://perma.cc/ZAL7-94BL>.

¹² *Id.*; see also Martín Obaya, *Estudio de Caso Sobre la Gobernanza del Litio en el Estado Plurinacional de Bolivia*, U.N. CEPAL (2019), <https://perma.cc/BXS2-LCX5>.

¹³ Oliver Hailes, *Lithium in International Law: Trade, Investment, and the Pursuit of Supply Chain Justice*, 25 J. INT'L ECON. L. 148, 150, 152 (2022), <https://doi.org/10.1093/jiel/jgac002>.

¹⁴ *Id.*

¹⁵ *Id.*; FED. CONSORTIUM FOR ADVANCED BATTERIES, U.S. DEP'T OF ENERGY, NATIONAL BLUEPRINT FOR LITHIUM BATTERIES 2021-2030, 15 (2021), <https://perma.cc/4H5T-YCGV>.

¹⁶ *Id.* at 20.

¹⁷ Press Release, The White House, Fact Sheet: Securing a Made in America Supply Chain for Critical Minerals (Feb. 22, 2022), <https://perma.cc/79ST-NFAC>.

environmental protections. Finally, Part IV of this chapter discusses the idea of pooling patents as an additional method the United States could employ in order to bolster production of electric vehicles and secure access to lithium.

Implementation of FTAs to responsibly ensure the trade of critical minerals has already begun. In March of 2023, the United States and Japan signed an FTA for critical minerals that incorporates elements of non-imposition of export duties, information sharing, and recycling of extracted materials.¹⁸ This agreement makes sense, given the countries' close relationship and Japan's role in assembling battery components from refined lithium. This treaty provides one model, which can and should be expanded to other countries apart from traditional U.S. trading partners,¹⁹ so that the IRA can more fully incentivize adoption of electric vehicles.

II. TAX CREDIT INCENTIVES AND REQUIREMENTS

A. *Economic Policy and the Inflation Reduction Act*

The Inflation Reduction Act (IRA) attempts to meld domestic economic levers with international free trade agreements (FTAs). This combination endeavors to bolster the U.S. market for electric vehicles and simultaneously secure U.S. access to the critical minerals necessary for batteries.²⁰ These objectives are aligned, insofar as they aim to support the transition away from fossil fuels. However, IRA's requirements for critical mineral sourcing aims to achieve additional non-climate policy objectives as well, including guaranteeing that perceived foreign adversaries cannot use battery supply chains as leverage against the United States.²¹

First, the IRA uses tax policy to create an incentive for individual consumers to purchase electric vehicles. In particular, some consumers can receive a tax credit of up to 7,500 dollars with the purchase of certain fully-electric vehicles, known as the new clean vehicle credit.²² These tax credits aim to expand the market share of electric-vehicles compared to traditional fossil fuel cars. By lowering the effective price of electric vehicles for consumers without increasing production costs, while the price of traditional cars remains constant, companies will have a wider base of consumers to whom they can sell electric vehicles, and will thereby more rapidly invest in producing fleets that run on clean energy.²³

Although these tax incentives can be considered a boon for electric-vehicle manufacturers and consumers, the IRA also places certain requirements on the components used in electric-vehicle batteries. These requirements, discussed in greater detail below, mandate one of three options. The components must be produced

¹⁸ Agreement Between the Government of the United States of America and the Government of Japan on Strengthening Critical Minerals Supply Chains [hereinafter "Japan-U.S. Agreement"], Japan-U.S., Mar. 28, 2023; *see also* Press Release, Office of the U.S. Trade Rep., Exec. Office of the President, United States and Japan Sign Critical Minerals Agreement (Mar. 28, 2023), <https://perma.cc/A8JY-E7VS>.

¹⁹ *See, e.g.*, Stefano Sulaiman, *Indonesia to Propose Limited Free Trade Deal with US on Critical Minerals*, REUTERS (Apr. 10, 2023), <https://money.usnews.com/investing/news/articles/2023-04-10/indonesia-to-propose-limited-free-trade-deal-with-us-on-critical-minerals>.

²⁰ Inflation Reduction Act, Pub. L. 117-169, H.R. 5376, Part 4, §13401 (2022).

²¹ *See* Marc D. Gietter, *Offshore Battery Production Poses Problems for Military*, NAT'L DEFENSE MAGAZINE (Nov. 11, 2018), *cited in* U.S. DEP'T OF ENERGY, NATIONAL BLUEPRINT FOR LITHIUM BATTERIES 2021-2030, 15 (2021), <https://perma.cc/4H5T-YCGV>.

²² *See* Inflation Reduction Act, Pub. L. 117-169, at § 13403(b)(4).

²³ *See* Shane R. Stinson et al., *Do Consumer-Directed Tax Credits Effectively Increase Demand? Experimental Evidence of Conditional Success*, 40 J. AM. TAXATION ASSOC. 1 (2018), <https://doi.org/10.2308/atax-51960>.

domestically, come from a country with which the United States has an FTA, or have a certain amount of their value derived from refinement and production with the United States or an FTA country.

The policy rationale for including these battery component sourcing requirements goes beyond economic support for clean energy. These requirements will restrict the benefits that would otherwise be gained by only implementing the aforementioned tax credits, and prevent the market from expanding as quickly as it otherwise would with the tax incentives alone.²⁴ Instead, the sourcing requirements are geared towards U.S. national security interests. Given the essential role that electric-batteries will play as a future bedrock of transportation and the global economy, foreign reliance on access to battery components places the United States at a perceived strategic disadvantage.²⁵ A foreign adversary could theoretically leverage a reliance on battery components for non-economic, geopolitical objectives.²⁶ The net benefit of narrowing the market for electric battery components, in order to strengthen supply chains among allies, is questionable, given that climate change itself poses national security risks.²⁷ In the long-term, robust production chains that can be easily accessed by the United States will also create more economic stability for U.S. manufacturers and consumers.

B. International Revenue Service (IRS) Regulations

On March 31, 2023, the Internal Revenue Service (IRS) published its proposed regulations for qualifying for the new clean vehicle credit.²⁸ This regulatory implementation is relevant for assessing the IRA's potential impact on the growth of renewable energy in the transportation sector, as well as the IRA's compliance with international trade rules.

While establishing a maximum tax credit for consumers, the IRA restricts the credit based on consumer income and the price of the electric vehicle purchased.²⁹ For consumers, caps bar high-income earners from the credit, and are staggered based on tiered categories of individuals, heads of households, and joint tax filers.³⁰ These maximum income brackets primarily exist to ensure that the tax incentive will target the individuals who are most likely to be incentivized by the credit, without unnecessarily including individuals from higher income brackets. Additionally, certain electric-vehicles will only qualify for the credit if they are sold for 55,000 dollars or less, while sport-utility vehicles, vans, and trucks must be sold for less than 80,000 dollars to qualify for the credit.³¹ These latter requirements provide an additional market incentive for manufacturers to design vehicles for widespread consumer use, rather than producing luxury models, which have constituted an outsized share of the market. Taken together, these limitations address some economists' concerns that past tax credits for other

²⁴ Jenna N. Trost & Jennifer B. Dunn, *Assessing the Feasibility of the Inflation Reduction Act's EV Critical Mineral Targets*, NATURE SUSTAINABILITY: BRIEF COMMUNICATION (2023), <https://rdcu.be/dehPt>.

²⁵ CULLEN HENDRIX, PETERSON INST. FOR INT'L ECON., WHY THE PROPOSED BRUSSELS BUYERS CLUB TO PROCURE CRITICAL MINERALS IS A BAD IDEA 1 (2023), <https://perma.cc/T8RG-DN6U>.

²⁶ See Gietter, *supra* note 21.

²⁷ See, e.g., NAT'L INTEL. COUNCIL, *supra* note 1.

²⁸ New Clean Vehicle Credit, 88 Fed. Reg. 23386 (proposed Apr. 17, 2023) (to be codified at 26 C.F.R. 1) (comment period closed on June 16, 2023).

²⁹ *Id.* at § II. E. Special Rules.

³⁰ *Id.* at § IV. B. Limitation Based on Modified Adjusted Gross Income.

³¹ *Id.* at § II. C. Manufacturer's Suggested Retail Price (MSRP); see also BIPARTISAN POLICY CENT., IRA EV TAX CREDITS: REQUIREMENTS FOR DOMESTIC MANUFACTURING (2023), <https://perma.cc/FX26-46BJ>.

programs have narrowly benefited wealthy consumers, and the IRA instead focuses on implementing credits where they will make the most difference in expanding the clean energy market as broadly as possible.³²

The restrictions on critical minerals also follow a multi-prong framework to fortify production chains, providing miners and manufacturers two routes to ensure that their vehicles will fall within the tax credit scheme.³³ A certain percentage of the critical minerals used in battery components must come from the United States or a country with which the United States has an FTA. Importantly, this requirement can be satisfied two ways: 50% of the mineral may *originate* from the United States or an FTA country, or 50% or more of the *value added* to the mineral may have been gained in the United States or an FTA country.³⁴ The latter category accounts for the fact the refining process, which occurs after extraction, constitutes a significant step in production for critical minerals such as lithium. Additionally, if adding value to the mineral through refining occurs in the United States or an FTA country, that satisfies the underlying national security objective of the IRA. The IRS regulations also clarify that meeting these requirements will require companies to maintain a detailed record of their suppliers, including accounting for multiple production chains that may be used to procure even a single critical mineral such as lithium.³⁵

No guidance can be found in the original IRA for what precisely will qualify as an FTA in order to meet the above requirements.³⁶ Importantly, for the purposes of qualifying for the IRA's tax credits, the proposed IRS regulations specify that the Secretary of the Treasury will identify which countries have active FTAs with the United States.³⁷ The Secretary will be guided by four original purposes of the IRA's inclusion of FTAs and domestic industry, understood in the proposed IRS regulations as being to reduce or eliminate trade barriers, refraining from creating new barriers, establishing environmental and labor protections, and reducing restrictions on exports going forward.³⁸ The recent critical mineral agreement between Japan and the United States seems designed with these criteria in mind.³⁹

III. INTERNATIONAL LAW OBLIGATIONS AND CONSIDERATIONS

A. *General Agreements on Tariffs and Trade (GATT)*

The United States should attempt to ensure that any FTA does not run afoul of the General Agreements on Tariffs and Trade (GATT). Considered to be the magna carta of international trade law, the GATT framework was devised shortly after the Second World War and incorporated into the World Trade Organization (WTO) in 1994.⁴⁰ The Agreement on Subsidies and Countervailing Measures (SCM Agreement) is relevant as

³² See Severin Borenstein & Lucas W. Davis, *The Distributional Effects of U.S. Clean Energy Tax Credits*, 30 TAX POL'Y & ECON'Y 191, 192 (2016), <https://www.journals.uchicago.edu/doi/epdf/10.1086/685597>.

³³ See New Clean Vehicle Credit, 88 Fed. Reg. 23386, at § III. A. Critical Minerals Requirement.

³⁴ *Id.* at § III. A. Step 2: Identify Qualifying Critical Minerals.

³⁵ See *id.* (noting the “complexity of battery supply chains and the detailed tracking that would be required”).

³⁶ The IRA does contain a comprehensive list of over 50 minerals that meet its “critical mineral” definition. Inflation Reduction Act, § 45X(c)(6).

³⁷ New Clean Vehicle Credit, 88 Fed. Reg. 23386, § § III. A. Step 2: Identify Qualifying Critical Minerals.

³⁸ *Id.*

³⁹ Japan-U.S. Agreement, at Art. 1-5.

⁴⁰ See Curtis Reitz, *Enforcement of the General Agreement on Tariffs and Trade*, 17 U. PA. J. INT'L ECON. L. 555, 555-56 (1996), <https://perma.cc/Q96W-SVXX>.

well.⁴¹ This chapter does not provide a full analysis of the state of the IRA and resulting FTAs under international trade law, but highlights notable points of which policy makers should be aware.

1. Article III

Under Article III of the GATT, the United States must ensure that it does not tax domestic producers at a different rate than foreign producers.⁴² The provisions of Article III establish the principle of national treatment, which assures that domestically produced goods do not receive favorable treatment in the form of taxation or regulation compared with foreign produced goods.

Arguably, the IRA seems to contravene Article III since it imposes taxes, through tax credits, in a manner that may incentivize domestic mining and processing of critical minerals. The principle of national treatment is meant to ensure that “internal taxes” and “internal quantitative regulations requiring the ... use of products in specified amounts or proportions” should not be used to protect domestic production.⁴³ The text of Article III has been elaborated by the WTO to indicate that local tax regulation should be designed to ensure an equal footing between domestic and foreign produced goods.⁴⁴ The IRA’s language regarding domestic production, as well as the quantitative 50 percent requirement for components sourced from U.S. producers, arguably violates the text of this provision and goes against the spirit of a prohibition against discriminatory national treatment.

However, the United States can attempt to make several arguments against the claim that the IRA tax credits bestow preferential national treatment. First, the tax credits benefit countries that have an FTA with the United States. Unlike previous instances where countries were found to violate Article III, the IRA explicitly treats domestic producers and foreign producers that have an FTA the same.⁴⁵ Second, although the IRA grants tax credits, it does not actually impose any additional taxes on foreign sourced minerals beyond those that existed before the IRA. Thus, the tax credits do not actually increase or directly affect the taxes imposed on non-FTA foreign sourced critical minerals.

Compliance with Article III of the GATT can be memorialized in an FTA, while allowing the United States the flexibility to make additional specific arguments if the IRA is challenged under Article III. Such an understanding could be enacted in an FTA with the following type of language:

Section 1: Parties agree to uphold their obligations to treat the parties’ trade of critical minerals in accordance with the principle of national treatment as outlined by Article III of the GATT.

This language indicates that the FTA agreement itself brings trade in line with Article III, rather than contravening the principle of national treatment. However, the broader

⁴¹ The SCM Agreement directly comes to bear on the IRA’s treatment of critical minerals. A discussion of the SCM agreement goes beyond the scope of this chapter’s analysis of FTA agreements, but the SCM is discussed in relation to the IRA in *A Trade Tool to Tackle the ‘New’ EV Tax Credit’s WTO-Inconsistency*, by Ji Hoon “Paul” Suk, included in Chapter 19 of this compendium.

⁴² See General Agreement on Tariffs and Trade, Art. III, Oct. 11, 1994 [hereinafter GATT].

⁴³ See GATT, Art. III.1.

⁴⁴ See *Japan - Alcoholic Beverages*, WT, DS8, 10, 11 (1996).

⁴⁵ See, e.g., *id.*

language of the IRA can still be challenged under GATT Article III and the SCM Agreement.⁴⁶

2. Article XXIV

Article I of the GATT establishes the principle of non-discrimination between WTO members, so that tariffs for products must be applied to all WTO nations equally.⁴⁷ This mandate of Article I is known as the “most favored nation” principle (MFN). The MFN principle is championed as a core element of the GATT, which, along with the principle of national treatment, operates to ensure non-discrimination in multilateral trading regimes.

An exception to the MFN principle exists in Article XXIV, which allows countries to grant preferable treatment to other member nations as part of the creation of free-trade areas.⁴⁸ Arguably, the United States’ use of FTAs to facilitate trade of critical minerals could fit within this exception of Article XXIV, so long as the FTAs cover substantially all trade and they eliminate duties and other restrictive regulations.⁴⁹ The FTA between the United States and Japan, for example, eliminates all export duties on critical minerals, although it allows for other forms of taxation.⁵⁰ Meeting the element of substantially all trade, as outlined in GATT Article XXIV 8(b), however, will be more difficult. Additionally, any agreements that form such an area must also not result in an increase in duties or other regulatory fees on countries that are not included in the free-trade area.⁵¹

An attempt to align the FTA with Article XXIV could be memorialized in the FTA itself, in provisions regarding the implementation and timing of the FTA enactment:

Section 2: The parties’ implementation and the effective date of this agreement are undertaken with consideration to the requirements of a free-trade area as outlined in GATT XXIV, and this agreement has no relation to or effect on any rescissions, impositions, or amendments to parties’ trade regulation with non-party countries.

Apart from the language of an FTA, the ability for FTAs to meet the “substantially all trade” requirement, and thus fit within the exception of Article XXIV, may depend in part on the trade dynamics between the United States and that particular country. In lithium-producing countries such as Australia and Chile, for example, general FTAs with the United States already exist,⁵² and any FTA that outlined protections for critical minerals may still be considered part of a GATT free-trade area that covers substantially all trade. On the other side of the spectrum, the United States has very limited trade with other countries that have large deposits of critical minerals. If the United States entered into an FTA with Bolivia, for example, the resulting exports of lithium could very well

⁴⁶ See William Alan Reinsch, *A Tale of Two Policies: Electric Vehicle Tax Credits*, CTR. FOR STRATEGIC & INT’L STUD. (2022), <https://perma.cc/B2RJ-3X69>.

⁴⁷ GATT, Art. I.

⁴⁸ GATT, Art. XXIV.

⁴⁹ GATT, Art. XXIV 8(b).

⁵⁰ Compare Japan-U.S. Agreement, Art. 3, §2 (agreeing to maintain the current practice “not to impose export duties”), with Japan-U.S. Agreement, Art. 3, §1 (allowing for “duties, taxes, or other charges”).

⁵¹ GATT, Art. XXIV 4.

⁵² See DEP’T OF COMMERCE, INT’L TRADE ADMIN., U.S. – AUSTRALIA FREE TRADE AGREEMENT (accessed June 8, 2023), <https://perma.cc/3XVL-QJWB>; DEP’T OF COMMERCE, INT’L TRADE ADMIN., U.S. – CHILE FREE TRADE AGREEMENT (accessed June 8, 2023) <https://perma.cc/3P2S-QBBZ>.

encompass the overwhelming majority of trade between the two nations, even without an FTA that covered other goods, and thereby meet the substantially all trade provision.⁵³

3. Defenses Under Article XX and XXI

Perhaps the best way that an FTA can ensure compliance with GATT is by preemptively outlining defenses under Article XX and XXI. A full explanation of defenses under these articles is beyond the scope of this chapter.⁵⁴ However, these provisions of GATT are designed to ensure that countries can still enter into treaties to protect human health,⁵⁵ prevent certain human rights abuses,⁵⁶ conserve exhaustible natural resources,⁵⁷ or defend the nation's security during times of international emergencies,⁵⁸ among other critical needs. Even if a country would otherwise violate one of the GATT provisions regarding MFN or national treatment, these two articles provide these limited exceptions.

Resource conservation concerns have previously been recognized as a legitimate basis for an exception. In the infamous Shrimp and Turtle case, the WTO reviewed United States' restrictions on the type of fishing nets that could be used to catch shrimp, many of which were inadvertently harming endangered sea turtles.⁵⁹ Ultimately, the WTO found the United States' legislation unduly restrictive, given the requirement in the chapeau of Article XX.⁶⁰ However, under Article XX(g) of the GATT, the WTO affirmed that bilateral agreements could "protect the environment" without running afoul of international trade law, assuming future agreements do not violate the chapeau.⁶¹ This broader reading of "exhaustible natural resources" shows that climate change concerns could plausibly align with the GATT Article XX allowance.⁶²

In some respects, the agreement between the United States and Japan provides a guide for how to cabin an FTA within this exception. In particular, climate change poses a direct threat to conservation, as broadly construed in Article XX(g),⁶³ and ensuring adoption of electric vehicles is an essential component of averting climate disaster. An FTA can include language to highlight this goal:

⁵³ Currently, two-way trade between the United States and Bolivia is evaluated at approximately one billion dollars. OFF. OF THE U.S. TRADE REPRESENTATIVE, *Bolivia* (accessed June 8, 2023), <https://perma.cc/7U6D-FDSJ>. Bolivia's largely untapped lithium resources amount to approximately 21 million tons, with lithium currently traded at 37,000 dollars per ton, meaning that even accessing a small portion of these resources could lead to billions of dollars in exports. See U.S. GEOLOGICAL SURV., MINERAL COMMODITY SUMMARIES 2022: LITHIUM, at 2 (2022), <https://perma.cc/ZAL7-94BL>; STATISTICA, *Average Lithium Carbonate Price from 2010 to 2022* (Mar. 21, 2023), <https://perma.cc/6L3S-LD5S>. Although the technological investment needed to develop these resources would likely take at least a decade, the United States could argue that an FTA for critical minerals was designed to facilitate and encompass substantially all trade between the two nations.

⁵⁴ See Part VI headnote, *WTO Litigation and Defenses*, included in this compendium.

⁵⁵ GATT, Art. XX(b).

⁵⁶ See, e.g., GATT, Art. XX(e).

⁵⁷ GATT, Art. XX(g).

⁵⁸ GATT, Art. XXI(b)(iii).

⁵⁹ Robert Howse, *The Appellate Body Rulings in the Shrimp/Turtle Case: A New Legal Baseline for the Trade and Environment Debate*, 27 COLUM. J. ENV'T L. 491, 493-95 (2002), <https://perma.cc/A5D5-J5AY>.

⁶⁰ Appellate Body Report, *US – Shrimp*, ¶ 186, WTO Doc. WT/DS58/AB/R (adopted Nov. 21, 1998), <https://perma.cc/PDJ7-9R72>.

⁶¹ *Id.* at ¶ 185.

⁶² See GATT, Art. XX(g).

⁶³ See Jedediah F. Brodie & James E. M. Watson, *Human Responses to Climate Change Will Likely Determine the Fate of Biodiversity*, 120 PROC. NAT'L ACADEMY SCI.: OPINION (2023), <https://www.pnas.org/doi/10.1073/pnas.2205512120>; Chelsea Harvey, *Climate Change is Becoming a Top Threat to Biodiversity*, SCI. AM. (Mar. 28, 2018), <https://perma.cc/NW9C-5V4K>.

Article 1: Objectives

This agreement is entered into to assist the Parties in meeting their obligations to protect their territories, including fauna, flora, natural resources, and residing human populations, that are currently threatened by climate change.

By putting this type of language in the articles of the FTA itself, rather than merely expressing these concerns in the preamble, an FTA can highlight the role that the FTA has in slowing down climate change. However, these issues should be highlighted in the preamble as well:

Recognizing that climate change poses an existential threat to the Parties' citizens and future generations, noting the relation that exists between greenhouse gas emissions and climate change, and affirming the Parties' commitments under the Paris Agreement...

The Parties have agreed as follows.

Relatedly, the significant international security concerns that are raised by the prospect of climate change may figure into other GATT defenses. Even in the relative short term, the threat of extreme weather events caused by climate change, such as flooding,⁶⁴ periods of drought,⁶⁵ hurricanes,⁶⁶ forest fires,⁶⁷ and subsequent human migration across borders⁶⁸ may already constitute an “emergency in international relations” under GATT Article XXI.⁶⁹ The Syrian revolution and violent repression in 2011,⁷⁰ an increasing exodus of individuals from Guatemala to the United States beginning in 2013,⁷¹ and the ongoing

⁶⁴ INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, CLIMATE CHANGE 2023 SYNTHESIS REPORT: SUMMARY FOR POLICYMAKERS 7 (2023) (finding a “high confidence” that substantial losses related to increased inland and coastal flooding are attributable to human-caused climate change), <https://perma.cc/92SE-3QC5>.

⁶⁵ *Id.* at 5 (expressing a “high confidence” of human influence on the increase in droughts); Tiffany Means, *Climate Change and Droughts: What's the Connection?*, YALE CLIMATE CONNECTIONS (May 11, 2023), <https://perma.cc/R9X6-Q3DQ>.

⁶⁶ THOMAS R. KNUTSON ET AL., SCIENCEBRIEF REV., CLIMATE CHANGE IS PROBABLY INCREASING THE INTENSITY OF TROPICAL CYCLONES (2021), <https://perma.cc/K8EY-B43G>; Mathew Barlow & Suzana J. Camargo, *Here's What We Know About How Climate Change Fuels Hurricanes*, COLUM. CLIMATE SCH.: STATE OF THE PLANET (Oct. 3, 2022), <https://perma.cc/8L49-NM4M>; *but see* NAT'L OCEANIC & ATMOSPHERIC ADMIN., STATE OF THE SCIENCE FACT SHEET: ATLANTIC HURRICANES AND CLIMATE CHANGE (2023) (noting uncertainties in establishing long-term Atlantic hurricane trends due to data limitations), <https://perma.cc/A4ZT-P2YW>.

⁶⁷ INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, *supra* note 64, at 7; JAMES MACCARTHY ET AL., WORLD RES. INST., NEW DATA CONFIRMS: FOREST FIRES ARE GETTING WORSE (2022) (noting that extreme heat waves make forest fires larger and more likely, and such heat waves are five times as likely to occur today than in less recent human history), <https://perma.cc/PSN6-ZF2S>; *see also* David J. Craig, *Climate Change Fuels Significant Increase in U.S. Forest Fires*, COLUM. MAG., Winter 2016-17, <https://perma.cc/F372-MYKP>.

⁶⁸ *See* THE WHITE HOUSE, REPORT ON THE IMPACT OF CLIMATE CHANGE ON MIGRATION 6-12 (2021) (produced in compliance with Executive Order 14,013), <https://perma.cc/D2XW-CPRT>; INT'L ORG. FOR MIGRATION, IOM OUTLOOK ON MIGRATION, ENVIRONMENT AND CLIMATE CHANGE 38-41 (2014), <https://perma.cc/D33G-22VZ>.

⁶⁹ GATT, Art. XXI(b)(iii).

⁷⁰ Carolyn Gramling, *Did Climate Change Drive the Syrian Uprising?*, SCI.: NEWS (Mar. 2, 2015), <https://perma.cc/7JWG-N8KY>.

⁷¹ *See* Sabrina Rodríguez, *It's Not a Border Crisis. It's a Climate Crisis.*, POLITICO (July 19, 2021), <https://perma.cc/4C6A-SLQM>; Sarah Bermeo et al., *Rural Poverty, Climate Change, and Family Migration from Guatemala*, BROOKINGS INST. (2022), <https://perma.cc/88HC-CB6E>.

humanitarian crisis in Somalia,⁷² all due to prolonged and unusual droughts, can in part be traced to climate change as a significant factor. One advantage of Article XXI is that parties do not have to grapple with the language of the chapeau of Article XX. Insofar as reducing transportation emissions are necessary to avert further catastrophe, an FTA for critical battery components undertaken for the purposes of rapidly producing electric fleets may fit within this exception.

B. Environmental Labor Protections

The defenses under Articles XX and XXI of the GATT also dovetail with protections that can avoid the traditional environmental harms of lithium mining. Mining and distillation of lithium brines, through the use of evaporation pits, requires immense amounts of water, often taxing local resources and upsetting local ecosystems.⁷³ In order to produce one ton of battery-grade lithium through evaporation pits, over two-million liters of water are required.⁷⁴ This method is often used to extract lithium from salt flats, in arid regions of the world, where access to water is already threatened by climate change.⁷⁵ Additional concerns related to soil degradation, energy use, and air quality, in addition to water use, have spurred protests against lithium mines across the globe.⁷⁶

In part, an FTA can help incentivize the adoption of technology that minimizes these harms. Rather than utilizing evaporation pits, new direct extraction technology promises to reduce some of the local environmental harms that can occur through lithium mining.⁷⁷ Similarly to the FTA provision between the United States and Japan regarding recycling technology, an FTA can facilitate information sharing about direct extraction techniques:

Article 2: Developing Sustainable Extraction Methods and Supply Chains

Section 1: The Parties affirm the importance of complying with their respective national laws regulating environmental protections.

Section 2: The Parties recognize the value of sharing relevant information, techniques, and technologies to minimize water use, soil degradation, air pollution, energy consumption, chemical waste, and other harms that may be

⁷² Cara Anna, *Report: 43,000 Estimated Dead in Somalia Drought Last Year*, AP NEWS (Mar. 20, 2023), <https://perma.cc/P2YN-W7WH>; Aimée-Noël Mbiyozo, *East Africa and the Horn Light the Way for Climate Migrants*, INST. FOR SEC. STUD. (Sept. 27, 2022), <https://issafrica.org/iss-today/east-africa-and-the-horn-light-the-way-for-climate-migrants>.

⁷³ Marco Tedesco, *The Paradox of Lithium*, COLUMBIA CLIMATE SCHOOL: NEWS (Jan 18, 2023), <https://perma.cc/3U77-WL9E>; Amit Katwala, *The Spiraling Environmental Cost of Our Lithium Battery Addiction*, WIRED (May 8, 2018), <https://perma.cc/3P3G-25L9>.

⁷⁴ Maeve Campbell, *South America's 'Lithium Fields' Reveal the Dark Side of Our Electric Future*, EURONEWS (Nov. 21, 2022), <https://perma.cc/8HJB-Z7H9>.

⁷⁵ THE NATURE CONSERVANCY, POTENTIAL LITHIUM EXTRACTION IN THE UNITED STATES: ENVIRONMENTAL, ECONOMIC, AND POLICY IMPLICATIONS, at 16 (2022), <https://perma.cc/9KLW-5YQK>; Michael Winrow, *Protecting Fragile Ecosystems From Lithium Mining*, BBC (Jan. 15 2021), <https://perma.cc/CYB2-VP99>.

⁷⁶ See BUS. & HUM. RTS. RES. CTR., *Serbia: Thousands Protest Against Rio Tinto Lithium Mine Project and New Draft Laws Allegedly Designed to Benefit Business* (Jan 17, 2022), <https://perma.cc/HVQ5-TPUQ>; Kirk Siegler, *These Tribal Activists Want Biden to Stop A Planned Lithium Mine on Their Sacred Land*, NPR (Sept. 2, 2021), <https://perma.cc/YAJ7-PQM8>; Leonie Kijewski, *Portuguese Villagers Fear Hunt for Lithium Will Destroy Their Livelihoods*, POLITICO (Apr. 27, 2022), <https://perma.cc/535H-WJP2>.

⁷⁷ Press Release, The Nature Conservancy, *New Report Outlines Need for Prioritizing the Least Impactful Methods of Lithium Extraction to Protect Environment and Communities* (Aug. 9, 2022), <https://perma.cc/A3CA-H6SY>.

associated with extraction of critical minerals on the local environment, while also recognizing the need to balance these concerns against the broader environmental threat of climate change. To the extent feasible according to respective national laws and regulations, Parties will endeavor to incentivize investment, development, and information sharing related to best practices, project design, and extraction techniques that avoid or minimize the above concerns and related harms outlined in this section.

As the technologies for extraction of lithium continue to develop, policy makers should remain alert to new concerns that arise, and methods for remedying them. Publicly sharing information can be a valuable means of empowering locally affected communities to advocate for their interests regarding mining operations. This strategy is especially applicable for critical minerals given that the hydrological features of each extraction site differ to a large degree, and relevant information about environmental impacts may be held by private corporate entities. Governments, however, have a greater incentive to make sure that local communities have access to this information. In particular, the United States and Japan recognizes that “public awareness” in the context of critical mineral development can be a potent method of ensuring best environmental practices are met.⁷⁸

C. Labor Protections and Development

Mining historically has been one of the most dangerous occupations, and serious risks to workers continue to the present day. For many countries where lithium resources exist, including Bolivia, Chile, Zimbabwe, and Namibia, these concerns are acute.⁷⁹

The case of Bolivia is illustrative, given the country’s long history of resource exploitation and resulting labor protections. During its colonial period, the country accounted for nearly half of the total annual world silver production, which formed the basis of global currency at the time.⁸⁰ As the global economy shifted, the country’s economy focused on mining tin, and starting in the 1980’s the country began exporting natural gas.⁸¹ Over the course of nearly five centuries of continuous resource extraction, mining has become an integral part of Bolivia’s national economic identity and political structure.⁸² The government and much of the wider population are aware that, up until the twenty-first century, the major beneficiaries of resource extraction have been foreign consumers, companies, and governments, rather than local Bolivian communities.⁸³ With a keen understanding of the potential benefits of future mining, the country’s political

⁷⁸ Japan-U.S. Agreement, Art. 4, §8.

⁷⁹ See Michal Wozniakowski-Zehenter, *The Chile Mine Disaster and How Mining in South America Changed*, IDENTEC SOLUTIONS (Apr. 10, 2023), <https://perma.cc/RQK8-EDH5>; Thomas Graham, *In Bolivia, Mercury Pollution Spreads Amid a Surge in Gold Mining*, YALE ENVIRONMENT 360 (Dec. 8, 2022), <https://perma.cc/28XJ-ZK9N>; ENERGY CAPITAL & POWER, *Africa’s Lithium Landscape: Promising Developments and Future Outlook* (Apr. 21, 2023), <https://perma.cc/YN4S-3TBK>; Kate Bartlett, *Are Rights Abuses Tarnishing China’s Image in Africa?*, VOICE OF AMERICA NEWS (May 6, 2022), <https://perma.cc/Y6QN-28KR>.

⁸⁰ Kris Lane, *The First Global City*, AEON (July 30, 2019), <https://perma.cc/FH8W-4C5U>.

⁸¹ Jessica Casey, *Discovering Bolivia’s Value*, GLOBAL MINING REV.: SPECIAL REPORTS (July 13, 2022), <https://perma.cc/HB83-XNM2>.

⁸² See Andrea Marston & Tom Perreault, *Consent, Coercion and Cooperativismo: Mining Cooperatives and Resource Regimes in Bolivia*, 49 ENV’T & PLANNING A: ECON. & SPACE 252, 258-261 (2016) (noting a “nationalist sentiment throughout Bolivia” that “Bolivia is mining”), <https://doi.org/10.1177/0308518X16674008>.

⁸³ See Martín Obaya, *The Evolution of Resource Nationalism: The Case of Bolivian Lithium*, 8 EXTRACTIVE INDUS. SOC’Y (2021), <https://doi.org/10.1016/j.exis.2021.100932>; SIAN LAZAR, EL ALTO, REBEL CITY: SELF AND CITIZENSHIP IN ANDEAN BOLIVIA (2008).

system has already created extensive labor protections for what it hopes will eventually be large exports of its lithium from the country's high altitude salt flats.⁸⁴

An FTA with the United States should attempt to formally acknowledge and provide support to these types of foreign labor protections and development concerns, so that country's such as Bolivia have an incentive to robustly and quickly export their country's supply of critical minerals. An FTA can include language that respects trade unions, recognizes the legitimacy of state-run companies, and promotes investment in the local economies that are affected by mining:

Article 3: Fortifying Worker Protections and National Sovereignty

Section 1: Each Party recognizes and affirms the sovereignty of each state over their respective national economies, state-owned corporate entities, and natural resources, and their ability to enforce any protections for workers that may be applicable within their national territory.

Section 2: The Parties affirm their commitment to transparency with the respect to the extraction and trade activities, including, but not limited to, timely sharing of information related to market conditions, revenues generated, and labor needs.

Section 3: Parties recognize and affirm the validity and necessity of national labor protections, given the inherently dangerous nature of extraction, which includes the ability of labor unions, indigenous communities, and local entities to freely organize and negotiate their interests on their own behalf.

The inclusion of this language is essential to ensuring good faith between the United States and least developed countries that have deposits of critical minerals. Importantly, these assurances, combined with other concrete actions, are also important to create buy-in between the governments of least developed countries and the labor unions and local communities within their own borders.⁸⁵

IV. PATENT POOLING AS AN INCENTIVE FOR TRADE

The negotiations around FTAs may also provide a flashpoint to include incentives for foreign companies to fortify supply chains with the United States. Without these incentives, countries may pursue alternative trade networks on the competitive global marketplace, particularly with China, which already has robust mining, refining, and production capabilities.

Patents around lithium mining provide one obstacle and potential bargaining tool to incentivize trade. In general, patents may motivate a company to invest in research, design, and implementation by assuring that they will have an intellectual property right to the technology they develop.⁸⁶ For this reason, patents are justified as a solution to a potential free rider problem, where other companies can make use of their competitors' technology without having to provide any similar up-front investment.

There are limitations of this traditional economic understanding of patents. Patents may exclude least developed nations from the benefits of innovation, a phenomenon that

⁸⁴ See Ley de la Empresa Pública Nacional Estratégica de Yacimientos de Litio Bolivianos, Ley No 928 (2017); Decreto Supremo No 29496, 1 de abril de 2008; Constitución Política del Estado, Cap. 4, Minería y Metalurgia.

⁸⁵ See, e.g., AGENCIA DE NOTICIAS FIDES, *Campesinos Afines al MAS Presentan Proyecto de ley de Litio y Proponen Redistribución de Regalías* (Aug. 8, 2022), <https://perma.cc/8AL7-CX83>.

⁸⁶ See Mohammed Rafiqzaman, *The Impact of Patent Rights on International Trade: Evidence from Canada*, 35 CANADA J. ECONS. 307, 308-09 (2002), <https://perma.cc/L6BS-8SUY>.

has been well-documented in the context of intellectual property protections for medicine, and may also extend to an inability to access patented climate change mitigation technologies.⁸⁷ Patent pools can provide a way for a group of companies in an industry to share property rights for their technological innovations.⁸⁸ This pooling may in certain occasions make economic sense, and be good business, when broader conditions in the marketplace indicate that sharing technology will increase efficiency and generate benefits for all parties. Such an economic model also better distributes the benefits of patents in order to prevent undue harm to individuals in least developed countries.

In the case of lithium mining, patents have become an ever-more essential part of the trade.⁸⁹ Although mining in general is not traditionally known for its use of patents, over the last twenty-years, the industry has seen a marked increase in technological innovation and patent registration, which has coincided with the growth of the Chinese mining industry.⁹⁰ As noted previously, technological innovation is a particularly salient concern for lithium extraction, given the wide variability in relevant hydrological conditions around lithium mining sites, differences in mineral concentrations and marketable raw products, and the ecological impact of extraction through evaporation pits. For example, the high concentration of magnesium in salt flats in Chile and Bolivia requires unique approaches to extraction and refining.⁹¹ Novel direct extraction techniques are continually being proposed and innovated, including for brine deposits in Argentina, Chile, and the United States.⁹² Tesla has registered at least one patent for a method of extracting lithium that it believes will reduce costs of the mineral by a third.⁹³

Patent pools may provide an incentive for companies involved in extraction abroad to engage with end-product manufacturers of electric vehicles based in the United States. On the one hand, foreign countries face domestic pressure to ensure that mining operations do not unduly harm the environment or deplete water resources, and using methods such as direct extraction can help them meet their obligations to conserve local resources. The extraction companies themselves may save resources by employing more efficient, newly-developed mining technologies. On the other side of negotiations, the U.S. manufacturers and mining corporations that currently hold patents may want to create vertically integrated supply chains for battery components.⁹⁴ However, the possibility that these U.S.

⁸⁷ See Alberto Galasso & Mark Schankerman, *Licensing Life-Saving Drugs for Developing Countries: Evidence from the Medicines Patent Pool* 31 (Nat'l Bureau of Econ. Rsch., Working Paper No. 28,545, 2021), <https://perma.cc/M476-PNUW>.

⁸⁸ ROBERT P. MERGES, INSTITUTIONS FOR INTELLECTUAL PROPERTY TRANSACTIONS: THE CASE OF PATENT POOLS (1999), <https://perma.cc/FQY6-BX5E>.

⁸⁹ See, e.g., Zachary Skidmore, *Tesla Files New Patent on Lithium Extraction Method*, MINING TECH. (July 21, 2021), <https://perma.cc/AC29-49VJ>; GLOBE NEWS WIRE, *Medaro Mining Files Two Provisional Patent Applications on Its Hard Rock Lithium Extraction Technology* (Apr. 6, 2023), <https://perma.cc/KPT2-DLS2>; SEEKING ALPHA, *Standard Lithium to Get US Patent Linked to Process for Recovering Lithium from Brines* (Dec. 29, 2022), <https://perma.cc/TM3Z-9Z44>.

⁹⁰ Julio Raffo et al., *Mining Patent Data: Measuring Innovation in the Mining Industry with Patents* (World Intellectual Prop. Org., Working Paper No. 56, May 2019), <https://perma.cc/7US6-MP3A>.

⁹¹ See MANUEL OLIVERA ANDRADE, CIDES, *LA INDUSTRIALIZACIÓN DEL LITIO EN BOLIVIA* (2018), <https://perma.cc/7JQZ-XCRG>; BLOOMBERG NEWS, *Bolivia's Almost Impossible Lithium Dream* (Dec. 3, 2018), <https://perma.cc/2MJB-V2LS>.

⁹² See CHEM. & ENG'G NEWS, *Direct Lithium Extraction Projects Advance* (Sept. 29, 2022), <https://perma.cc/9LB9-HES2>.

⁹³ Zachary Skidmore, *Tesla Files New Patent on Lithium Extraction Method*, MINING TECH. (July 21, 2021), <https://perma.cc/J6SW-4DM8>.

⁹⁴ See, e.g., Aurel Niculescu, *GM Targets Li-Metal Battery Innovations, Already Has 94 Patents in the Field* AUTOEVOLUTION (Mar. 12, 2021), <https://perma.cc/QSG8-Y4ZT>; Skidmore, *supra* note 89.

companies could access new supplies of lithium through an FTA may provide an incentive for them to agree to enter into a patent pooling agreement.

The United States has the capacity and political will to begin to have preliminary discussions that would be necessary to coordinate a patent pooling agreement in conjunction with an FTA. The Biden administration has taken a number of strides to bring in relevant stakeholders. These efforts include the creation of the United States' Department of State Mineral Security Partnership, which has brought an array of countries to the bargaining table around creating supply chains.⁹⁵ The White House's efforts also include partnering with private investors in the development of new mining projects.⁹⁶ Overall, and apart from the passage of the IRA, the Biden administration has expressed a clear willingness to issue executive orders to spur innovation and mandate cooperation in the area of critical minerals.⁹⁷ Patent pools should be a part of these efforts insofar as they can provide a catalyst to accessing critical minerals, responsibly integrate the resources of least developed nations into supply chains, and create avenues for countries to enter into FTAs to facilitate tax credits under the IRA.

V. CONCLUSION

The Biden administration has created a comprehensive path forward for decarbonization of the vehicles that we drive every day.⁹⁸ Importantly, the more countries that the United States can connect to through FTAs, while upholding the principles of international law, the more of an impact that the IRA tax credits will have. The IRA has attempted to strike a balance between pushing back against climate change while also ensuring that critical minerals are supplied through U.S. allies.⁹⁹ Arguably, the threat of climate change is the most pressing concern.

This paper has attempted to preliminarily sketch out some of the competing interests at the intersection of climate change, environmental conservation, labor protections, and free trade rules. Going forward, there is a strong argument that FTAs should be forged with countries to form new trade partnerships, rather than simply fortifying existing trade alliances with countries such as Japan. Establishing supply chains with least developed countries such as Bolivia can help grow their local economies, saturate the market with critical minerals, and lead to a faster and more affordable electric vehicle transition. A more liberal use of FTAs is arguably more in line with the principles of the WTO as well. All such trade tools should gain traction in the effort to move away from the transportation sector's reliance on fossil fuels.

⁹⁵ Press Release, U.S. Dep't of State, Mineral Security Partnership (June 14, 2022), <https://www.state.gov/minerals-security-partnership/>.

⁹⁶ See Press Release, White House Briefing Room, Fact Sheet: Securing a Made in America Supply Chain for Critical Minerals (Feb. 22, 2022), <https://perma.cc/C78V-QJJQ>.

⁹⁷ See, e.g., Exec. Order No. 14,017, 86 Fed. Reg. 51719 (Feb. 24, 2021) (executive order on "America's Supply Chains"); Press Release, U.S. Dep't of the Interior, Interior Department Launches Interagency Working Group on Mining Reform (Feb. 22, 2022), <https://perma.cc/SP48-ALLA>.

⁹⁸ In addition to the provisions in IRA, recently announced regulations provide an additional incentive to move towards electric fleets. See U.S. ENVIRON. PROTECTION AGENCY, *Proposed Rule: Multi-Pollutant Emissions Standards for Model Years 2027 and Later Light-Duty and Medium-Duty Vehicles* (May 12, 2023), <https://perma.cc/Y9EQ-DQ88>.

⁹⁹ See Ana Swanson, *The U.S. Needs Minerals for Electric Cars. Everyone Else Wants Them Too.*, NYTIMES (May 21, 2023) (noting that the administration's efforts have so far not been "sufficient" to achieve U.S. independence from Chinese supply chains), <https://perma.cc/ZF6Q-6479>.

PART III

SUBSIDIES: THE GOOD AND THE BAD

Given the urgency of transitioning to clean energy and promoting decarbonization technologies, countries around the world have increasingly turned to subsidies and industrial policy as one way to incentivize and scale up green technology development and installation while complying with their climate targets and international commitments. These industrial policy tools often include loans, tax breaks, or direct payments, all of which may fall under the World Trade Organization's (WTO) disciplines on subsidies, particularly its Agreement on Subsidies and Countervailing Measures (SCM Agreement). The European Union's (EU) relaxation of its state-aid rules and three recent pieces of legislation in the United States are prime examples. With the passage of the Infrastructure Investment and Jobs Act (2021), the CHIPS and Science Act (2022), and the Inflation Reduction Act (IRA) (2022), the U.S. federal government is set to triple its average annual spending on climate and clean energy this decade compared to the 2010s. This spending is projected to result in a 50% reduction of greenhouse gas (GHG) emissions by 2030 relative to 2005 levels and in the United States becoming a major global manufacturer of green-related products and materials. The IRA alone was heralded as the most significant action Congress has taken on clean energy and climate change in the nation's history.

Yet this massive influx of government funding is raising hackles around the world, in part because the huge amount of funds provided in the United States alone means global producers may be drawn to invest and produce in the United States rather than at home and that developing countries, who often lack the resources to provide support for their own industries may be left further behind. (Also of concern are the local content requirements for Electric Vehicles (EVs) in the Inflation Reduction Act. Questions regarding their compatibility with WTO subsidy rules is addressed in Chapter 19, "WTO-Inconsistency of the 'New' EV Tax Credit.") The fear is that the major developed countries are fostering a subsidies free-for-all that could create substantial inefficiencies, waste precious taxpayer funds, exacerbate the concentration of corporate power, and give rise to a global race to attract green investments. But the primary objection is that the United States is leading the charge in fostering unfair competition and breaking the subsidy rules it helped shape as part of the WTO.

Despite fairly widespread agreement that subsidies hinder the fight against climate change – particularly fossil fuel subsidies – should be disciplined, while those contributing to the deployment of renewable energy or decarbonization technologies should be encouraged, the WTO rules no longer provide any basis to distinguish between one type of subsidy and another.

When the rules were first established, the SCM Agreement contained a list of permitted ("non-actionable") subsidies for certain research activities, or disadvantaged regions, or adaptation to new environmental requirements, but consensus could not be reached to extend those provisions, so they lapsed on January 1, 2000. As a result, all subsidies, both the good and the bad, are subject to the same rules: a) a prohibition on subsidies contingent on exports or on using domestic over imported goods; b) a right for countries to impose countervailing duties on subsidized goods entering their market if

they have a domestic industry making the same product that has been injured as a result of the subsidized imports, and c) the right to challenge harm from subsidized goods that occurs in other markets at the WTO if those subsidized goods are causing adverse effects. And we have watched as a number of countries have imposed anti-subsidy (i.e., countervailing duty) measures on green-energy technologies while subsidies provided to fossil fuels have gone unchecked. As one way to address this anomaly, Chapter 15 of this Part, “Combating Fossil Fuel Subsidies Through the WTO,” lays out exactly how and why a direct challenge to fossil fuel production subsidies should be brought at the WTO. Now all that awaits is a brave country willing to institute such a dispute.

Beyond the realm of individual disputes that have helped shape the contours of what is perceived to be permissible under the existing rules of the SCM Agreement, virtually no changes were made to the SCM Agreement rules themselves – until the pathbreaking Agreement on Fisheries Subsidies reached at the 12th Ministerial Conference in June 2022. This lack of action to amend and update the subsidies rules occurred despite the strong desire of many climate (and other) activists, numerous dialogues at the WTO, and more specific trilateral discussions between the United States, Japan, and the EU focused on adding trade- and marketing-distorting subsidies to the category of prohibited subsidies. It took overwhelming evidence of the harmful contribution subsidies were making to overfishing and the depletion of the oceans and more than 20 years of difficult negotiations to finally get agreement to curb fisheries subsidies. The Agreement on Fisheries Subsidies introduced two very important notions: first, that subsidies could be prohibited based on their potential to undermine sustainable fishing practices rather than solely on the basis of economic harm; and second, that the WTO’s 164 members could come together to support a trade agreement designed to further the United Nations’ Sustainable Development Goals.

The Agreement on Fisheries also serves as a guiding light for how additional subsidies can be added to the category of what is considered prohibited under the SCM Agreement’s Article 3, which carries with it the commitment by all WTO members not to grant or maintain such subsidies. Indeed, two chapters in this Part, Chapter 12 (“Fisheries 2.0: Proposing a Fossil Fuel Production Subsidies Agreement”), which proposes a fossil fuel subsidies agreement and Chapter 13 (“Using Subsidy Disciplines in a Fossil Fuel Non-Proliferation Treaty”), which calls for a fossil-fuel non-proliferation treaty, draw their inspiration from both the process and the substance of the Fisheries Agreement to contend that the SCM Agreement can and should be amended to prohibit the most climate-damaging fossil fuel subsidies.

The flip side of the coin of prohibiting or disciplining bad subsidies is finding ways, either consistently with current rules or under revised rules, to encourage the use of good subsidies. Today, many countries agree that a significant category exists of subsidies that are desirable and deserve policy space to flourish, including those to address climate change, along with global health challenges, development needs and many others. However, defining those subsidies and agreeing on whether and how to carve them out of existing subsidy disciplines is a tall order, in part because subsidies often have various motivations, some of which (such as addressing market failures like climate change) are beneficial, while others could be motivated by protectionism or simply lack a clear and up-to-date rationale. In addition, many subsidies are important social safety nets for the poor – designed to reduce the price for essential items such as food, or heating oil or to keep people employed during economic crises – such that disciplining them could harm those most in need of government support.

But drawing those lines and creating that critical space for green subsidies – those designed to support the development and adoption of decarbonization technologies and green energy in particular – is essential if governments are going to feel empowered to take the bold steps that are needed without fear of WTO challenges or retaliatory responses from trading partners. Chapter 14, “Defining and Developing Rules for Green Subsidies,” presents some bold ideas for where and how to draw those lines.

With the explosion in the use of subsidies in recent years, the central concern today is how to craft industrial and subsidies policy in a way that will minimize trade frictions and distortions while maximizing the common good, particularly the fight against climate change. This Part is designed to suggest practical ways that this can be done, both by disciplining fossil fuel production subsidies through either immediate challenge or negotiating new agreements and by adopting parameters for what constitutes a ‘green’ subsidy.

CHAPTER 12: FISHERIES 2.0: PROPOSING A FOSSIL FUEL PRODUCTION SUBSIDIES AGREEMENT

ALLISON READING*

I. BACKGROUND

Under a recent report from the IPCC, there is more than a fifty percent chance that countries will hit the 1.5 degrees Celsius warming threshold between 2021 and 2040, and even sooner under high-emissions models. Hitting this threshold would cause global increases in wildfires, floods, extreme heat, and rising sea levels. Each would result in human fatalities, as well as drought and food insecurity.¹ To keep global warming under 1.5 degrees Celsius, countries must drastically reduce their consumption of fossil fuels. In 2022, fossil fuels accounted for approximately ninety-one percent of global carbon emissions² and serviced about eighty percent of global energy needs.³ To maintain the 1.5 degrees Celsius warming threshold, the IPCC projects that global coal use must fall by ninety-five percent, oil use must fall by sixty percent, and gas use by forty-five percent before 2050.⁴ Therefore, governments must commit all possible resources to reducing fossil fuel consumption and limiting greenhouse gas (GHG) emissions.

However, despite these stark reports, governments continue to dedicate significant resources to subsidizing fossil fuels. In fact, fossil fuel consumption subsidies, which lower the price for the average consumer, dramatically increased in 2022 to more than one trillion USD,⁵ and natural gas and electricity consumption subsidies more than doubled from 2021.⁶ While this increase in consumption subsidies is largely due to market instability caused by the Russian invasion of Ukraine, in the past ten years, global consumption subsidies have almost always exceeded 250 billion USD annually, and often

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¹ These projections assume significant use of abatement technology. See Boehm & Schumer, "10 Big Findings from the 2023 IPCC Report on Climate Change," WORD RESOURCES INSTITUTE (Mar. 20, 2023), available at <https://www.wri.org/insights/2023-ipcc-ar6-synthesis-report-climate-change-findings#:~:text=The%20IPCC%20finds%20that%20there,sooner%20%E2%80%94%20between%202018%20and%202037.>

² Friedlingstein & Hausfather, "Analysis: Global CO2 emissions from fossil fuels hit record high in 2022," CARBON BRIEF (Nov. 11, 2022), available at [https://www.carbonbrief.org/analysis-global-co2-emissions-from-fossil-fuels-hit-record-high-in-2022/.](https://www.carbonbrief.org/analysis-global-co2-emissions-from-fossil-fuels-hit-record-high-in-2022/)

³ Denchak, "Fossil Fuels: The Dirty Facts," NRDC (June 1, 2022), available at [https://www.nrdc.org/stories/fossil-fuels-dirty-facts#sec-what-is.](https://www.nrdc.org/stories/fossil-fuels-dirty-facts#sec-what-is)

⁴ These projections assume significant use of abatement technology. See Boehm & Schumer, "10 Big Findings from the 2023 IPCC Report on Climate Change," WORD RESOURCES INSTITUTE (Mar. 20, 2023), available at <https://www.wri.org/insights/2023-ipcc-ar6-synthesis-report-climate-change-findings#:~:text=The%20IPCC%20finds%20that%20there,sooner%20%E2%80%94%20between%202018%20and%202037.>

⁵ See International Energy Agency, "Fossil Fuels Consumption Subsidies 2022," available at [https://www.iea.org/reports/fossil-fuels-consumption-subsidies-2022.](https://www.iea.org/reports/fossil-fuels-consumption-subsidies-2022)

⁶ See *id.*

exceeded 500 billion USD.⁷ These figures do not include fossil fuel production subsidies, which between 2017 and 2019, averaged another 290 billion USD annually in G20 countries.⁸ ⁹ To maintain any hope of reaching climate goals, countries must significantly reform their fossil fuel subsidy programs to reduce consumption of fossil fuels.

This paper proposes a new WTO agreement on fossil fuel production subsidies that utilizes the rules laid out in the Agreement on Subsidies and Countervailing Measures (SCM Agreement) to spur subsidy reform. In Part I, this paper will review the relevant legal framework, including prior international commitments and the SCM Agreement. In Part II, the paper will explore takeaways from the recent WTO Fisheries Agreement. In Part III, the paper lays out provisions for a new agreement on fossil fuel subsidies, and other WTO actions that could promote fossil fuel subsidy reform. Specifically, this paper concludes that WTO member nations should conclude an agreement that prohibits fossil fuel production subsidies or, alternatively, recognizes harm to the climate as an adverse effect of fossil subsidies that causes serious prejudice to members. In addition to a new agreement, the WTO should immediately amend the procedures for subsidy notification to increase transparency around fossil fuel subsidies.

II. LEGAL FRAMEWORK

This section will review the current existing international legal framework relating to fossil fuel subsidies and argue that trade agreements are the most effective tool for enacting global change. First, this section will review the current tools in place under the SCM Agreement to challenge trade-distorting subsidies. Ultimately, this summary demonstrates that current tools and agreements are insufficient to drive fossil fuel subsidy reform, so this section concludes by reviewing the mechanisms for amending a WTO agreement.

A. *Multilateral Commitments & Argument for Utilizing Trade Agreements*

Several multilateral agreements have attempted to curb subsidization of fossil fuels. While the agreements serve to recognize that subsidies are harmful to climate change, the agreements provide little in terms of enforcement.

1. G20 Commitments on Fossil Fuel Subsidies

In 2009, G20 countries met at a summit in Pittsburgh, where they issued a statement that addressed, among other issues, an intention to curb fossil fuel subsidies (“FFS”).¹⁰ Specifically, the G20 countries committed to “phase out and rationalize over the medium-

⁷ Subsidies only fell below 250 billion USD in 2020, which was due to lower prices and not fuel by climate change commitments. *See id.*

⁸ IISD, *Doubling Back and Doubling Down: G20 scorecard on fossil fuel funding* (Nov. 2020).

⁹ “Production subsidies reduce the costs for producers associated with extracting and transporting fuels and are typically offered via tax breaks, production credits, or expedited depreciation for capital investment.” George & Urpelainen, BROOKINGS INSTITUTION, *Reforming Global Fossil Fuel Subsidies: How the United States Can Restart International Cooperation* (July 2021), *available at* <https://www.brookings.edu/research/reforming-global-fossil-fuel-subsidies-how-the-united-states-can-restart-international-cooperation/>.

¹⁰ The G20 countries include: Argentina, Australia, Brazil, Canada, China, France, Germany, India, Indonesia, Italy, Japan, Republic of Korea, Mexico, Russia, Saudi Arabia, South Africa, Turkey, the United Kingdom, the United States, and the European Union.

term inefficient fossil fuel subsidies while providing targeted support for the poorest.”¹¹ The agreement described “inefficient fossil fuel subsidies” as those that “encourage wasteful consumption, reduce our energy security, impede investment in clean energy sources and undermine efforts to deal with the threat of climate change.”¹² However, the statement did not provide exact factors to determine whether a subsidy was inefficient, instead leaving that decision up to the member nations. Presumably, qualifying the commitment as only relating to inefficient subsidies would permit countries to maintain “efficient” fossil fuel subsidies.¹³ Additionally, the statement did not clarify “medium-term” or set a clear deadline on phasing out inefficient FFS. The process was intended to be country-led and voluntary. Therefore, while the agreement was a notable first step toward eliminating FFS, it provided little in terms of binding commitments or measurable action items.

Following the Pittsburgh summit, in 2013 the G20 launched a peer review process to assess an individual member’s advancement toward eliminating the subsidies targeted at the 2009 summit. The review process is voluntary, wherein the reviewed country determines “terms of reference (ToR) to establish the scope of the measures reviewed and the timeline of the review process. [The country] then produce[s] a report, referred to as a self-report.” The self-report includes “the measures to be reviewed, and provide[s] some context and background on their implementation and possible reform.” Once the self-report is issued, the reviewing parties, a group of G20 countries, submit questions and comments before attending a meeting with the reviewed country to conclude a final report. Currently eight of the twenty countries have undergone or are currently undergoing a peer review process, including the United States, China, Germany, Mexico, Indonesia, Italy, Canada, and Argentina. In 2018, the G20 Energy Ministers’ Communiqué encourages all remaining G20 members to initiate the peer-review process.

The review process has several benefits but overall fails to deliver significant progress on subsidy reform. First, the review process is beneficial because it encourages countries to internally review and rationalize their subsidy policies. Additionally, it increases transparency, which is critical for international accountability on subsidy reform because subsidies can be difficult to identify without a country’s cooperation and disclosure. Finally, the process has revealed how different countries interpret the terms “subsidy” and “inefficient.” China and the United States, the first two countries to undergo the peer review process, both defined “subsidy” to include direct budgetary support, tax code provisions, government provision of goods or services at no charge or below-market rates, and requiring non-government entities to provide services at below-market rates.¹⁴ The

¹¹ G20 Leaders Statement: The Pittsburgh Summit, *available at* <http://www.g20.utoronto.ca/2009/2009communiqué0925.html>.

¹² *Id.*

¹³ Recently, the commitment to reduce “inefficient” fossil fuel subsidies was incorporated in the 2021 “Glasgow Statement,” issued following the 26th Conference to the United Nations Framework Convention on Climate Change (“UNFCCC”). Specifically, the parties committed to “accelerating efforts towards the phasedown of unabated coal power and *phase-out of inefficient fossil fuel subsidies*, while providing targeted support to the poorest and most vulnerable in line with national circumstances and recognizing the need for support towards a just transition.” (emphasis added). See Para. 36, Glasgow Climate Pact, *available at* <https://unfccc.int/process-and-meetings/the-paris-agreement/the-glasgow-climate-pact-key-outcomes-from-cop26>.

¹⁴ OECD, “The United States’ efforts to phase out and rationalise its inefficient fossil-fuel subsidies” at 10 (Sept. 5, 2016) *available at* https://www.oecd.org/fossil-fuels/publication/United%20States%20Peer%20review_G20_FFS_Review_final_of_20160902.pdf.

United States seemed to define “inefficient” subsidies to include only production subsidies, given that the self-report targeted sixteen upstream subsidies for exploration, development, and extraction of fossil fuels.¹⁵ The U.S. report included one consumer subsidy, the Low-Income Home Energy Assistance Program, but the United States claimed this subsidy was efficient, and thus excluded from the reform commitments.¹⁶ Therefore, the peer review process is positive for transparency and accountability purposes.

However, the peer review process does not include any kind of binding enforcement mechanism. Though the final report does have a “name and shame” effect for countries who continue to maintain inefficient FFS, the peer review process does not include any tangible penalties for failing to meet commitments. Additionally, the reports are not comprehensive of all possible FFS because the reviewed member initially selects the measures to be reviewed and determines whether those measures qualify as “inefficient.” For example, the United States’ report only focused on upstream production subsidies and only analyzed national subsidies, excluding state and municipal level subsidies.¹⁷ Though reviewing members can inquire about other subsidies and their alleged “efficiency,” ultimately the member’s power to limit the scope of review and define key terms likely hampers the overall transparency and efficacy of the review process.

2. Other Multilateral Commitments on Fossil Fuel Subsidies

Several other multilateral agreements have addressed fossil fuel subsidy reduction; however, they have achieved limited success. In 2016, the G7 countries agreed to a deadline of 2025 to phase out inefficient fossil fuel subsidies.¹⁸ However, a 2018 report card issued by the National Resource Defense Council found there had been “limited action to address fossil fuel subsidies” by the G7 countries.¹⁹ Additionally, there were “limited mechanisms put in place for defining and documenting the full extent of these governments’ fossil fuel subsidies and for holding countries accountable for achieving their pledges,”²⁰ which echoes to criticisms of the G20 peer review process discussed above. Among the G7 countries, the United States had ranked last in terms of progress on removing fossil fuel subsidies, and the United Kingdom ranked lowest in terms of transparency.²¹

In 2009, APEC countries undertook a similar commitment to rationalize and phase out FFS that “encourage wasteful consumption,” which was subsequently rewritten as commitment to rationalize and phase out “inefficient” FFS. In 2021, the APEC Committee on Trade and Investment issued a report on options for a voluntary standstill on inefficient fossil fuel subsidies, but the “standstill” has yet to be implemented.²²

¹⁵ *Id.* at 15.

¹⁶ *Id.* at 15.

¹⁷ *Id.* at 10.

¹⁸ The G7 countries include: Canada, France, Germany, Italy, Japan, the United Kingdom, the United States, and the European Union.

¹⁹ NRDC, G7 FOSSIL FUEL SUBSIDY SCORECARD, *available at* <https://www.nrdc.org/resources/g7-fossil-fuel-subsidy-scorecard>.

²⁰ *Id.*

²¹ *Id.*

²² APEC, “Options for Taking Forward a Potential Voluntary Standstill Commitment on Inefficient Fossil Fuel Subsidies” (2021), *available at* <https://www.apec.org/publications/2021/12/options-for-taking-forward-a-potential-voluntary-standstill-commitment-on-inefficient-fossil-fuel-subsidies>.

In 2019, New Zealand along with Costa Rica, Fiji, Iceland, Norway and Switzerland launched the Agreement on Climate Change, Trade and Sustainability (ACCTS), which is an agreement that focuses on issues of trade, sustainability, and climate change. Specifically, the ACCTS would include provisions on eliminating fossil fuel subsidies with the goal of eliminating the environmentally harmful effects of these subsidies.²³ Currently there have been twelve negotiating rounds on the ACCTS, and the process is ongoing.²⁴ The ACCTS has the potential to be a groundbreaking agreement on issues of trade and sustainability, but the ultimately efficacy and binding nature of the final agreement is yet to be seen. Additionally, only a small group of countries are involved in the ACCTS, and the group excludes the major fossil fuel producing countries. Therefore, the ACCTS alone would not eliminate fossil fuel subsidies globally or curb the largest subsidizers of fossil fuel production.

Finally, in December 2021, a group of WTO members launched the Fossil Fuel Subsidy Reform (“FFSR”) initiative, which aims to “rationalize and phase out inefficient fossil fuel subsidies that encourage wasteful consumption and encourages WTO members to share information and experiences to advance discussions at the WTO.”²⁵ The FFSR is not a binding agreement on members, but rather the FFSR seeks to foster a dialogue between countries about methods for reducing and eliminating fossil fuel subsidies.²⁶ Forty-eight WTO members²⁷ currently co-sponsor the FFSR, and the most recent statement encourages other members to join the initiative.²⁸ While major fossil fuel producing countries, such as the United States, Canada, China, and Russia, are currently not co-sponsors of the FFSR, the growing momentum of this initiative at the WTO is a positive sign for a possible fossil fuel agreement within the WTO framework.

Therefore, current multilateral agreements have failed to achieve significant reform on fossil fuel subsidies. In order to instigate the reforms that are necessary to decrease dependence on fossil fuels and meet global climate goals, countries should consider concluding a new agreement under the WTO framework. Agreements under the WTO have several advantages missing from prior multilateral agreements. First, WTO agreements apply to more countries than agreements that focus solely on G20 or G7 countries. Additionally, the existing WTO agreements have been adopted by consensus, meaning that, current issues with the dispute settlement mechanism aside, the essential agreements have broad support. The greater number of countries included in the

²³ “Disciplines to eliminate fossil fuel subsidies will help remove the perverse effects of these environmentally harmful and socially regressive subsidies. This has the potential to deliver many trade, economic, social and environmental benefits.” See NEW ZEALAND FOREIGN AFFAIRS AND TRADE, AGREEMENT ON CLIMATE CHANGE, TRADE AND SUSTAINABILITY (ACCTS) NEGOTIATIONS, available at <https://www.mfat.govt.nz/en/trade/free-trade-agreements/trade-and-climate/agreement-on-climate-change-trade-and-sustainability-accts-negotiations/>.

²⁴ *Id.*

²⁵ See WTO, FOSSIL FUEL SUBSIDY REFORM, available at https://www.wto.org/english/tratop_e/envir_e/fossil_fuel_e.htm.

²⁶ *See id.*

²⁷ Including: Albania; Austria; Belgium; Bulgaria; Chile; Colombia; Costa Rica; Croatia; Cyprus; Czech Republic; Denmark; Estonia; European Union; Fiji; Finland; France; Germany; Greece; Hungary; Iceland; Ireland; Italy; Latvia; Liechtenstein; Lithuania; Luxembourg; Mali; Moldova, Republic of; Montenegro; Netherlands; New Zealand; North Macedonia; Norway; Panama; Paraguay; Poland; Portugal; Romania; Samoa; Slovak Republic; Slovenia; Spain; Sweden; Switzerland; Tonga; United Kingdom; Uruguay; Vanuatu. *See id.*

²⁸ Ministerial Statement on Fossil Fuel Subsidies, June 10, 2022, WT/MIN(21)/9/Rev.2, available at <https://docs.wto.org/dol2fe/Pages/SS/directdoc.aspx?filename=q:/WT/MIN21/9R2.pdf&Open=True>.

agreement translates to more countries that will implement the reforms and hold each other accountable. Additionally, since least developed countries will likely face the brunt of the G7 or G20's climate failures, they should be involved in the agreements. Finally, and most importantly, agreements under the WTO are more binding than those previously adopted on fossil fuel subsidies. WTO agreements are binding on member countries and enforced by other members via consultations or the dispute settlement mechanism. Because compliance with WTO agreements is tied to market access, countries have a strong economic incentive to comply. Additionally, dispute settlement outlines a timeline for compliance, so any members who fail to adopt or implement measures before certain deadlines will face repercussions. Strong economic incentives, binding enforcement, and meaningful deadlines have been missing from prior agreements and would likely move the needle on actual fossil fuel subsidy reform. Therefore, the next multilateral agreement on fossil fuel subsidies should be concluded within the WTO framework.

B. Review of the SCM Agreement

The WTO SCM Agreement governs rules regarding subsidies in the international trading system. One major advantage of the SCM Agreement over other international commitments is that the Agreement provides a standard definition of “subsidy,” which has been agreed to by all WTO members. No other international agreement provides a clear definition, much less one adopted by consensus. The SCM Agreement defines a subsidy as a financial contribution, provided by a government or public body, which confers a benefit.²⁹ A financial contribution entails direct payments, as well as indirect forms of subsidization like foregone payments, providing resources at below-market rates, or purchasing goods at above-market rates.³⁰ Therefore, this definition is inclusive of all forms of fossil fuel subsidies, like tax credits or other foregone revenue. Though the definition is inclusive of a broad array of subsidies, the Agreement does not *penalize* all forms of domestic subsidies. Instead, the Agreement focuses on penalizing subsidies with a trade-distortive effect, separating them into two categories of either prohibited or actionable subsidies.

Under the SCM Agreement, WTO members agree not to grant or maintain prohibited subsidies.³¹ Originally, the SCM Agreement prohibits two kinds of subsidies: subsidies contingent on export and subsidies contingent on using domestic, rather than imported, goods.³² Recently, the Fisheries Agreement effectively added a third kind of prohibited subsidy, which targets subsidies that support environmentally harmful fishing practices. If a country implements or maintains a prohibited subsidy, another country can challenge the measure at the WTO. Disputes relating to prohibited subsidies benefit from an expedited timeline under dispute settlement.³³ If the Dispute Settlement Body agrees that the subsidy meets the qualifications of a prohibited subsidy, the offending member must remove the measure. If the member fails to remove the measure, the Dispute Settlement Body “shall grant authorization to the complaining Member to take appropriate countermeasures.”³⁴ While fossil fuel subsidies do not currently meet the definition of a

²⁹ Article 1, SCM Agreement.

³⁰ *Id.*

³¹ Article 3.2, SCM Agreement.

³² Article 3.1, SCM Agreement.

³³ Article 4, SCM Agreement.

³⁴ Article 4, SCM Agreement. “Countermeasures” refers to the temporary suspension of certain obligations. See Article 4.10, *US – Upland Cotton (Article 22.6 – US I)*. The Dispute Settlement Body has interpreted

prohibited subsidy, expanding the category to include FFS would be an effective way to challenge and reduce the measures.

Actionable subsidies are not prohibited subsidies but still cause trade-distorting effects. For a subsidy to be actionable, it must be both specific and cause adverse effects to another members. “Specificity” requires the subsidy exclusively benefit a specific industry, region, or set of companies.³⁵ A subsidy may cause adverse effects to another member if it causes injury to the member’s domestic industry, if the subsidy causes serious prejudice to the interests of another member, or if the subsidy impairs or nullifies benefits that accrue to another country from WTO membership.³⁶ Serious prejudice can include four different effects, including displacing imports of a like product in the market of the subsidizing member, displacing or impeding exports of a like product to third-country markets, causing significant price undercutting, depressing, suppression or lost sales, or leading to an increase in the world market share of the subsidizing member in a particular product.³⁷

If a subsidy is actionable, other WTO members have two avenues for remedy. If the subsidy is causing injury to a member’s domestic market, the offended member may implement countervailing duties on imports of the subsidized product.³⁸ Alternatively, or if the subsidy causes another kind of adverse effect, the member may bring a case at the WTO. If the Dispute Settlement Body finds that the accused subsidy is actionable, the body will direct the offending member to remove adverse trade effects of the subsidy.³⁹

C. Amending WTO Agreements

Article 10 of the WTO Agreement establishes the procedure for amending agreements under the WTO Framework, including the SCM Agreement. Any WTO member may propose an amendment to the SCM Agreement.⁴⁰ Proposals must be voted on by the Ministerial Conference within ninety days. If the proposal is supported by a consensus at the Ministerial Conference, members will vote on the proposal. If members reach a consensus, the amendment is adopted.⁴¹ If members cannot reach a consensus, and the amendment would alter rights and obligations, then two alternative outcomes emerge. First, if two-thirds of the members vote in favor of the amendment, the amendment shall take effect only for the members that voted for it.⁴² Second, if three-fourths of the members vote in favor of the proposal, the Ministerial Conference may decide that the proposal is of such a nature that any member that did not vote in favor will have a certain time period to adopt the amendment or otherwise “shall be free to withdraw from the WTO or to remain a Member with the consent of the Ministerial Conference.”⁴³ However, it should be noted, few amendments have been adopted by the WTO. Additionally, all amendments to date have been adopted by consensus, so the

“appropriate” countermeasures” to mean those measures that “effectively induce[] compliance.” See Para. 3.44, *Brazil – Aircraft* (Article 22.6 – Brazil).

³⁵ Article 2, SCM Agreement.

³⁶ Article 5, SCM Agreement.

³⁷ Article 6, SCM Agreement.

³⁸ Articles 4 & 7, SCM Agreement.

³⁹ Article 19, SCM Agreement.

⁴⁰ Article X, Para. 1, WTO Agreement.

⁴¹ *Id.*

⁴² Article X, Para. 3, WTO Agreement.

⁴³ *Id.*

WTO has never utilized the procedures for adopting amendments with less than a full consensus.

III. TAKEAWAYS FROM THE WTO FISHERIES AGREEMENT

Recently, the WTO has had some success expanding prohibited subsidies for environmental causes. At the WTO's 12th Ministerial Conference in June 2022, members concluded the Agreement on Fisheries Subsidies, which, among other provisions, effectively created a new category of prohibited subsidy to prevent countries from subsidizing behaviors harmful to the fish stock and the environment. Specifically, the agreement prohibits subsidies that support fishing of already overfished stock, fishing in unregulated water, and illegal, unreported, and unregulated (IUU) fishing or fishing-related activities that support IUU fishing.⁴⁴ This Agreement is significant because it is the first to use WTO tools to address environmental harms, rather than purely focusing on trade issues.⁴⁵ Additionally, the Agreement indicates the willingness of WTO members to create new trade-related rules aimed at resolving environmental issues, rather than economic ones.⁴⁶ The fisheries negotiations are a particularly helpful roadmap for thinking about fossil fuel subsidies because both concern the preservation of a shared resource (the oceans and the atmosphere, respectively) and aim to eradicate subsidies that promote behaviors that are destructive to those resources. For this reason, the Fisheries Agreement provides hope that WTO members may be willing to engage in international commitments to limit fossil fuel subsidies for the greater goal of addressing climate change.

However, there are unique and considerable challenges to concluding an agreement on FFS that would make the endeavor more difficult than the Fisheries Agreement. First, reducing or eliminating subsidies increases the price of the subsidized good. Consumers are highly aware of energy costs because consumer energy expenditures, like electricity, heating oil, and gasoline, are all essential goods in the average consumer's budget. Unlike purchasing fish, if energy prices increase, consumers often do not have the option to consume less energy products.⁴⁷ Similarly, substitutable goods are not as readily available within the energy sector. When the price of fish increases, many consumers can substitute less expensive fish, meat, or vegetarian options. On the other hand, for consumers to change energy sources requires significant expense and upfront investment, like purchasing an electric vehicle or installing solar panels. Therefore, domestic governments would likely have to counteract the elimination of fossil fuel production subsidies by increasing consumption subsidies, which would mitigate the impact of any proposed reform.

In addition to resistance from domestic consumers, governments would face significant opposition from fossil fuel companies. First, the prohibited subsidies under the Fisheries Agreement support the elimination of certain harmful behavior within the fishing industry. Prohibiting fossil fuel production subsidies, on the other hand, supports

⁴⁴ Articles 3, 4, & 5, WTO Fisheries Agreement; *see also* WORLD TRADE ORGANIZATION, "The WTO Agreement on Fisheries Subsidies: What is does and what comes next."

⁴⁵ Pereira, *How the WTO Can Help Tackle Climate Change through Fossil Fuel Subsidy Reform: Lessons from the Fisheries Negotiations*, at 6 (ICTSD Issue Paper).

⁴⁶ Barsauskatie, *Background Note on Fossil Fuel Subsidy Reform*, at 17, IISD (Sept. 2022).

⁴⁷ "Since demand for energy is inelastic in the short run, those large price increases imply significant declines in households' purchasing power, which will need to be absorbed through (i) reduced consumption of non-energy goods and services, (ii) a reduction in savings or (iii) an increase in income." Battistini et al., *Energy prices and private consumption: what are the channels?*, EUROPEAN CENTRAL BANK (2022).

the goal of ultimately drastically reducing the consumption of fossil fuels. In this way, a WTO Agreement on fossil fuel subsidies would represent an existential threat to the future of the fossil fuel industry, resulting in greater industry resistance than member countries faced during the fisheries negotiations. Second, fossil fuel companies play a large role in the economies of fossil fuel producing countries and often spend significant resources on lobbying efforts or supporting political candidates who protect their interests, which has previously stalled progress on subsidy reform.⁴⁸ Therefore, in attempting to reach an agreement to prohibit fossil fuel production subsidies, governments would face greater resistance from both domestic consumers and producers, which would ultimately make an agreement on fossil fuels more difficult to achieve than the Fisheries Agreement.

IV. UTILIZING AND UPDATING SCM PROVISIONS TO REFORM FOSSIL FUEL SUBSIDIES

This section reviews potential provisions for a new agreement on fossil fuel production subsidies that incorporates and updates language from the SCM Agreement to propel domestic reform. First, this section will review why any agreement should focus on reforming production rather than consumption subsidies. Second, this section proposes that a new agreement should prohibit fossil fuel production subsidies. Third, the paper will argue that a new agreement should recognize harm to the climate as an adverse effect of FFS that causes serious prejudice to members. Finally, this section proposes an immediate change to WTO subsidy notification procedures to increase transparency around fossil fuel subsidies

A. Targeting Production Over Consumption Subsidies

Any agreement at the WTO on fossil fuel subsidies should focus on eliminating production subsidies rather than consumption subsidies. Production subsidies are subsidies that support fossil fuel producers by “increasing the profitability of extracting and transporting fuels, usually by offering tax breaks, production credits, or accelerated depreciation for capital investment.”⁴⁹ First, targeting production subsidies fits more easily within the current subsidy framework. As discussed above, for a subsidy to be actionable, it must be both specific and cause adverse effects to another member. The agreement defines “specificity” as a subsidy that is “specific to an enterprise or industry or group of enterprises or industries.”⁵⁰ Therefore, production subsidies, given that they are intended to support the fossil fuel industry, are specific.⁵¹ Alternatively, consumer subsidies are intended to reduce the end cost for all consumers, spanning across all industries or enterprises. Therefore, consumer subsidies are neither *de jure* nor *de facto* specific. Additionally, eliminating consumer subsidies is politically unadvisable.

Because fossil fuel consumption subsidies are extremely popular, concluding an agreement that requires member countries to eliminate them would be nearly impossible.

⁴⁸ George & Urpelainen, BROOKINGS INSTITUTION, *Reforming Global Fossil Fuel Subsidies: How the United States Can Restart International Cooperation* (July 2021), available at <https://www.brookings.edu/research/reforming-global-fossil-fuel-subsidies-how-the-united-states-can-restart-international-cooperation/>.

⁴⁹ *Id.*

⁵⁰ Article 2, SCM Agreement.

⁵¹ For example, the “Intangible Drilling Costs Deduction” under the U.S. tax code, which permits oil companies to deduct between 60–80% of costs associated with drilling wells, is a subsidy that is clearly specific to oil companies. *See* 26 U.S.C. § 263(c); *see also* COMMITTEE FOR A RESPONSIBLE FEDERAL BUDGET, “The Tax Break-Down: Intangible Drilling Costs” (Oct. 17, 2013).

As discussed above, energy commodities are an essential good that consumers cannot easily substitute for alternative resources. For this reason, consumers are highly aware and sensitive to changes in fossil fuel costs. As fossil fuel prices increase, so do the costs associated with driving vehicles, heating homes, or using electricity. When oil prices increased because of increased demand following the pandemic and uncertain supply chains following Russia's invasion of Ukraine, the BBC reported that over ninety countries experienced protests relating to the price of fuel between January 2021 and October 2022, with many countries experiencing hundreds of rallies.⁵² In September 2022, Indonesia decided to reduce fuel subsidies due to budgetary concerns. The reduction resulted in a thirty-percent increase in the price of fuel, which sparked thousands to protest across the country.⁵³ Therefore, consumption subsidies are politically sensitive, and while multilateral agreements and frameworks should encourage countries to transition to renewables and reduce overall demand for fossil fuels, any efforts to repeal consumer fossil fuel subsidies should be led by the individual countries rather than externally imposed.

An agreement targeting production subsidies would be more popular politically and more likely to succeed at the WTO. Just ten countries control ninety-three percent of global coal production, seventy-three percent of natural gas production and seventy-two percent of global oil production.⁵⁴ As discussed above, an amendment to the SCM Agreement would require two-thirds of members to approve the agreement for the agreement to take effect for the consenting members, and three-fourths majority of members could result in a vote at the Ministerial Conference to extend the agreement to all members.⁵⁵ Therefore, of the 164 members of the WTO, fifty four could vote against the adoption of a fossil fuel agreement and the agreement would still take effect for the consenting members. Forty members could vote against the agreement, and the Ministerial Conference could still vote to extend the amendment to all members. Therefore, technically a voting coalition of fossil fuel producing countries is not large enough to block a fossil fuel agreement at the WTO.

However, realistically, all decisions to date at the WTO have been executed by consensus. Therefore, those drafting an agreement should focus on crafting provisions that could achieve a consensus vote. Considering this goal, targeting production subsidies is likely still the optimal approach. Even within fossil fuel producing countries, there is an awareness that removing production subsidies is more politically feasible than consumption subsidies. As discussed above, when the United States entered the G20 peer review process, the United States exclusively focused on phasing out inefficient production subsidies for upstream producers. This suggests that even those countries that produce fossil fuels and subsidize their production might be willing to commit to a WTO agreement eliminating those subsidies.

⁵² Gebreab et al., "Fuel protests gripping more than 90 countries," BBC (Oct. 17, 2022) *available at* <https://www.bbc.com/news/world-63185186>.

⁵³ Widiyanto, "Protests across Indonesia as anger mounts over fuel price increase," REUTERS (Sept. 6, 2022), *available at* <https://www.reuters.com/world/asia-pacific/rallies-expected-across-indonesia-anger-simmers-over-fuel-price-hike-2022-09-06/>.

⁵⁴ Bhutada, "Visualizing the Scale of Global Fossil Fuel Production," (Jan. 31, 2023), *available at* <https://www.visualcapitalist.com/visualizing-the-scale-of-global-fossil-fuel-production/>.

⁵⁵ Article 10.3 of the WTO Agreement. "The Ministerial Conference may decide by a *three-fourths majority* of the Members that any amendment made effective under this paragraph is of such a nature that *any Member which has not accepted it within a period specified by the Ministerial Conference in each case shall be free to withdraw* from the WTO or to remain a Member with the consent of the Ministerial Conference." (emphasis added).

Drafting a WTO agreement that aims to reduce or eliminate fossil fuel production subsidies would have some drawbacks. First, and most importantly, eighty-six percent of fossil fuel subsidies are consumption subsidies. Therefore, an agreement that solely focuses on reducing production subsidies would have a limited impact on curbing emissions. Second, any agreement would need to contemplate transparency measures. Few countries publish data on their production subsidy programs, which complicates enforcement. This paper proposes amending WTO notification procedures to promote transparency around FFS, but if this procedure is not amended, transparency measures must be addressed elsewhere. Finally, many production subsidies are granted via tax breaks, deductions, or credits that are written into the country's tax code. In the United States, one of the major subsidizing countries that would be targeted under such an agreement, the President or other U.S. representatives at the WTO could not unilaterally change the tax code via an international agreement. Rather they would need congressional approval, which would be difficult to achieve due to lobbying efforts from the fossil fuel industry.⁵⁶ Therefore, any agreement would need to consider domestic political willpower to ensure effective implementation.

Ultimately, targeting production subsidies is the most likely path to achieving an agreement. While less effective than targeting consumption subsidies, an agreement on production subsidies would be an important step towards achieving international commitments to reduce fossil fuels in a forum that includes a binding enforcement mechanism.⁵⁷ Therefore, the WTO should pursue an agreement that seeks to reduce or eliminate fossil fuel production subsidies.

B. Expanding Prohibited Subsidies

An agreement on fossil fuel subsidies should prohibit measures that subsidize fossil fuel production. The Fisheries Agreement prohibited certain fishery subsidies by stating that “[n]o Member shall grant or maintain any subsidy to a vessel or operator engaged in illegal, unreported and unregulated (IUU) fishing or fishing related activities in support of IUU fishing.”⁵⁸ (emphasis added). By incorporating language from the SCM Agreement provision on prohibited subsidies, the Fisheries Agreement effectively expands the

⁵⁶ President Biden proposed a budget this year that aimed to tackle fossil fuel subsidies, but it is unlikely to garner congress's approval. See “Factbox: Biden budget to target U.S. fossil fuel subsidies,” REUTERS (Mar. 9, 2023), available at <https://www.reuters.com/business/energy/biden-budget-target-us-fossil-fuel-subsidies-2023-03-09/>.

⁵⁷ Currently the Dispute Settlement Body has lost some of its binding force. In 2016, the United States began blocking the appointment of appellate judges, which eventually shut down the WTO's appellate body as the existing judges' terms expired. Without an appellate body, members who lose at the panel stage can appeal the ruling “into the void” and thus prevent a final judgement from taking effect. However, the MC-12 Ministerial Declaration promises a “fully functioning” Dispute Settlement Body by 2024. Therefore, the dispute settlement mechanism will likely be functional before a fossil fuel agreement would be implemented, so a new fossil fuel subsidy agreement should be concluded within the WTO framework to take advantage of the dispute settlement mechanism.

See Para. 4, MC-12 OUTCOME DOCUMENT, WT/MIN(22)/24 (June 22, 2022) (“We acknowledge the challenges and concerns with respect to the dispute settlement system including those related to the Appellate Body, recognize the importance and urgency of addressing those challenges and concerns, and commit to conduct discussions with the view to having a fully and well-functioning dispute settlement system accessible to all Members by 2024.”).

⁵⁸ Article 3.1, Fisheries Agreement.

category of prohibited subsidies.⁵⁹ A fossil fuel agreement could pursue the same approach. Expanding prohibited subsidies to include fossil fuel production subsidies would have the benefit of effectively terminating fossil fuel production subsidies among members, given that members would commit to repealing current production subsidies and refraining from implementing them in the future. This is by far the most direct and effective method to eliminate fossil fuel production subsidies via a WTO agreement. Incorporating this provision in a fossil fuel agreement would include language such as:

Prohibited Subsidy Option:

“No Member shall grant or maintain any subsidy that reduces costs associated with the exploration, extraction, or production of fossil fuels.” (emphasis added).

In addition to incorporating this language, a fossil fuel agreement should directly reference the expedited procedures for prohibited subsidies laid out in Article 4 of the SCM Agreement.⁶⁰ To achieve this, the new agreement could include language such as:

Prohibited Subsidy Option continued:

*“The provisions of Article 4 of the SCM Agreement shall apply to consultations and the settlement of disputes under Articles [X, Y, and Z] of this Agreement.”*⁶¹

Explicitly referencing this provision would have several benefits. First, in referencing the enforcement procedure for prohibited subsidies, it clarifies that the drafters and signatories of the agreement intend to effectively expand the category of prohibited subsidies to include fossil fuel production subsidies. Second, it would ensure that the expedited procedure extends to prohibited fossil fuel production subsidies, which is important for deterrent and enforcement purposes discussed above. WTO disputes have a reputation for being slow, laborious proceedings. Because members do not pay remedies for their violations, members will impose measures that clearly violate WTO provisions knowing dispute resolution will take several years, and no remedial costs will be associated with the violation. A quicker process reduces this incentive, especially for fossil fuel subsidies, which require several years to impose and redeem given that they are often integrated into tax codes. Additionally, a quick process reduces costs of enforcement, which will encourage more members to challenge the subsidies.

Thirdly, incorporating Article 4 of the SCM Agreement in an agreement on FFS not only ensures quick dispute resolution, but it provides an effective remedy. Under Article 4.7 of the SCM Agreement, if the Dispute Settlement Body finds that a prohibited subsidy exists, the member must repeal it.⁶² Given the goal of eliminating fossil fuel subsidies, this remedy is ideal. Finally, *any* WTO member can challenge a prohibited subsidy. This broad basis for challenging a subsidy increases accountability and boosts enforcement of the measure. Ultimately, crafting an agreement that prohibits fossil fuel production subsidies would be a highly effective tool for eliminating a portion of fossil fuel subsidies.

⁵⁹ *“A Member shall neither grant nor maintain subsidies referred to in paragraph 1.”* (emphasis added). Article 3.2, SCM Agreement.

⁶⁰ Article 4, SCM Agreement.

⁶¹ See Article 10.2 of the Fisheries Agreement, which incorporates similar language.

⁶² *“If the measure in question is found to be a prohibited subsidy, the panel shall recommend that the subsidizing Member withdraw the subsidy without delay. In this regard, the panel shall specify in its recommendation the time-period within which the measure must be withdrawn.”* (emphasis added). Article 4.7, SCM Agreement.

C. Expanding Actionable Subsidies

Under the current language of the SCM agreement, most members cannot challenge fossil fuel subsidies as actionable subsidies. This section first explores the difficulties with applying the actionable subsidies provisions of the SCM Agreement to fossil fuel production subsidies. Second, this section proposes effectively expanding actionable subsidies by recognizing harm to the climate as causing “serious prejudice” to WTO members’ interests. The section will explore specific language that could be incorporated in an agreement to recognize this kind of serious prejudice and permit WTO members to challenge fossil fuel production subsidies as actionable subsidies.

1. Difficulty of Challenging FFS under Current Actionable Subsidy Rules

Under the current provisions of the SCM Agreement, fossil fuel production subsidies are difficult to challenge as actionable subsidies. For a subsidy to be actionable under the Agreement, the subsidy must be specific and cause adverse effects to another member. As discussed above, production subsidies meet the requirement for specificity, but challenging members would struggle to demonstrate adverse effects.

Members can demonstrate adverse effects by showing that the subsidy injures a member’s domestic industry pursuant to Article 5(a) of the SCM Agreement. This path has significant challenges when combatting fossil fuel subsidies. Generally, only fossil fuel producing nations can challenge production subsidies under this provision because the SCM Agreement defines “domestic industry” as “domestic producers as a whole of like products.”⁶³ Further, the SCM Agreement defines “like products” as essentially identical products.⁶⁴ Therefore, only countries with domestic producers of fossil fuels can challenge fossil fuel production subsidies, and as already discussed, only of a handful of countries meet that requirement. Additionally, because fossil fuel companies are behemoth multinational companies that operate across many oil-producing countries,⁶⁵ importing companies are often owned by the same corporation as domestic producers. Not only does co-ownership reduce (or eliminate) the likelihood that a domestic producer would petition the government to file a challenge, but if a domestic producer is “related”⁶⁶ to an importing company, it is excluded from the definition of “domestic industry.”⁶⁷ Therefore, of the few fossil fuel producing countries, only a fraction of their domestic industry is eligible to petition the government to challenge a provision. Because of these

⁶³ Article 16, SCM Agreement.

⁶⁴ n.46, SCM Agreement (“Throughout this Agreement the term “like product” (“produit similaire”) shall be interpreted to mean a product which is identical, i.e. alike in all respects to the product under consideration, or in the absence of such a product, another product which, although not alike in all respects, has characteristics closely resembling those of the product under consideration.”).

⁶⁵ In addition to controlling much of the fossil fuel industries, “[t]he top 20 [fossil fuel] companies on the list have contributed to 35% of all energy-related carbon dioxide and methane worldwide, totalling 480bn tonnes of carbon dioxide equivalent (GtCO₂e) since 1965.” Taylor & Watts, “Revealed: the 20 firms behind a third of all carbon emissions,” *THE GUARDIAN* (Oct. 9, 2019).

⁶⁶ n.48, SCM Agreement (“[P]roducers shall be deemed to be related to exporters or importers only if (a) one of them directly or indirectly controls the other; or (b) both of them are directly or indirectly controlled by a third person; or (c) together they directly or indirectly control a third person, provided that there are grounds for believing or suspecting that the effect of the relationship is such as to cause the producer concerned to behave differently from non-related producers. For the purpose of this paragraph, one shall be deemed to control another when the former is legally or operationally in a position to exercise restraint or direction over the latter.”) (emphasis added).

⁶⁷ Article 16.1, SCM Agreement.

barriers, the odds that a fossil fuel subsidy is challenged on the basis that it injures a domestic industry under Article 5(a) is extremely low. Indeed, this conclusion is supported by data, given that zero actions have been taken to challenge or countervail fossil fuel subsidies.⁶⁸

Additionally, members can impose countervailing duties to combat subsidies that injure domestic producers.⁶⁹ However, countervailing measures are generally not a logical or effective remedy for fossil fuel production subsidies. The cost of the duty would be passed along to domestic consumers in the form of higher energy prices, rather than foreign exporters internalizing those costs and losing profit.⁷⁰ Given that most countries subsidize fossil fuel prices, the countervailing duty (“CVD”) would either blunt the effect of the consumer subsidies or force the domestic government to increase consumer subsidies to counteract the price effects of the CVD, which would reduce or negate any revenue from the duty. In either scenario, the fossil fuel producing company would not feel the effects of the subsidy, and instead, the domestic consumers or domestic government would suffer the harm. Therefore, because few countries are eligible or likely to challenge fossil fuel subsidies under Article 5(a), and countervailing duties are an undesirable remedy, any fossil fuel agreement should not attempt to incorporate “injury to domestic industry” as a type of adverse effect for actionable fossil fuel subsidies.

However, challenging a subsidy as actionable under Article 5(c) for causing “serious prejudice to the interests of another member” offers more flexibility. First, the remedy for this type of actionable subsidy is to file a case at the WTO;⁷¹ if an actionable subsidy is found to exist, the WTO orders the member to “remove the adverse effects” of the subsidy.⁷² This remedy avoids all the difficulties of countervailing duties outlined above. Second, “serious prejudice” includes an array of harms from displacing or impeding like products from a third market to increasing the world market share of the subsidizing member.⁷³ While it would be difficult to challenge fossil fuel production subsidies under Article 5(c) of the SCM agreement, the more flexible nature of the language used in Article 5(c) makes the provision more amendable to amendment and revision in a possible fossil fuel agreement.

2. Expanding “serious prejudice” to include harm to climate

As an alternative to prohibiting production subsidies, a fossil fuel agreement could expand the notion of “serious prejudice” to increase the probability that a fossil fuel production subsidy is actionable. Specifically, a fossil fuel subsidy agreement could state that subsidies that support harm to the climate cause “serious prejudice” to the interests of another member. While this approach has several benefits, defining the scope of the provision would be difficult, and ultimately the remedy for actionable subsidies is less effective than that available for prohibited subsidies. However, if an agreement prohibiting fossil fuel production subsidies proves infeasible, creating a broader definition of actionable subsidies would be a helpful alternative.

⁶⁸ See generally WTO Notifications of Countervailing Actions.

⁶⁹ Article 19, SCM Agreement.

⁷⁰ See Chatzky & Siripurapu, “The Truth About Tariffs,” COUNCIL ON FOREIGN RELATIONS (Oct. 8, 2021), available at <https://www.cfr.org/background/truth-about-tariffs>.

⁷¹ Assuming that there is no injury to domestic markets that would support countervailing measures.

⁷² Article 7.8, SCM Agreement.

⁷³ Article 6.3, SCM Agreement.

The main benefit of an agreement that expands the notion of “serious prejudice” to capture harm to the climate is that it increases the number of countries that can challenge a production subsidy under the actionable subsidy provisions. As discussed above, the current SCM Agreement defines adverse effects largely in terms of harm to the success of like products in certain markets or harm to the domestic producers of like products.⁷⁴ By requiring harm to a like product, the SCM Agreement limits the pool of potential challenging members to other fossil fuel producing countries. If the agreement recognized harm to the climate as causing serious prejudice to members’ interests, then any member could challenge fossil fuel production subsidies as actionable. Additionally, this approach would allow developing countries to hold developed countries accountable for their climate-harming behaviors. Beyond the current SCM Agreement, the prior G7 and G20 commitments on fossil fuel subsidies were agreements among developed nations with little incentive to enforce or follow up on obligations. Providing a way for developing countries, who are projected to suffer the most from global warming, to challenge fossil fuel subsidies would give these countries a tool to have greater influence over the future of the climate.

A major challenge to expanding the definition of “serious prejudice” is crafting the scope and language of a potential provision. The current definition of serious prejudice in Article 6.3 finds serious prejudice to the interests of the member when there are certain economic harms that can be demonstrated with economic data, specifically when “the effect of the subsidy is to displace or impede imports” of the harmed country’s goods to the subsidizing member’s market, or of exports to a third market, or when the subsidy causes price undercutting, suppression, depression or lost sales, or causes an increase in the world market share of the subsidizing member.⁷⁵ The current language of Article 6.3 cannot easily be amended to include harm to the climate, which does not easily translate to precise economic data. This paper will propose several variations of language that could be incorporated in a fossil fuel subsidy agreement; each has costs and benefits.

First, Dr. Zvenyslava Opeida has proposed adding “harm to the human and natural environment” as an adverse effect.⁷⁶ A fossil fuel agreement could incorporate this language in a definition of serious prejudice with the following provision:

“Serious Prejudice” Option 1:

“Serious prejudice to the interests of the individual members will exist when the subsidy has the effect of causing harm to the human and natural environment.”

Given that a country cannot extract or produce fossil fuels without harming the environment, this language would certainly encompass fossil fuel production subsidies. However, it would also include numerous other subsidy programs that member nations may not be willing to eliminate. For example, this language would include any fossil fuel consumption subsidies that are specific. Arguably, the language could encompass subsidies for renewable energy programs, given that even renewable energy production involves waste from old solar panels or wind turbines that harm the environment. It is also notable that this language would include all the behaviors that members are prohibited from subsidizing under the Fisheries Agreement. Given that members chose

⁷⁴ Article 5, SCM Agreement.

⁷⁵ Article 6.3, SCM Agreement.

⁷⁶ OPEIDA, CLIMATE CHANGE AND ENERGY SUBSIDIES: IS THERE A ROLE FOR THE WTO? (Feb. 22, 2019), available at <https://www.lexology.com/library/detail.aspx?g=5bb138d4-b29f-4ffb-a6c9-d200c75d412f>.

to use more narrow and targeted language in the Fisheries Agreement, they likely would be more willing and comfortable to proceed with language more specific to fossil fuel production subsidies.

A second option would be to incorporate language from the GATT's Article XX exceptions. For example, a provision could read: "serious prejudice to the interests of the individual members will exist when the subsidy has the effect of harming the conservation of exhaustible natural resources."⁷⁷ This language is narrower and more targeted than "harm to the human and natural environment." Given that the original Article XX(g) provision is specifically focused on the conservation of domestic resources, the agreement should instead refer to "the conservation of *shared* exhaustible natural resources" to highlight that the agreement intends to protect resources that transcend domestic borders. Therefore, the final provision would read:

"Serious Prejudice" Option 2:

"Serious prejudice to the interests of the individual members will exist when the subsidy has the effect of harming the conservation of shared exhaustible natural resources."

Because the language is incorporated from another WTO agreement, WTO members will be more familiar and comfortable with the provision. However, the language is likely still too broad to be feasible. Once again, it would render the Fisheries Agreement redundant, given that fish are an exhaustible natural resource. It also would arguably extend the Fisheries Agreement, making all subsidies for fishing actionable, as opposed to simply prohibiting subsidies for certain harmful fishing practices. Therefore, this language is not ideal.

A third option would be to craft new language that directly targets fossil fuel production subsidies. For example, a provision could begin by stating "serious prejudice to the interests of the individual members will exist when the subsidy has the effect of promoting the continued exploration, extraction, and production of fossil fuels . . .". This language has the benefit of closely tailoring the provision to fossil fuel production subsidies, and a provision that is narrow in scope is more likely to succeed. However, the provision would be stronger if it also tied the production of fossil fuels to a cognizable harm that presents an adverse effect to other members. The provision could tie fossil fuel subsidies to general climate harms, such as by stating ". . . when the subsidy has the effect of promoting the continued exploration, extraction, and production of fossil fuels, *which are deleterious to an environmentally sustainable future.*" This type of language would explicitly link fossil fuel production subsidies as causing serious prejudice to the environmentally sustainable future of other member nations. Therefore, the third option would state:

"Serious Prejudice" Option 3:

"Serious prejudice to the interests of the individual members will exist when the subsidy has the effect of promoting the continued exploration, extraction, and production of fossil fuels, which are deleterious to an environmentally sustainable future." (emphasis added).

The provision could alternatively be more specific, for example by incorporating Paris Agreement commitments. In this variation, the provision would instead state that serious

⁷⁷ See Article XX(g), General Agreement on Tariffs and Trade (1947) ("[N]othing in this Agreement shall be construed to prevent the adoption or enforcement by any contracting party of measures: . . . relating to the conservation of exhaustible natural resources if such measures are made effective in conjunction with restrictions on domestic production or consumption.") (emphasis added).

prejudice exists “. . . when the subsidy has the effect of promoting the continued exploration, extraction, and production of fossil fuels, *which are deleterious to achieving a balance between anthropogenic emissions by sources and removals by sinks of GHGs in the second half of the century, as set out in the Paris Agreement.*”⁷⁸ Because the Paris Agreement established a global goal of net-zero emissions, subsidies that inhibit that goal could translate to a more concrete or cognizable harm to those members striving to collectively uphold these commitments. In other words, fossil fuel subsidies promote increased emissions and thus force countries who are seeking to achieve global net-zero emissions by 2050 to undertake more drastic emissions reduction and removal schemes, which could be a cognizable harm to those member countries. This type of provision would read:

“Serious Prejudice” Option 4:

“Serious prejudice to the interests of the individual members will exist when the subsidy has the effect of promoting the continued exploration, extraction, and production of fossil fuels, which are deleterious to achieving a balance between anthropogenic emissions by sources and removals by sinks of GHGs in the second half of the century, as set out in the Paris Agreement.” (emphasis added).

Including Paris Agreement language in a fossil fuel subsidy agreement would be a significant step towards multilateral accountability on Paris Agreement goals, given that the new agreement would be subject to WTO enforcement measures. While the United States, a major subsidizer of fossil fuel production, left the Paris Agreement, signing a fossil fuel subsidy agreement that mirrors Paris Agreement language could be a significant gesture to the international community. Alternatively, framing the adverse effects in terms of general harm to an environmentally sustainable future might improve the provision’s resilience because the provision would not rely on continued commitment to Paris Agreement goals or risk alienating the United States. Ultimately, both approaches should be considered when crafting an agreement.

In drafting a provision that captures fossil fuel subsidies’ harm the environment as a “serious prejudice” to other members, drafters should carve out certain activities that support the net-zero emissions goal. For example, the WTO should avoid penalizing subsidies that assist coal-fired power plants to transition to natural gas. Though subsidies that support this transition are fossil fuel production subsidies, converting a steam power plant from coal to natural gas is associated with a fifty-percent reduction in emissions.⁷⁹ Similarly, the UK’s new emissions trading scheme includes a cost containment mechanism, wherein the UK Treasury can amend the volume or distribution of emissions allowances to depress prices if the market price exceeds a certain threshold.⁸⁰ A similar

⁷⁸ See Article 4, Para. 1, Paris Agreement (2015) (“In order to achieve the long-term temperature goal set out in Article 2, Parties aim to reach global peaking of greenhouse gas emissions as soon as possible, recognizing that peaking will take longer for developing country Parties, and to undertake rapid reductions thereafter in accordance with best available science, *so as to achieve a balance between anthropogenic emissions by sources and removals by sinks of greenhouse gases in the second half of this century*, on the basis of equity, and in the context of sustainable development and efforts to eradicate poverty.”) (emphasis added).

⁷⁹ “Power Beyond Coal,” SIEMENS ENERGY, available at <https://www.siemens-energy.com/global/en/offersings/power-generation/power-plants/brownfield-transformation/coal-to-gas.html#:~:text=A%20boiler%20conversion%20involves%20a,emissions%20by%20up%20to%2050%25>.

⁸⁰ UK Draft Memorandum, The Greenhouse Gas Emissions Trading Scheme Auctioning Regulations 2021, at 4.

cost containment mechanism is included in the EU's emission trading scheme.⁸¹ Because this mechanism temporarily lowers the price of carbon, it would benefit fossil fuel producers by providing a “good” at a below-market rate; therefore, this provision is a fossil fuel production subsidy. Though it is not specific, and thus could not be challenged as an actionable subsidy, it could be considered a prohibited subsidy under provisions outlined above. Given that the overall emissions trading scheme is intended to reduce carbon emissions, the UK and EU should not be penalized for price controls intended to ease the transition to a new policy. Therefore, subsidies that support the net-zero emissions goal should be carved out of the agreement. To this end, the agreement could include language such as:

“Serious Prejudice” Exception:

“Serious prejudice to the interests of the individual members will not exist when the subsidy has an overall effect of promoting a balance between anthropogenic emissions by sources and removals by sinks of GHGs in the second half of the century, as set out in the Paris Agreement,⁸² or is necessary for the success of a program that promotes this goal.” (emphasis added).

Including the above provisions would enable WTO members to more easily utilize the actionable subsidy provisions to challenge fossil fuel production subsidies, while protecting programs that support global net-zero emissions. However, while these provisions would be helpful in challenging fossil fuel subsidies, the remedy available for actionable subsidies is less effective than that available for prohibited subsidies. Whereas a member found to maintain a prohibited subsidy must immediately remove the measure, a member found to maintain an actionable subsidy must “remove the adverse effects of the subsidy.”⁸³ Under the latter language, the member may maintain the subsidy if they find a way to remove the adverse effects. Under the provisions proposed above, there is likely no way to remove the adverse effects without removing the subsidy because most subsidies to fossil fuel producers harm the environment. However, the language could allow a member to “greenwash” a subsidy and argue the adverse effects have been removed. Given the looser language, countries will try to exploit the policy space and continue subsidizing fossil fuel production in some manner. Therefore, prohibiting fossil fuel production subsidies is preferable. However, if prohibition is infeasible, expanding the definition of “serious prejudice” to capture harm to the climate from production subsidies is a strong alternative.

D. Updating Notification Procedures to Increase Transparency

In addition to a new agreement, the WTO should update their procedures on subsidy notifications to increase transparency around fossil fuel subsidies. Under the current WTO rules, members must notify the WTO when they implement a new specific subsidy.⁸⁴ Currently the WTO requests members submit information such as: the title of the program, legal authority, the form of the subsidy, amount of the subsidy, to whom it

⁸¹ The EU scheme includes a “Market Stability Reserve,” which holds excess emissions allowances that the EU did not release for auction due to price suppression in the market. The EU can release emissions allowances from the reserve if the total number of allowances in circulation falls below a certain threshold. See Para. 5, Decision (EU) 2015/1814 of the European Parliament and of the Council (Oct. 6, 2015).

⁸² See Article 4, Para. 1, Paris Agreement (2015).

⁸³ Article 7.8, SCM Agreement.

⁸⁴ Article 25.1, SCM Agreement.

is paid, the policy objective, and statistical data on the trade effect of the subsidy.⁸⁵ The Committee on Subsidies and Countervailing Duties could issue new guidelines requiring that the member declare whether the subsidy is a fossil fuel subsidy. The change would not require a formal vote or agreement, and therefore could be executed much more quickly than concluding a new agreement. For example, a new set of rules could simply add an additional provision to the list of information to be provided, such as:

Amendment to WTO Subsidy Notification Procedures:

“Information to be Provided: . . .

. . . *Whether the subsidy supports the exploration, extraction, production, transportation, or consumption of fossil fuels. If so, how is the subsidy provided (to producers or to consumers)?”*

Additionally, the current rules permit certain information, such as the background, form, and recipient of the subsidy, to be grouped together under a single heading.⁸⁶ However, new guidelines should require members to list fossil fuel subsidy notifications under a separate heading, so that the information is clearly displayed, which would strengthen the overall transparency and accountability effects of this procedural change.

Ultimately, amending the notification procedures would significantly increase transparency around fossil fuel subsidies. Separately notating production from consumption subsidies is especially important for tracking production subsidies, which have considerably less publicly available data than consumption subsidies. Even if a new fossil fuel agreement is not ultimately successful, changing notification procedures could have a “name and shame” effect that encourages accountability and reform. Additionally, knowing more about the extent of fossil fuel subsidy programs would help to strengthen future movements for international action.

V. CONCLUSION

Current multilateral commitments are insufficient to achieve meaningful reform on fossil fuel subsidies, and reform is critical to reducing GHG emissions and avoiding the 1.5 degrees Celsius warming threshold. To achieve reform, WTO members should conclude a new agreement, similar to the Fisheries Agreement, that focuses on eliminating fossil fuel production subsidies. Ideally, the agreement would incorporate language from the SCM Agreement to effectively create a new category of prohibited subsidies that eliminates fossil fuel production subsidies among members. Alternatively, the new agreement could expand the definition of “serious prejudice” to include harm to the climate, which would permit more members to challenge fossil fuel production subsidies as actionable. Finally, even without a new agreement, the WTO should amend their notification procedures to require WTO members to separately report their fossil fuel subsidies, which would serve to increase transparency and accountability. Ultimately, both a new agreement and updated notification procedures are realistic and necessary next steps to reduce or eliminate fossil fuel production subsidies, which would significantly contribute to global climate goals.

⁸⁵ Committee on Subsidies and Countervailing Duties, “Questionnaire Format for Subsidy Notifications Under Article 25 of the Agreement on Subsidies and Countervailing Measures and Under Article XVI of GATT” G/SCM/6/Rev.1 (2003).

⁸⁶ *Id.*

CHAPTER 13: USING SUBSIDY DISCIPLINES IN A FOSSIL FUEL NON-PROLIFERATION TREATY: INCORPORATING THE LESSONS LEARNED FROM THE AGREEMENT ON FISHERIES SUBSIDIES

MINE ORER*

INTRODUCTION

Today, the contribution of greenhouse gas (GHG) emissions from fossil fuels such as coal, oil, and gas, to climate change is uncontested – how to address the problem is a different issue. For all its redeeming qualities, the Paris Climate Agreement is nevertheless not binding and makes no mention of fossil fuels as the main contributors to climate change.

Among the reform options that are being floated is the adoption of a “Fossil Fuel Non-Proliferation Treaty.”¹ Those championing this cause have coalesced around what is now known as the “Fossil Fuel Non-Proliferation Treaty Initiative” (the Initiative). The proponents of the Initiative seek to create binding obligations on states by way of a treaty in order to stop further fossil fuel exploration and expansion, and phase-out existing production while supporting a just transition to renewable energy. The Initiative wants to complement the Paris Climate Agreement and remedy the omission of any mention of fossil fuels in the Agreement.² It has been amassing a lot of support from civil society in the past several years, with 2150 civil society organizations, 101 Nobel laureates (including the president of Timor-Leste),³ 700 elected officials from eighty-five countries, and 3000 scientists and academics endorsing as of July 2023.⁴ Eighty-nine cities and subnational governments have also endorsed it, including eleven U.S. cities and counties, as well as the European Parliament and World Health Organization.⁵

While the Initiative was initially spurred on by civil society actors, states have recently taken more of an interest in furthering this goal, with Vanuatu and Tuvalu being the first two states to formally endorse this idea.⁶ At the 2nd Ministerial Dialogue on a Global Just Transition Away From Fossil Fuels in March 2023, Pacific Island countries Tonga, Fiji, Niue, and Solomon Islands joined Vanuatu and Tuvalu in an outcome text called Port Vila Call for a Just Transition to a Fossil Fuel Free Pacific, in which they called for a Fossil Fuel Non-Proliferation Treaty and stated that they would lead the creation of a global

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¹ FOSSIL FUEL NON-PROLIFERATION TREATY INITIATIVE, <https://fossilfueltreaty.org/home>.

² Alex Rafalowicz, *This is why we need the Fossil Fuel Non-Proliferation Treaty*, WORLD ECON. F. (Aug. 19, 2021), <https://www.weforum.org/agenda/2021/08/this-is-why-we-need-a-fossil-fuel-treaty/>.

³ José Ramos-Horta, *For a fraction of Australia's fighter jet budget, I'd leave East Timor's fuel in the ground*, SYDNEY MORNING HERALD (Oct. 5, 2022, 4:00 PM), <https://www.smh.com.au/environment/climate-change/for-a-fraction-of-australia-s-fighter-jet-budget-i-d-leave-east-timor-s-fuel-in-the-ground-20221004-p5bn6l.html>.

⁴ *Who has joined the call for a Fossil Fuel Non-Proliferation Treaty?*, FOSSIL FUEL NON-PROLIFERATION TREATY INITIATIVE, <https://fossilfueltreaty.org/endorsements/>.

⁵ *Id.*

⁶ *Id.*

alliance to negotiate this new Treaty.⁷ Considering the diplomatic successes Pacific Island states have recently had, such as galvanizing support in the UN General Assembly to submit an advisory opinion request to the International Court of Justice regarding climate change,⁸ the Initiative warrants a closer look by the international community.

The Initiative presents a unique approach to the collective action problem surrounding fossil fuels by attempting to utilize in its advocacy the lessons learned from how weapon non-proliferation treaties were negotiated in the past.⁹ In that sense, the Initiative presents a more traditional public international law solution to the problem. However, fossil fuels are deeply ingrained commodities in the global economy and their trade has continued to increase substantially in the last 20 years despite the increased awareness of their contribution to climate change.¹⁰

This is where international trade law can come in to provide a framework for any future discussions of a Fossil Fuel Non-Proliferation Treaty to take place. In particular, this Chapter argues that states should consider negotiating a fossil fuel subsidy agreement within the ambit of a Fossil Fuel Non-Proliferation Treaty to ensure that states do not further support the production of more fossil fuels and distort the energy markets. In this pursuit, states can incorporate the lessons learned from the Agreement on Fisheries Subsidies (Fisheries Agreement),¹¹ which was recently finalized and opened for signature.

This Chapter first lays out in Part I the details of the Fossil Fuel Non-Proliferation Treaty Initiative. Part II explains how subsidy disciplines can play into this effort and why we would need a new subsidies agreement for fossil fuels. Part III elucidates how the Fisheries Agreement can serve as a blueprint for a fossil fuel subsidy chapter or protocol in the Fossil Fuel Non-Proliferation Treaty as a starting point for negotiations.

I. THE FOSSIL FUEL NON-PROLIFERATION TREATY INITIATIVE

While the Initiative does not currently have a proposed treaty text in circulation, it proposes three pillars for the Treaty: non-proliferation, fair phase-out, and just transition.¹² The non-proliferation pillar seeks to end all new exploration and production of coal, oil, and gas to “prevent the proliferation of unnecessary and unburnable fossil fuels, to protect workers, communities, and investments from becoming stranded, and to avoid locking the world into catastrophic and irreversible climate disruption.”¹³ The fair phase-out pillar aims to get wealthy countries to lead and support a managed phase-out of fossil fuels by “regulating fossil fuel supply, limiting extraction, removing subsidies for production, dismantling unnecessary infrastructure, defending the rights of Indigenous

⁷ Port Vila Call for a Just Transition to a Fossil Fuel Free Pacific 1 (Mar. 15-17, 2023), https://www.pican.org/_files/ugd/923d4b_fba70d14c89945dc929763429ca62344.pdf.

⁸ Maria Antonia Tigre & Jorge Alejandro Carrillo Bañuelos, *The ICJ’s Advisory Opinion on Climate Change: What Happens Now?*, SABIN CTR. CLIMATE CHANGE L. (Mar. 29, 2023), <https://blogs.law.columbia.edu/climatechange/2023/03/29/the-icjs-advisory-opinion-on-climate-change-what-happens-now/>

⁹ See generally *Policy Brief: Building on Success: Lessons Learned From Humanitarian Treaty Movements for a Fossil Fuel Non-Proliferation Treaty*, FOSSIL FUEL NON-PROLIFERATION TREATY INITIATIVE, <https://fossilfuel treaty.org/humanitarian-treaties-lessons>.

¹⁰ *Trading in the wrong direction*, UNCTAD (Nov. 3, 2021), <https://unctad.org/topic/trade-analysis/chart-3-november-2021>

¹¹ Agreement on Fisheries Subsidies, June 17, 2022, WT/MIN(22)/33, WT/L/1144 [hereinafter Fisheries Agreement].

¹² FOSSIL FUEL NON-PROLIFERATION TREATY INITIATIVE, *supra* note 1.

¹³ *Id.*

Peoples and impacted communities, and shifting support to safer alternatives” so that fossil fuel supply aligns with Paris Climate Agreement’s goals.¹⁴

The just transition pillar represents the effort to move away from fossil fuels by “enabl[ing] economic diversification, implement[ing] renewable energy and other reliable, cost-effective low-carbon solutions, and [...] support[ing] every worker, community, and country.”¹⁵ The Initiative further fleshes out how this pillar can look in the Treaty by suggesting different forms of international cooperation such as establishing a global fund for just transition, institutionalizing support from wealthy countries in a new “Global Marshall Plan,” requiring capacity-building support and technology transfer to Global South countries, and having provisions outlining how this Treaty interacts with and possibly supersedes other international agreements relating to trade and investment.¹⁶

In terms of economic diversification, the Initiative’s Briefing Note on just transition outlines both collective and domestic measures that the Treaty could include. For collective measures, the Initiative suggests having provisions establishing international financing mechanisms, ensuring access and ability to manufacture relevant technologies, establishing price stability measures, and/or enabling and funding social protection measures. For domestic measures, the suggestions include redirecting fossil fuel subsidies and state-owned fossil fuel companies, enabling the production of renewable energy technologies, reducing export dependence on fossil fuels, and prioritizing energy and food sovereignty.¹⁷

II. A PRIMER ON SUBSIDIES AND FOSSIL FUEL SUBSIDIES

Subsidies are financial contributions that a government or public body gives an individual or a business so that the price of a commodity remains low and thus more competitive. In the context of fossil fuels, subsidies can be roughly categorized as production subsidies, which are given to producers to lower their costs, and consumption subsidies, which are directed at lowering the prices consumers pay for fossil fuels.¹⁸ These subsidies can manifest in a myriad of different ways, such as tax breaks, public finance channeled towards production, investment by state-owned enterprises, government regulations, and lowering the consumer-end price of fossil fuels.¹⁹

Subsidies have a trade-distorting effect because they artificially lower prices. Subsidy disciplines under the World Trade Organization (WTO) try to counteract this distorting effect by prohibiting certain types of subsidies and deeming certain kinds of subsidies “actionable,” meaning a negatively impacted state can enact countervailing measures to offset the impact of another state’s subsidy in its domestic markets.²⁰ Under Article 3 of the Agreement on Subsidies and Countervailing Measures (SCM Agreement), subsidies that are conditioned on export performance (i.e. export subsidies) and subsidies that condition the use of domestic goods over imports are prohibited.²¹ Actionable subsidies

¹⁴ *Id.*

¹⁵ *Id.*

¹⁶ *Briefing Note: The Global Just Transition Pillar of the Fossil Fuel Non-Proliferation Treaty* 2-3, FOSSIL FUEL NON-PROLIFERATION TREATY INITIATIVE, <https://fossilfueltreaty.org/s/Just-Transition-Briefing.pdf>.

¹⁷ *Id.* at 5.

¹⁸ *Explainer: The challenge of defining fossil fuel subsidies*, CARBON BRIEF (June 12, 2017), <https://www.carbonbrief.org/explainer-the-challenge-of-defining-fossil-fuel-subsidies/>

¹⁹ *Id.*

²⁰ Agreement on Subsidies and Countervailing Measures, art. 5, Dec. 31, 1994, 1869 U.N.T.S. 14 [hereinafter SCM Agreement].

²¹ *Id.* at art. 3.

are those that are not *per se* prohibited but can be challenged by a WTO member due to the adverse effects on the interests of that member by way of (1) injury to the member's domestic industry, (2) nullification or impairment of direct or indirect benefits of the member under the General Agreement on Tariffs and Trade (GATT), and/or (3) serious prejudice to the member's interests.²²

In the fossil fuel context, the market-distorting effects of subsidies manifest as overconsumption, especially in a wide range of energy- and capital-intensive industries such as power and transportation.²³ The negative environmental externalities they cause to other states make them particularly damaging.²⁴ Contrary to popular belief, consumption subsidies end up benefiting higher-income households more than those with lower income, since these subsidies do not necessarily vary by income, and higher-income households already have high consumption levels that are now being offset by the government.²⁵

Despite these negative (and potentially catastrophic) consequences, fossil fuel subsidies have remained unchallenged at the WTO level.²⁶ This is in stark contrast with subsidies for renewable energy, which have already been challenged in six cases before the WTO Dispute Settlement Body.²⁷ While there may be political considerations that have resulted in this outcome, namely that states might be hesitant to challenge something they themselves are doing,²⁸ there are also legal reasons for this current state of play. Fossil fuel subsidies in and of themselves do not amount to a prohibited or actionable subsidy by them being fossil fuel subsidies; they can only do so if the subsidy in a particular case falls within the definition of a prohibited or actionable subsidy. In particular, fossil fuel subsidies tend to not have domestic content requirements (which would have put the subsidy in the prohibited category), whereas the renewable energy subsidy cases that have been brought before the WTO so far challenged subsidy schemes with domestic content requirements.²⁹ The difficulty in identifying the specificity of a fossil fuel subsidy (especially a consumption subsidy) and the requirement to fit the "adverse effects" at issue into one of the three available manifestations under the SCM Agreement also make it more difficult to bring an actionable subsidy challenge against fossil fuel subsidies.³⁰ Thus, the absence of legal challenges to fossil fuel subsidies, as compared to renewable energy subsidies, appears to have more to do with the fact that these subsidies can slip through the gaps in the international trade legal regime as it currently exists rather than a targeted attempt to stifle the renewable energy sectors around the world.

²² *Id.* at art. 5.

²³ Johannes Urpelainen & Elisha George, *Reforming global fossil fuel subsidies: How the United States can restart international cooperation*, BROOKINGS INST. (July 14, 2021), <https://www.brookings.edu/research/reforming-global-fossil-fuel-subsidies-how-the-united-states-can-restart-international-cooperation/>.

²⁴ The Politics of Fossil Fuel Subsidies and Their Reform, p. 124.

²⁵ Johannes Urpelainen & Elisha George, *supra* note 23.

²⁶ Ronald Steenblik, Jehan Sauvage & Christina Timiliotis, *Fossil Fuel Subsidies and the Global Trade Regime*, in THE POLITICS OF FOSSIL FUEL SUBSIDIES AND THEIR REFORM 121, 126 (Jakob Skovgaard & Harro van Asselt eds., 2018).

²⁷ Henok Birhanu Asmelash, *Energy Subsidies and WTO Dispute Settlement: Why Only Renewable Energy Subsidies Are Challenged*, 18 J. INT'L ECON. L. 261, 275 (2015).

²⁸ *Id.* at 284.

²⁹ *Id.* at 276.

³⁰ *Id.* at 281-82.

III. USING SUBSIDY DISCIPLINES IN THE FOSSIL FUEL NON-PROLIFERATION TREATY

The Fossil Fuel Non-Proliferation Treaty Initiative can come in to fill the lacuna in international trade law that allows fossil fuel subsidies to be unchallenged and provide a collective solution. Subsidy disciplines in international trade law can in turn help give structure to this Initiative by providing a cognizable and achievable solution to this harmful practice.

As the Initiative currently stands, it only recommends redirecting fossil fuel subsidies and state-owned fossil fuel companies as domestic measures that states can individually undertake.³¹ This is perhaps unsurprising, considering the “varying degrees of obstacles to, and support for” fossil fuel subsidy reform on the domestic level as opposed to a widening consensus on the international level that fossil fuel subsidies should be reformed.³² However, letting states handle fossil fuel subsidy reform in a piecemeal fashion is not conducive to finding a solution that can enable a definitive and sustainable transition away from fossil fuels globally. The Intergovernmental Panel on Climate Change has emphasized that “[e]ffective mitigation will not be achieved if individual agents advance their own interests independently. Cooperative responses, including international cooperation, are therefore required to effectively mitigate GHG [greenhouse gas] emissions and address other climate change issues.”³³ As one of the key policy tools already identified,³⁴ a multilateral fossil fuel subsidy reform is one of the avenues that need to be pursued for climate change mitigation, which would help support all three pillars of the Initiative.

Despite the idea of a wholesale fossil fuel subsidy reform percolating in international policy circles for many years, its implementation remains elusive. The difficulty faced is emblematic of the collective action problem in climate change; it requires all states to change behaviors that might go against their short-term benefits of lowering costs to reach the long-term solution of reducing GHG emissions that contribute to climate change.³⁵ Given the fact that the benefits of cooperation are shared by everyone and the vast number of countries involved, some states could be tempted to free ride whereas other nations may thus be put in a position to shoulder a bigger portion of the burden to mitigate climate change.³⁶ On a domestic level, fossil fuel subsidy reform remains unpopular, both for production and consumption subsidies, which is driven by a variety of factors such as (among others) interest groups framing fossil fuel subsidies as a poverty reduction policy toolkit and as crucial for the economic development of the country – even if these claims are not objectively true.³⁷

³¹ *Briefing Note: The Global Just Transition Pillar of the Fossil Fuel Non-Proliferation Treaty*, *supra* note 16, at 5.

³² Jakob Skovgaard & Harro van Asselt, *The Politics of Fossil Fuel Subsidies and Their Reform: An Introduction*, in *THE POLITICS OF FOSSIL FUEL SUBSIDIES AND THEIR REFORM* 3, 9 (Jakob Skovgaard & Harro van Asselt eds., 2018).

³³ *Climate Change 2014 Synthesis Report – Summary for Policymakers*, INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE 17 (2014), https://www.ipcc.ch/site/assets/uploads/2018/02/AR5_SYR_FINAL_SPM.pdf.

³⁴ *Investing in Climate, Investing in Growth*, OECD 37 (2017), <https://doi.org/10.1787/9789264273528-en>.

³⁵ Leigh Raymond, Daniel Kelly & Erin P. Hennes, *Norm-Based Governance for Severe Collective Action Problems: Lessons from Climate Change and COVID-19*, 19 *PERSP. POL.* 1, 3 (2021).

³⁶ See generally William Nordhaus, *Climate Clubs: Overcoming Free-Riding in International Climate Policy*, 105 *Am. Econ. Rev.* 1339 (2015).

³⁷ Jakob Skovgaard & Harro van Asselt, *The politics of fossil fuel subsidies and their reform: Implications for climate change mitigation*, 10 *Wiley Interdisc. Rev.* 1, 6-7 (2019).

Under these circumstances, a multilateral agreement may nevertheless be the solution to combat states' reticence to act individually against this collective problem. If a state can commit itself on a supranational level, that can enable them to resist domestic pressures to keep fossil fuel subsidies by asserting that its "hands are tied" internationally.³⁸ States can utilize this "two-level game" to use international pressures to secure domestic policy objectives,³⁹ namely getting their constituents on board with fossil fuel subsidy reform. The increased interest in a Fossil Fuel Non-Proliferation Treaty can provide the platform for states to engage in meaningful negotiations over fossil fuel subsidy reform as part of this Treaty. Under the umbrella of this Initiative, states can push for a paradigm shift from viewing fossil fuel subsidies as merely a trade issue to thinking of it as a peace and national security issue when faced with the existential threat of climate change. The trade aspect of fossil fuel subsidies would not cease to be relevant – it would continue to provide the backbone of the language of negotiations. As a result, states can thus negotiate a fossil fuel subsidy agreement as part of a chapter or a protocol to this larger Treaty.

IV. USING THE FISHERIES AGREEMENT AS A BLUEPRINT FOR A FOSSIL FUEL SUBSIDY AGREEMENT

Negotiating a subsidy agreement concerning a particular sector is not a novel concept. WTO member states have recently adopted the text for the Fisheries Agreement, and six states – Canada, Iceland, Seychelles, Singapore, Switzerland, and the United States – have already signed onto it.⁴⁰ Considering that the Fisheries Agreement represents a recent agreement reached after many years of negotiations and is on a subsidy issue primarily driven by environmental concerns, the lessons learned from it can serve as a blueprint for a fossil fuel subsidy agreement.

While fisheries and fossil fuel subsidies might seem unrelated, the reasoning for having a specialized subsidy discipline for each is rooted in similar environmental concerns that go beyond a desire to correct market distortions and that require a multilateral approach. Just as curbing one state's market-distorting fisheries subsidies would not be enough to combat overfishing that depletes the world's fish stocks, neither would a single state's decision to remove fossil fuel subsidies make a dent on a global scale that can rein GHG emissions on a meaningful level. By concluding the Fisheries Agreement, states have fully met a Sustainable Development Goal (SDG)⁴¹ that required states to reach such an agreement, albeit with a short delay.⁴² Although no SDG calls on states to prohibit fossil fuel subsidies in the same way, a fossil fuel subsidy agreement will constitute a step in fulfilling SDG Target 12.C, which calls upon states to "rationalize" their fossil fuel subsidies.⁴³

³⁸ Ronald Steenblik, Jehan Sauvage & Christina Timiliotis, *supra* note 26, at 123.

³⁹ See generally Robert D. Putnam, *Diplomacy and Domestic Politics: The Logic of Two-Level Games*, 42 INT'L ORG. 427 (1988).

⁴⁰ *Members submitting acceptance of Agreement on Fisheries Subsidies*, WORLD TRADE ORGANIZATION (last visited May 12, 2023), https://www.wto.org/english/tratop_e/rulesneg_e/fish_e/fish_acceptances_e.htm.

⁴¹ *The 17 Goals*, U.N. DEPT. ECON. SOC. AFF. (last visited May 12, 2023), <https://sdgs.un.org/goals>.

⁴² SDG Target 14.6: "By 2020, prohibit certain forms of fisheries subsidies which contribute to overcapacity and overfishing, and eliminate subsidies that contribute to IUU fishing, and refrain from introducing new such subsidies, recognizing that appropriate and effective special and differential treatment for developing and least developed countries should be an integral part of the WTO fisheries subsidies negotiation."

⁴³ SDG Target 12.C: "Rationalize inefficient fossil-fuel subsidies that encourage wasteful consumption by removing market distortions, in accordance with national circumstances, including by restructuring taxation and phasing out those harmful subsidies, where they exist, to reflect their environmental impacts, taking fully

A. Defining Prohibited Subsidies and the Scope of a Fossil Fuel Subsidy Agreement

The point of having a separate subsidy agreement for fisheries was to define prohibited subsidies in a particular industry that would not be covered by the SCM Agreement in and of themselves despite the environmental harm they cause. As elaborated in Part II, the same rationale applies to fossil fuel subsidies, so states should articulate certain types of fossil fuel subsidies as prohibited. To reach an agreement, it will be important to narrowly define what types of fossil fuel subsidies would be classified as such.

The Fisheries Agreement defined three narrow types of prohibited fisheries subsidies: (1) subsidies contributing to illegal, unreported, and unregulated (IUU) fishing,⁴⁴ (2) subsidies for fish stocks that are overfished,⁴⁵ and (3) subsidies for fishing in the unregulated high seas.⁴⁶ A narrow area that is more conducive to being categorized as prohibited subsidies in the fossil fuel context would be subsidies aimed at the production of fossil fuels. Because production subsidies are targeted at a defined set of producers, they are more easily quantifiable and can thus be considered “specific to an enterprise or industry or group of enterprises or industries” within the meaning of the SCM Agreement.⁴⁷ Thus, prohibited subsidies can entail those that are given to the fossil fuel industry for the exploration, extraction, development, plant construction and operation, and transportation of fossil fuels.⁴⁸ Covering all links of the fossil fuel supply chain in the definition of prohibited subsidies would help further the “non-proliferation” pillar of the Fossil Fuel Non-Proliferation Treaty Initiative by ensuring that there is no additional government support for getting fossil fuels out of the ground.

However, categorizing production subsidies as prohibited is only a partial remedy to the proliferation and use of fossil fuels. Consumption subsidies continue to account for most of the fossil fuel subsidies worldwide.⁴⁹ The fact that they are not “specific” in the same way as production subsidies also make it more difficult to view them through the lens of existing subsidy disciplines. Moreover, consumption subsidies have particularly skyrocketed in 2022 in light of the energy insecurity caused by Russia’s invasion of Ukraine.⁵⁰ While this war is emblematic of why the world needs to move away from fossil fuel dependency, it demonstrates how consumption subsidies persist as a domestic policy tool.

Faced with this predicament, states have a few options to consider concerning addressing consumption subsidies in a fossil fuel subsidy agreement. They can:

into account the specific needs and conditions of developing countries and minimizing the possible adverse impacts on their development in a manner that protects the poor and the affected communities.”

⁴⁴ Fisheries Agreement, art. 3.

⁴⁵ Fisheries Agreement, art. 4.

⁴⁶ Fisheries Agreement, art. 5.

⁴⁷ SCM Agreement, art. 2.1.

⁴⁸ Heloísa Pereira, *How the WTO Can Help Tackle Climate Change through Fossil Fuel Subsidy Reform: Lessons from the Fisheries Negotiations*, ICTSD Issue Paper 13-14 (2017), <https://www.greengrowthknowledge.org/sites/default/files/downloads/resource/How%20the%20WTO%20Can%20Help%20Tackle%20Climate%20Change%20through%20Fossil%20Fuel%20Subsidy%20Reform.pdf>.

⁴⁹ *Background Note on Fossil Fuel Subsidy Reform*, INT’L. INST. SUSTAINABLE DEV. 4 (2022), <https://www.iisd.org/system/files/2022-08/background-note-fossil-fuel-subsidy-reform.pdf>.

⁵⁰ Fossil Fuels Consumption Subsidies 2022, INT’L. ENERGY AGENCY (2023), <https://www.iea.org/reports/fossil-fuels-consumption-subsidies-2022>.

Bifurcate consumption subsidies from discussions of a fossil fuel subsidy agreement and not classify them as prohibited or actionable subsidies (most conservative approach)	Set a timeline in the fossil fuel subsidy agreement for each state to phase out consumption subsidies, potentially giving developing countries and LDCs a more lenient timeline	Include a “special care and due restraint” provision for consumption subsidies akin to Articles 5.2 and 5.3 of the Fisheries Agreement, ⁵¹ so that states are obliged to reevaluate their consumption subsidies	List consumption subsidies as prohibited or actionable subsidies and exempt them from the application of the SCM Agreement’s “specificity” requirement (most liberal approach)
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Table 1: Spectrum of Policy Options for Fossil Fuel Consumption Subsidies

To move the needle on GHG emissions enough to control their harmful impacts on climate change, both the production and consumption of fossil fuels need to be curbed. However, discussions need to recognize the reality of the political hurdles that fossil fuel subsidy reform faces. Having such a menu of options can help move discussions along so that states can take tangible action on this front.

B. Aspects of the Fisheries Agreement That can be Incorporated into a Fossil Fuel Subsidy Agreement

After determining what a fossil fuel subsidy agreement will cover, states will not have to start drafting the agreement from scratch, as they can rely on certain provisions of the Fisheries Agreement to serve as their starting point. The Fisheries Agreement provisions that can be most easily transposed to a fossil fuel subsidy agreement are: (1) provisions setting up a special regime for developing and least developed countries (LDCs), (2) institutional arrangements that set up a committee to monitor implementation, and states’ notification and transparency requirements, and (3) dispute settlement.

1. Special Regime for Developing Countries and LDCs

One of the issues within the scope of the Fisheries Agreement that led to extensive debate during negotiations was how to account for the needs of developing countries and LDCs. According to research the University of British Columbia has conducted, 80-90% of all fisheries subsidies benefited large industrial fleets to the detriment of small-scale artisanal fishers, whose contribution to overfishing paled in comparison.⁵² Faced with this discrepancy, developing countries and LDCs sought to keep their fisheries subsidies primarily aimed at artisanal fishing.⁵³

Ultimately, the Fisheries Agreement put in place a special and differentiated treatment regime for developing countries and LDCs. Article 3.8 of the Agreement contains a two-

⁵¹ Fisheries Agreement, art. 5.2 and 5.3: “5.2 A Member shall take special care and exercise due restraint when granting subsidies to vessels not flying that Member’s flag. 5.3 A Member shall take special care and exercise due restraint when granting subsidies to fishing or fishing-related activities regarding stocks the status of which is unknown.”

⁵² *All Eyes on MC12: Ending Harmful Fisheries Subsidies is Critical for Fisheries, Fishers and Fish—and for the WTO*, FRIENDS OF OCEAN ACTION (June 10, 2022), <https://www.weforum.org/friends-of-ocean-action/all-eyes-on-mc12-ending-harmful-fisheries-subsidies-is-critical-for-fisheries-fishers-and-fish-and-for-the-wto>.

⁵³ Kadjatu Zainab Bangura & Abraham Zaqi Kromah, *The WTO’s Fisheries Subsidies Agreement: What’s New and What’s Next?*, 17 GLOB. TRADE AND CUSTOMS J. 431, 433 (2022).

year peace clause for WTO disputes regarding subsidies developing countries and LDCs granted to two categories of now-prohibited subsidies (i.e. IUU fishing and fishing overfished stocks).⁵⁴ Article 4.4 envisions a two-year grace period for developing countries and LDCs to phase out subsidies regarding overfished stocks.⁵⁵ Article 7 sets up a voluntary WTO funding mechanism in cooperation with other relevant international organizations for developing countries and LDCs to assist with the Agreement's implementation.⁵⁶

For LDCs in particular, Article 6 requires WTO members to exercise "due restraint" when raising matters involving an LDC member and to consider that member's specific situation when exploring solutions.⁵⁷ While the phrase "due restraint" comes up throughout the Fisheries Agreement, its meaning in this context can be interpreted similarly to Article 24 of the Dispute Settlement Understanding (DSU),⁵⁸ since one of the explanatory notes on the draft agreement makes it clear that the usage of this phrase was not contested because "similar language exists" under the DSU.⁵⁹ DSU's negotiation history reveals that the LDC negotiating group interpreted that to mean that no compensation should be sought from an LDC and that no retaliatory measures should be taken against an LDC.⁶⁰ Given this cross-referencing and the fact that this is the only explanation for this provision in the negotiation history, this interpretation of "due restraint" under Article 24 of the DSU would apply in the context of Article 6 of the Fisheries Agreement.

With regard to fossil fuel subsidies, states can use these provisions to negotiate a similar special regime for developing countries and LDCs. They can consider implementing similar timebound peace clauses and grace periods so that developing countries and LDCs will have a smoother and less disruptive transition away from fossil fuel subsidies. States can establish a similar voluntary WTO funding mechanism to

⁵⁴ Fisheries Agreement, art. 3.8: "For a period of 2 years from the date of entry into force of this Agreement, subsidies granted or maintained by developing country Members, including least-developed country (LDC) Members, up to and within the exclusive economic zone (EEZ) shall be exempt from actions based on Articles 3.1 and 10 of this Agreement."

⁵⁵ Fisheries Agreement, art. 4.4: "For a period of 2 years from the date of entry into force of this Agreement, subsidies granted or maintained by developing country Members, including LDC Members, up to and within the EEZ shall be exempt from actions based on Articles 4.1 and 10 of this Agreement."

⁵⁶ Fisheries Agreement, art. 7: "Targeted technical assistance and capacity building assistance to developing country Members, including LDC Members, shall be provided for the purpose of implementation of the disciplines under this Agreement. In support of this assistance, a voluntary WTO funding mechanism shall be established in cooperation with relevant international organizations such as the Food and Agriculture Organization of the United Nations (FAO) and International Fund for Agricultural Development. The contributions of WTO Members to the mechanism shall be exclusively on a voluntary basis and shall not utilize regular budget resources."

⁵⁷ Fisheries Agreement, art. 6: "A Member shall exercise due restraint in raising matters involving an LDC Member and solutions explored shall take into consideration the specific situation of the LDC Member involved, if any."

⁵⁸ Understanding on Rules and Procedures Governing the Settlement of Disputes art. 24, Apr. 15, 1994, Marrakesh Agreement Establishing the World Trade Organization, Annex 2, 1869 U.N.T.S. 401 [hereinafter DSU].

⁵⁹ *Fisheries Subsidies Draft Consolidated Chair Text: Chair's Explanatory Note Accompanying TN/RL/W/276*, TN/RL/W/276/Add.1, WORLD TRADE ORGANIZATION ¶¶112-14 (May 11, 2021), <https://docs.wto.org/dol2fe/Pages/SS/directdoc.aspx?filename=q:/TN/RL/W276A1.pdf&Open=True>.

⁶⁰ Negotiations on the Dispute Settlement Understanding: Proposal by the LDC Group, TN/DS/W/17, WORLD TRADE ORGANIZATION ¶18 (Oct. 9, 2002), <https://docs.wto.org/dol2fe/Pages/SS/directdoc.aspx?filename=Q:/TN/DS/W17.pdf&Open=True>.

provide the financial support developing countries and LDCs need to move away from fossil fuels more permanently. The “due restraint” provision can be included as a catch-all provision that would require states to reassess actions they plan to take against a developing country or an LDC. However, given the sparse explanation of “due restraint” in previous WTO agreements, it is advisable for states to flesh out what they would want “due restraint” to mean in the fossil fuel subsidy context.

2. Institutional Arrangements and Notification and Transparency Requirements

One of the innovations of the Fisheries Agreement is the creation of the Committee on Fisheries Subsidies (the Committee). The Committee has a broad mandate to carry out its responsibilities under the Fisheries Agreement and those that are assigned to it by WTO member states.⁶¹ It will examine the information that states will provide under the Fisheries Agreement and monitor states’ implementation of the Agreement. Article 9.4 of the Fisheries Agreement recognizes that the implementation of the Agreement is an iterative process and thus enables the Committee to periodically reevaluate the Agreement’s implementation, intending to identify any necessary modifications.⁶²

The Committee will be the recipient of the information that states will submit as part of the expanded notification and transparency requirements that go beyond those that the SCM Agreement requires. While parts of the notification and transparency requirements set out in Article 8 of the Fisheries Agreement are specific to the fisheries subsidy context (e.g. notifying the types of fisheries subsidies they continue to provide that do not fall within any of the prohibited types of subsidies, the status of the fish stocks, the conservation and management measures, etc.), there are also more general requirements, such as describing the measures taken to implement the Agreement⁶³ and the state’s current applicable legal regime⁶⁴ that can be used in a fossil fuel subsidy agreement as well, with the creation of a similar institutional structure. Given the fact the WTO is already a forum where fossil fuel subsidy reform has been discussed since 2021, WTO can provide

⁶¹ Fisheries Agreement, art. 9.1: “There is hereby established a Committee on Fisheries Subsidies composed of representatives from each of the Members. The Committee shall elect its own Chair and shall meet not less than twice a year and otherwise as envisaged by relevant provisions of this Agreement at the request of any Member. The Committee shall carry out responsibilities as assigned to it under this Agreement or by the Members and it shall afford Members the opportunity of consulting on any matter relating to the operation of this Agreement or the furtherance of its objectives. The WTO Secretariat shall act as the secretariat to the Committee.”

⁶² Fisheries Agreement, art. 9.4: “Not later than five years after the date of entry into force of this Agreement and every three years thereafter, the Committee shall review the operation of this Agreement with a view to identifying all necessary modifications to improve the operation of this Agreement, taking into account the objectives thereof. Where appropriate, the Committee may submit to the Council for Trade in Goods proposals to amend the text of this Agreement having regard, inter alia, to the experience gained in its implementation.”

⁶³ Fisheries Agreement, art. 8.3: “Each Member shall, within one year of the date of entry into force of this Agreement, inform the Committee of measures in existence or taken to ensure the implementation and administration of this Agreement, including the steps taken to implement prohibitions set out in Articles 3, 4 and 5. Each Member shall also promptly inform the Committee of any changes to such measures thereafter, and new measures taken to implement the prohibitions set out in Article 3.”

⁶⁴ Fisheries Agreement, art. 8.4: “Each Member shall, within one year of the date of entry into force of this Agreement, provide to the Committee a description of its fisheries regime with references to its laws, regulations and administrative procedures relevant to this Agreement, and promptly inform the Committee of any modifications thereafter. A Member may meet this obligation by providing to the Committee an up-to-date electronic link to the Member’s or other appropriate official web page that sets out this information.”

the foundations for hosting such a Committee for monitoring implementation and information sharing about fossil fuel subsidies.⁶⁵

3. Dispute Settlement

Article 10 of the Fisheries Agreement is the Agreement's dispute settlement provision, stating that Articles XXII and XXIII of the GATT 1994 as elaborated by the DSU shall apply generally to disputes under the Agreement, with Article 4 of the SCM Agreement applying to disputes arising under prohibited fisheries subsidies.⁶⁶

In addition to having a similar provision, states can consider including a provision regarding dispute settlement for actionable subsidies, if they decide to define specific actionable fossil fuel subsidies in the fossil fuel subsidy agreement.⁶⁷

CONCLUSION

The Fossil Fuel Non-Proliferation Treaty Initiative has been gaining momentum recently, as states have started to express interest in pursuing its adoption as a measure to combat climate change. However, without concretizing policy options that can be pursued under this Initiative's umbrella, the chances of this Initiative taking off remain limited. This Chapter has demonstrated how curbing fossil fuel subsidies and using subsidy disciplines can provide the legal backbone of this Initiative. Combining the framework of international trade rules with public international law objectives can facilitate the actual non-proliferation of a commodity that the Initiative seeks to get the world to move away from. Not only does the example of the Fisheries Agreement shows that states can reach a sector-specific agreement, but it can also provide the blueprint for reaching such an agreement for fossil fuel subsidies. With this starting point, states can hopefully feel more empowered and better equipped to deal with one of the major contributors to climate change.

⁶⁵ *Fossil Fuel Subsidy Reform*, WORLD TRADE ORGANIZATION (last visited May 12, 2023), https://www.wto.org/english/tratop_e/envir_e/fossil_fuel_e.htm.

⁶⁶ Fisheries Agreement, art. 10: "10.1 The provisions of Articles XXII and XXIII of the GATT 1994 as elaborated and applied by the Dispute Settlement Understanding (DSU) shall apply to consultations and the settlement of disputes under this Agreement, except as otherwise specifically provided herein. 10.2 Without prejudice to paragraph 1, the provisions of Article 4 of the SCM Agreement shall apply to consultations and the settlement of disputes under Articles 3, 4 and 5 of this Agreement."

⁶⁷ For more information on options regarding treating fossil fuel subsidies as actionable subsidies based on their adverse effects, see Chapter 15: "Combating Fossil Fuel Subsidies Through the WTO" by Luke Rowe.

CHAPTER 14: DEFINING AND DEVELOPING RULES FOR GREEN SUBSIDIES

DELIMA W. MAULIDYA*

I. INTRODUCTION

Climate change is one of the most pressing issues confronting the world today, and many experts agree that immediate action is required to address it.¹ Commitment under the Kyoto Protocol and Paris Agreement forces industrialized countries, developing, and least developed countries to limit and reduce greenhouse gas (GHG) emissions following their agreed individual targets and consistent with the provisions providing for common but differentiated responsibility and respective capabilities.² Scientists have found that promoting the development and use of renewable energy sources such as solar, wind, and hydropower is one of the most effective ways to combat climate change.³ The transition to renewable energy, however, can be costly, and many renewable energy projects need significant upfront investments that can be difficult to finance.⁴ This is where government intervention plays a critical role.

Subsidies are one example of the government's active role in encouraging industries to address climate change. This could be in the form of supporting environmentally friendly practices, products, or services domestically. Subsidies can take many forms, including tax expenditure, direct expenditure, research development, and loan guarantees.⁵ In the context of renewable energy, subsidies can help to offset the high costs of renewable energy development and make renewable energy more affordable and accessible for consumers and businesses.⁶

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¹ Doyle Rice and Dinah Voyles Pulver, USA Today, "Humanity is on thin ice: 'Major UN report says 'urgent' action is needed to combat climate change," 20th March 2023; IPCC: Climate Change 2023, Synthesis Report; Nathan Cooper and Amy White, "IPCC Report: Urgent Climate Action Needed to Halve Emissions by 2030," World Economic Forum, 6th April 2022.

² UN Framework on Climate Change, "What is the Kyoto Protocol?," accessed on https://unfccc.int/kyoto_protocol; "The Paris Agreement," accessed on <https://unfccc.int/process-and-meetings/the-paris-agreement>

³ Tricia White and Michael Fisher, "Countering Climate Change with Renewable Energy," Federation of American Scientists, 8 July 2021; IEA Press Release, "Hydropower has a crucial role in accelerating clean energy transitions to achieve countries' climate ambitions securely," 30 June 2021, accessed on <https://www.iea.org/news/hydropower-has-a-crucial-role-in-accelerating-clean-energy-transitions-to-achieve-countries-climate-ambitions-securely>.

⁴ Union of Concerned Scientists, "Barriers to Renewable Energy Technologies," 6 June 2014 updated 20 December 2017, accessed on <https://www.ucsusa.org/resources/barriers-renewable-energy-technologies>; International Energy Agency, "The Cost of Capital in Clean Energy Transitions," 17 December 2021; Mike O'Boyle, Investment-Grade Policy: De-risking Renewable Energy Projects," Forbes, 12 November 2018.

⁵ U.S. Energy Information Administration, "Direct Federal Financial Interventions and Subsidies in Energy in Fiscal Year 2016," U.S. Department of Energy, April 2018.

⁶ Emily Barone, "What Experts Say About How Valuable the Inflation Reduction Act's Green Subsidies Will Be," TIME, 12 August 2022.

Despite these benefits, there is an ongoing debate around the appropriate level and scope of subsidies, with some arguing that they can be protectionist and distort the market.⁷ While the United States and the European Union are implementing subsidy schemes to boost investments in renewable technologies, there are concerns that these schemes may leave developing and emerging economies behind.⁸ Besides, member countries of the World Trade Organization (WTO) are committed and bound to the principle of Most Favored Nation (MFN) and National Treatment (NT), not only under the 1947 General Agreement on Tariffs and Trade (GATT), but also under other WTO agreements, specifically for subsidy regulation, the Agreement on Subsidies and Countervailing Measures (ASCM). This Agreement seeks to address the spillovers that may distort trade in other countries.

Following the discussion above, WTO members should consider proposing a new definition of subsidies to reduce GHG emissions while preserving the basic principles of WTO and ASCM. There must be a common understanding and guidelines for defining “Green Subsidies” in terms of their design, effectiveness, and applicability. This paper aims to explore the definition of ‘green subsidy,’ which member states could accept by answering three main research questions:

1. Whether the definition and scope of ‘subsidy’ should be amended?

This will be answered in the section “The Urgency to Redefine the Scope of Subsidy Disciplines in International Trade.”

2. How should it be re-defined?

This will be answered in the section “Redefining Green Subsidies.”

3. What is the process for developing the rules for green subsidies?

This will be answered in the section “Developing the Rules for Green Subsidies.”

II. DISCUSSION

A. The Urgency to Redefine the Scope of Subsidy Disciplines in International Trade

Human awareness of the need for climate action has evolved since the 20th century,⁹ where in the 1930s, scientists began to warn about the potential impacts of human activities on the climate, including releasing carbon dioxide from industrial activities.¹⁰ Since then, awareness of the need for climate action has grown, and international agreements have been adopted to address climate change. In 1997, the Kyoto Protocol was adopted and entered into force in 2005, being the first legally binding climate treaty. It required developed countries to reduce emissions by an average of 5 % below 1990 levels and established a system to monitor countries’ progress.¹¹ In June 2012, the UN Conference on Sustainable Development, known as the Rio+20 Conference, prepared a report titled “the future we want” addressing environmental and trade issues. It urges

⁷ Hugo Dixon, “Green Subsidy Race may be what the World Needs,” Reuters, 6 February 2023.

⁸ Timothy Conley and Kimberley Botwright, “What do Green Subsidies Mean for the Future of Climate and Trade?” World Economy Forum, 13 March 2023.

⁹ The Guardian, “When did we discover man-made climate change?,” accessed on <https://www.theguardian.com/environment/2011/mar/02/when-discover-climate-change>

¹⁰ BBC, “A brief history of Climate Change,” accessed on <https://www.bbc.com/news/science-environment-15874560>

¹¹ Lindsay Maizland, “Global Climate Agreement: Success and Failures,” Council on Foreign Relation, 4 November 2022

governments to create enabling environments that facilitate public and private sector investment in the relevant and needed cleaner energy technologies.¹² In 2015, Paris Agreement was adopted by governments to fight climate change by limiting global warming to well below 2° Celsius above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5° Celsius.¹³ Since the Paris Agreement was signed, many countries have strengthened their climate commitments during the annual UN climate conferences known as COPs (Conference of the Parties), a forum which was established under the UN Framework Convention on Climate Change (UNFCCC) in 1992.¹⁴ The Glasgow Climate Pact, adopted at COP26 in 2021, calls on 197 countries to report their progress towards more climate ambition next year and firms up the global agreement to accelerate action on climate this decade.¹⁵

As of now, being faced with the increasing challenge of climate change and being pressured by international commitments above, governments around the world have come up with some initiatives to tackle climate change by utilizing renewable energies. The United States, for instance, has created a subsidy policy, among others, to help households transition to clean energy, such as solar panels, heat pumps, and electric vehicles.¹⁶ Similarly, the European Union has created the European Green Deal to achieve climate neutrality by 2050 by encouraging the use of renewable technologies.¹⁷ China has also promoted the development of renewable energy technologies, such as wind and solar power generation.¹⁸ However, realizing these initiatives requires significant financial resources for businesses to implement the technologies, necessitating government assistance in the form of subsidies, loan aid, and research and development support.¹⁹

In this context, there is concern that these initiatives could potentially widen the gap between developed and developing countries by favoring developed countries' domestic industries and consumers. Developing and least-developed countries (LDCs) are already struggling to cope with the vulnerable effects of climate change and require significant financing to reduce emissions and adapt to its physical effects.²⁰ Moreover, the COVID-19 pandemic has caused rising interest rates and growing debt burdens for these countries, forcing them to tighten their budgets and potentially hindering their ability to support renewable energy trends.²¹ Therefore, governments need to ensure that their renewable energy policies and initiatives are inclusive and do not leave behind those already vulnerable.

While a considerable policy space exists to address environmental issues, some useful subsidies are potentially WTO-illegal because, most notably, WTO rules prohibit export subsidies and other distortive trade measures favoring domestic producers over foreign

¹² UN Resolution 66/288, Annex: "The future we want," para. 127

¹³ "The Paris Agreement," accessed on <https://www.un.org/en/climatechange/paris-agreement>

¹⁴ *Ibid.*, no.9

¹⁵ United Nations, accessed on <https://news.un.org/en/story/2021/11/1105792>

¹⁶ *Ibid.*, no. 6 and 8.

¹⁷ *Ibid.*, no. 7.

¹⁸ People's Bank of China's policy; Yi Wu, China's Green Finance Market: Policies, Incentives, Investment Opportunities," China Briefing, 2 June 2022

¹⁹ *Ibid.*, no.4.

²⁰ Bo Li et.al., "How Blended Finance can Support Climate Transition in Emerging and Developing Economies," IMF Blog, 15 November 2022, accessed on <https://www.imf.org/en/Blogs/Articles/2022/11/15/how-blended-finance-can-support-climate-transition-in-emerging-and-developing-economies>

²¹ *Ibid.*, no.8.

competitors. Such measures could potentially distort the international market by generating unfair competitive advantages and creating some fear that developing and emerging economies countries will be left behind.²² WTO law seems to be the area of international public law that imposes more constraints on ‘green subsidies’.²³ Some analysts have concluded that the current subsidy disciplines under WTO are not favorable to governmental autonomy to adopt and design subsidies supporting renewable energy, and that panels and Appellate Body have interpreted the rules in a quite restrictive way.²⁴ However, given the importance of handling the environment and preserving international trade, the WTO must find a way to accommodate and manage them to increase coherence between climate change policies and WTO law.

B. Redefining “green subsidies”

1. Mapping out subsidies under WTO

The WTO regulates subsidies under the ASCM. In general, for a subsidy to exist, there must be a (i) *financial contribution by a government or public body* that must (ii) *benefit the recipient*.²⁵ The subsidy is subject to the provisions of *prohibited subsidies with actionable subsidies*, or countervailing measures only if such a subsidy is (iii) *specific*.²⁶

Financial contribution

The Agreement provides conditions a *government financial contribution* exists, where:

- i) there is a direct transfer of funds (e.g., grants, loans, and equity infusion) and potential transfers of funds (e.g., loan guarantees),
- ii) government revenue that is otherwise due is foregone or not collected (e.g., fiscal incentives such as tax credits)
- iii) a government provides goods or services other than general infrastructure or purchases goods,
- iv) a government makes payments to a funding mechanism or entrusts or directs a private body to carry out one or more of the functions in (i) to (iii) above, which would generally be vested in the government.

Government measures beyond those specifically listed, such as debt forgiveness, can also be considered to as a ‘financial contribution.’²⁷ The ASCM also defines a ‘financial contribution’ as “any form of income or price support in the sense of Article XVI of GATT 1994”²⁸, where the referred article addresses a subsidy “which operates directly or indirectly to increase exports...or to reduce imports of any product...” This provision

²² Ibid., no.8.

²³ Charnovitz, Steve, “Green Subsidies and the WTO,” Washington, DC: World Bank Group, 2014.

²⁴ Rubini, Luca. 2012. "Ain't Wastin' Time No More: Subsidies for Renewable Energy, the SCM Agreement, Policy Space, and Law Reform," 15 *Journal of International Economic Law* at 525; Bacchus, James. 2012. "The Case for Clean Subsidies." HBR Blog Network, 13 Nov. 2012; Farah, Paolo D. & Elena Cima. 2013. "Energy Trade and the WTO: Implications for Renewable Energy and the OPEC Cartel," 16(3), *Journal of International Economic Law* at 707.

²⁵ WTO Agreement on Subsidy and Countervailing Measure (ASCM), Article 1

²⁶ SCM, Article 1, 2

²⁷ For example, in *Japan – Countervailing Duties on Dynamic Random Access Memories from Korea* (WT/DS336/AB) the Appellate Body held that debt forgiveness can also be a direct transfer of funds, para 252.

²⁸ ASCM Article 1.1(a)(2)

defines that a measure that might not be a subsidy may be considered a subsidy because *it operates to raise incomes or prices in a way that affects imports.*

Government or public bodies

The definition of *government* refers not only to measures of national governments but also to measures of sub-national governments and public bodies,²⁹ while *public body* itself refers to any entity that is not a government but is controlled by a government and carries out governmental functions.³⁰

Benefit

In determining whether a financial contribution confers a benefit, the key criterion is whether the recipient is better off than they would have been otherwise and whether the benefits conferred are more favorable than those available to the recipient in the relevant market. Article 14 of the ASCM also provides that:

- (a) “equity capital shall not be considered as conferring a benefit unless the investment decision can be regarded as *inconsistent with the usual investment practice* (including for the provision of risk capital) of private investors in the territory of that Member;
- (b) a loan by a government shall not be considered as conferring a benefit unless *there is a difference* between the amount that the firm receiving the loan pays on the government loan and the amount the firm would pay on a comparable commercial loan *which the firm could actually obtain on the market;*
- (c) a loan guarantee by a government shall not be considered as conferring a benefit unless *there is a difference* between the amount that the firm receiving the guarantee pays on loan guaranteed by the government and the amount that the firm would pay on a comparable commercial loan *absent the government guarantee;*
- (d) the provision of goods or services or purchase of goods by a government shall not be considered as conferring a benefit *unless the provision is made for less than adequate remuneration* or the purchase is made for more than adequate remuneration. The adequacy of remuneration shall be determined in relation to prevailing market conditions for the good or service in question in the country of provision or purchase.”

In Article 14(d), the out-of-country market can be used as a substitute benchmark if the government of the defendant’s predominant role in providing goods and services distorts the market.

Specificity

Another important provision is in Article 2, related to the *specificity* of a subsidy directed to an enterprise or industry or a group of enterprises or industries within the jurisdiction of the granting authority. For the requirement of specificity, the ASCM draws a line between those subsidies that are specific and those that are not. Specific subsidies are those where the granting authority limits access to a subsidy to certain enterprises.³¹ Non-specific subsidies, on the other hand, are those where the granting authority

²⁹ WTO website, https://www.wto.org/english/tratop_e/scm_e/subs_e.htm

³⁰ Repertory of Appellate Body Reports, SCM Agreement, https://www.wto.org/english/tratop_e/dispu_e/repertory_e/s2_e.htm#S.2.3A

³¹ ASCM Agreement Article 2.1(a)

establishes objective criteria or conditions governing the eligibility for and the subsidy amount, provided that the eligibility is automatic and that such criteria and conditions are strictly adhered to.³² In between criteria, subsidies that are notionally not specific but that can be ruled *de facto* specific depending on an analysis of other factors, such as the use of a subsidy by a limited number of enterprises and the manner in which the granting authority has exercised discretion in the decision to grant a subsidy.³³

Prohibited and actionable subsidy

ASCM Articles 3 through 7 (Part II and III) categorizes subsidies as falling into two boxes: “prohibited” or “actionable” subsidies. The *prohibited subsidy* includes (a) subsidies contingent in law or fact, upon export performance, or subsidies of the types prescribed in ASCM Annex I (Illustrative List of Export Subsidies), and (b) subsidies contingent upon the use of domestic over imported goods. This category is illegal *per se* without any proof of an adverse effect on other countries. As a remedy, if a member finds that there is a prohibited subsidy being granted or maintained by another member, they can request a consultation with the suspected subsidizing member, and if within 30 days there are no mutually agreed solutions, the impaired country may refer the matter to Dispute Settlement Body (DSB).³⁴ If the measure in question is found to be a prohibited subsidy, the panel shall recommend the subsidizing member to withdraw the subsidy without delay, and if the recommendation is not followed within specified period of time, the DSB shall grant authorization to the complaining member to take appropriate countermeasures.³⁵

ASCM Part III or “*actionable subsidy*,” covers subsidies that violate the Agreement when those subsidies cause “*adverse effects* to the interests of other Members.”³⁶ Because the ASCM uses the term *prohibited* only with respect to the subsidies covered in Part II, the Appellate Body has explained that “*actionable subsidies* are not prohibited *per se*; rather, they are actionable to the extent they cause adverse effects.”³⁷ So, for all practical purposes, an *actionable* subsidy can be just as illegal under ASCM rules as a *prohibited* subsidy. Note, however, that actionable subsidies causing adverse effects will not be illegal for developing countries that use domestic subsidies to cover social costs for a limited period of time when directly linked to a privatization program.³⁸ In order to have a complete understanding on the provisions of actionable subsidy, it is necessary to explain the *adverse effects* to distinguish a subsidy that violates part III of the ASCM.

Adverse effects

The definition of *adverse effects* within actionable subsidies can be found in ASCM Article 5, which encompasses injury to another member’s domestic industry and serious prejudice. Adverse effects can also occur when there is nullification or impairment of benefits from impaired market expectations. Serious prejudice as the third element in adverse effect refers to the subsidy’s displacement, impeding, or price-cutting effects on a

³² ASCM, Article 2.1(b), the footnote also explain that objective criteria or conditions as used here mean criteria or conditions which are neutral, do not favor certain enterprises over others, and which are economic in nature and horizontal in application, such as number of employees or size of enterprise.

³³ ASCM, Article 2.1(c)

³⁴ ASCM, Article 4

³⁵ ASCM, Article 4.10

³⁶ ASCM, Article 5

³⁷ WTO website explains, “Actionable subsidies are not prohibited.” http://www.wto.org/english/tratop_e/scm_e/subs_e.htm.

³⁸ ASCM, Article 27.13.

WTO Member's export interests. The rule regarding adverse effects itself is outlined in ASCM Article 6. Nonetheless, not every specific subsidy leads to adverse effects. The fundamental principle of the subsidy disciplines stated in the ASCM is that Members can offer specific subsidies as long as they do not cause adverse effects under Articles 5 and 6.³⁹

Similar to a disputes over prohibited subsidies, for an actionable subsidies, whenever a member has reason to believe that any subsidies have been granted which results in injury to its domestic industry, nullification or impairment, or serious prejudice, such member may request consultations by providing evidence with regard to the existence and nature of the subsidy, and the injury caused to the domestic industry.⁴⁰ If such consultations do not result in a mutually agreed solution within sixty days, they may refer the matter to DSB.⁴¹ If it is determined that any subsidy has resulted in adverse effects to the other member, the subsidizing member shall take appropriate measure to remove the adverse effect or shall withdraw the subsidy, and in the event the member has not taken any appropriate steps within six months after the report being adopted by the panel, the DSB shall grant authorization to the complaining member to take countermeasures, in accordance with the degree and nature of the adverse effects determined to exist. This measure *countervailing duties* (CVD).⁴²

The provisions comprehensively explained above show that the subsidy has been highly regulated, making it more difficult for countries to provide substantial subsidies to address climate change without potentially running afoul of WTO rules. This is due to the perception of climate change measures, including subsidies, as potentially impeding trade and promoting protectionist goals. Can trade rules be designed or changed to facilitate direct and indirect climate change action without damaging trade? What is the possible definition of a 'green subsidy' that would be accepted by member countries as not violating international trade rules or as not actionable under those rules? The next chapter will explore a possible definition of "green subsidy" and its approaches to addressing climate change.

2. Definition from current practice perspectives

The term 'subsidy' is widely used in economics, national and international law. In practice, how a country chooses to define a subsidy is more of a political decision reflecting domestic, economic, legal frameworks, and traditions.⁴³ At the international level, several organizations have developed definitions of subsidy that largely reflect essential elements as accepted in economic theory.

For example, the Organization of Economic Cooperation and Development (OECD) defines subsidy using the broader concept of "support" rather than "subsidy," given the wide array of government measures that qualify as subsidies. This is not specifically to define green subsidy, but the OECD defines a general subsidy as support that includes both direct budgetary expenditure and tax expenditure that in some way provide a benefit

³⁹ WTO Panel Report, *United States – Upland Cotton*, para 7.1179 ("Logically, there must be some specific subsidies that do not cause such adverse effect")

⁴⁰ ASCM, Article 7.2

⁴¹ ASCM, Article 7.4

⁴² ASCM, Article 7.8-7.9

⁴³ OECD, "Analyzing Energy Subsidies in the Countries of Eastern Europe, Caucasus and Central Asia," 2013, p.13.

or advantage to promote specific activities or industries⁴⁴, to encourage economic growth, stimulate investment, and enhance competitiveness in targeted sectors.

According to Global Subsidies Initiative, largely based on the WTO ASCM definition, a ‘subsidy’ should cover preferential treatment in all forms – financial and otherwise – provided to consumers and producers (to selected companies, one sector product, or to sectors or products in one country). GSI considers benefits to be a subsidy if they confer a considerable advantage to groups or market participants, even if some other groups may receive equal treatment.⁴⁵

Specifically, to ‘green subsidy’ itself, there are no current universally accepted definition of a ‘green subsidy’. Yet, various countries have implemented policies and measures by using their own definitions, interpretations, and practices of ‘subsidy’ as a means for a ‘green policy’ to combat the impact of climate change in their territory. Several examples of such definitions of a green subsidy are as follows:

Definition from literatures

According to Punit Sharma, green subsidy means “a payment or tax concession that provides financial assistance for *pollution reductions* or plans to abate in the future using *environment-friendly production techniques*.”⁴⁶ According to Steve Charnovitz⁴⁷, ‘green subsidy’ is the allocation of public resources for the purpose of *improving sustainability* over what would otherwise occur via the market.⁴⁸ The aim is to *develop clean energy industries, phase out of fossil fuels, arrest climate change, and promote sustainable production and consumption*.⁴⁹ Governments use this subsidy to encourage green products to afford a green transition.⁵⁰ According to Liming Zhao, green products themselves must meet the following three criteria for environmental quality⁵¹:

- (1) the product will not harm the environment during use and saves more energy than a traditional product;
- (2) the product will not damage the environment after it is discarded;
- (3) the production process and supply chain management meet the requirements of environmental protection.

The term *green products* can be applied to describe products that improve the environment and social quality.⁵²

⁴⁴ Ibid., p.16.

⁴⁵ Ibid., p.17

⁴⁶ Punit Sharma et al., “Green Currency Based on Blockchain Technology for Sustainable Development,” Advancement in Quantum Blockchain with Real-time Application, 2022.

⁴⁷ Steve Charnovitz is a scholar of public international law, living in the United States. He teaches at the George Washington University Law School in Washington, D.C., and is best known for his writings on the linkages between trade and environment and trade and labor rights (source: Wikipedia)

⁴⁸ Robert Schuman Centre for Advanced Studies Research Paper No. RSCAS 2014/93

⁴⁹ Douglas Nelson and Laura Puccio, “The need for rethinking WTO and green subsidies in light of United States – Renewable Energy,” Robert Schuman Centre for Advanced Studies Working Papers, 2021

⁵⁰ George Atalla and Meghan Mills, “The six government priorities can help accelerate the evolution to a green, net-zero future,” EY, 13 May 2022.

⁵¹ Zhao, Liming, and Yanqing Chen. 2019. "Optimal Subsidies for Green Products: A Maximal Policy Benefit Perspective" *Symmetry* 11, no. 1: 63.

⁵² Seuring, S., and Müller, M. 2008, From a literature review to a conceptual framework for sustainable supply chain management. *J. Clean. Prod.* 16, 1699–1710.

Definition from international and governmental institutions

Some international institutions and government policies have different terms to define 'green subsidy'. The terms 'green subsidy', 'energy subsidy', 'environmental subsidies', and 'green finance' are used interchangeably, with the same goal of supporting environmentally friendly products to reduce emissions and protect the environment.

In terms of 'energy subsidy', International Energy Agency (IEA) defines it as "any government action that *primarily concerns the energy sector that lowers the cost of energy production, raises the price received by energy producers or lowers the price paid by energy consumers.*"⁵³ In other words, the IEA approach means that a subsidy exists whenever the *price of energy* on the domestic market is *below the price on the global market*, with adjustments for the costs of *bringing these energy commodities to the world market*.

According to U.S. Environmental Protection Agency (EPA), subsidies for pollution control are forms of financial government support *for activities believed to be environmentally friendly*. Rather than charging a polluter for emissions, a subsidy rewards a polluter for reducing emissions.⁵⁴

Definition from major economic countries

In Europe, the term *environmental subsidies* has its roots in the European System for the Collection of Economic Data on the Environment, whose purpose is to set out conceptual framework for a monetary description of environmental activities based on the recommendations of the System of National Accounts.⁵⁵ According to UN System of Environmental-Economic Accounting (SEEA) central framework, *environmental subsidy* or similar transfer is a *current or capital transfer* that is intended to *support activities which protect the environment* or reduce the use and extraction of natural resources.⁵⁶

In United Kingdom (UK)⁵⁷, green subsidies have been put in place to reduce UK's national carbon footprint. They are designed to *encourage energy companies* to move from *carbon-based energy sources to renewable sources*. Kinds of subsidies provided such as: green bonds⁵⁸, feed in tariffs⁵⁹, and energy company bonds.⁶⁰

In China, green finance is defined as *financial services provided* for economic activities that *support environmental improvement, climate change mitigation, and more efficient resource utilization*.⁶¹

⁵³ IEA, Taxing and Subsidizing Energy, IEA, Paris, 2006, http://www.iea.org/papers/2006/oil_subsidies.pdf

⁵⁴ EPA website, <https://www.epa.gov/environmental-economics/economic-incentives#:~:text=Subsidies%20are%20forms%20of%20financial,tax%20treatment%2C%20and%20procurement%20mandates>

⁵⁵ Eurostat Manuals and Guidelines, "Environmental Subsidies and Similar Transfer," 2015, p.7

⁵⁶ Ibid., p.11.

⁵⁷ Katherine Allison, "What are the Government grants for renewable energy?," <https://www.fmb.org.uk/homepicks/energy-saving-advice/what-are-the-government-grants-for-renewable-energy/>, Simply Switch website, <https://www.simplyswitch.com/energy/guides/green-subsidies/>

⁵⁸ A green bond is a fixed-income instrument designed to support specific climate-related or environmental projects. The phrase "green bond" is sometimes used interchangeably with "climate bonds" or "sustainable bonds." (<https://www.investopedia.com/terms/g/green-bond.asp>)

⁵⁹ A feed-in tariff is a policy tool designed to promote investment in renewable energy sources. This usually means promising small-scale producers of the energy—such as solar or wind energy—an above-market price for what they deliver to the grid (<https://www.investopedia.com/terms/f/feed-in-tariff.asp>)

⁶⁰ A bond bought from energy company.

⁶¹ Ibid., no. 11.

The definitions above show a general understanding among governments and scholars regarding green subsidies. There is little variation in the approaches taken and the definitions provided, leading to the conclusion that countries have largely shared the same perspective on green subsidies. They are focused on a policy tool that encourages adopting renewable energy technologies and promotes a transition to a more sustainable economy through allocating public resources to improve sustainability beyond what would naturally occur through market mechanisms. Green subsidies are designed to promote positive environmental externalities and provide public goods, such as clean air and water, which benefit society. The details of green subsidies vary depending on the country and the specific subsidy program.

The definition of green subsidies among governments and scholars shows a **general understanding** and have largely shared the same perspective. The details are varied, depending on the country and specific subsidy program.

Summarizing from various general definition above, we can draw a conclusion that ‘green subsidy’ refers to: funding or capital transfers provided by governments to support activities that protect the environment, reduce the use and extraction of natural resources, promote environmental improvement, mitigate climate change, and encourage greater resource efficiency. These subsidies aim to incentivize and facilitate the transition from carbon-based to renewable energy sources, reduce carbon footprints, and support sustainable economic activities of energy sources production to protect the environment for climate change mitigation.

“Green Subsidy” refers to funding or capital transfers provided by governments to support activities that protect the environment, aim to incentivize, and facilitate the transition from carbon-based to renewable energy sources, reduce carbon footprints, and support sustainable economic activities to protect the environment for climate change mitigation.

Although the EU, the UK, and China do not represent all major global economies, their approaches to green subsidy policies are representative of how developed and major economic countries approach such initiatives.

C. Developing the Rules for Green Subsidies

1. Balancing the Green Subsidies and Free Trade Principle

Altering trade rules to make them more compatible with environmental objectives should not question any fundamental principles in the trading system. After all, “sustainable development and protection and preservation of the environment” are fundamental goals of the WTO.⁶² The importance of trade’s contribution to efforts on sustainable development and the environment has been recognized in the 1992 Rio Summit, the 2002 Johannesburg Summit, the 2005 UN World Summit, and the UN 2030 Agenda for Sustainable Development.⁶³ The WTO Doha Ministerial Declaration also

⁶² Enshrined in Marrakesh Agreement, https://www.wto.org/english/tratop_e/envir_e/envir_e.htm

⁶³ WTO, “An introduction to trade and environment in the WTO,” https://www.wto.org/english/tratop_e/envir_e/envt_intro_e.htm

declared that upholding a non-discriminatory multilateral trading system and the action for the protection of the environment *can and must be* mutually supportive.⁶⁴

While the concept of green subsidies has reached a general understanding, one way to bring the concept to life would be to revive or reform the now-defunct Article 8 of SCM regarding non-actionable subsidies. During the Uruguay Round of negotiations leading to the creation of the WTO and the ASCM, member states experimented with creating a category of non-actionable subsidies in Article 8 of the ASCM.

The goal was to identify measures targeting widely agreed goals of national governments (e.g., regional aid, support for research and development, and environmental policy), however, this policy has been considered problematic as there were no notifications of green-light subsidy made to the committee.⁶⁵ The provisions in Article 8 were allowed to lapse in 1999 due to the lack of consensus to extend them, leaving only prohibited and actionable subsidies.⁶⁶ The discussion on whether to revive this provision has went until after 1999 at Seattle Ministerial Conference. During Doha Round, except for fisheries subsidies, Venezuela, Cuba, and the EU, each submitted proposals on non-actionable subsidies, emphasizing that Article 8 could not be reactivated without modification to ensure that developing country structural adjustment subsidies would not be subject to countervailing measures or challenged in a dispute.⁶⁷

Developed countries were skeptical of the proposal, and other developing countries argued that the provision would have to be reformulated and more balanced regarding developing countries' interests. The different opinions on which subsidies could be considered non-actionable, including environmental subsidies, means it would be difficult to reach an agreement, with long negotiations seemingly inevitable. Yet, subsidies that have an environmental effect still need to be addressed.

2. Possible measures for “legal green subsidies”

Due to the importance of creating new rules to support fighting climate change and being aware that there has been a common general understanding between states and international institutions regarding ‘green subsidies’, it is important to propose some provisions related to the exceptional measure of ‘green subsidies’ under WTO. Several measures that WTO could take to accommodate this proposal include:

Proposed measure for “legal green subsidies”:

- 1) Initiate a discussion and agreement about a concrete definition of ‘green subsidy’;
- 2) Make specific requirements under new ‘brown box’;
- 3) Create a peace clause.

⁶⁴ WTO Ministerial Declaration, 14 Nov 2001, para 6.

⁶⁵ Report of the U.S. Department of Commerce, “Report to the Congress, Review and Operation of the WTO Subsidies Agreement,” 1999, accessed on <https://enforcement.trade.gov/esel/reports/scm0699/scm0699.htm>

⁶⁶ Howse R. Making the WTO (Not So) Great Again: The Case Against Responding to the Trump Trade Agenda Through Reform of WTO Rules on Subsidies and State Enterprises. *Journal of International Economic Law*. 2020 Aug;23(2):371–89. “However this provision for deemed non-actionability applied provisionally, for only the first 5 years that the SCM Agreement was in force.”; Casier, L., Fraser, R., Halle, M., & Wolfe, R., “Shining a light on fossil fuel subsidies at the WTO: How NGOs can contribute to WTO notification and surveillance,” *World Trade Review*, 2014, p.614.

⁶⁷ Casier, L., Fraser, R., Halle, M., & Wolfe, R., “Shining a light on fossil fuel subsidies at the WTO: How NGOs can contribute to WTO notification and surveillance,” *World Trade Review*, 2014, p.616.

- a) *Initiate a discussion and agreement with WTO member states to make a concrete definition of 'green subsidy'*

Due to the existing common understanding of green subsidies, it would be beneficial to solidify this understanding into a concrete definition that is acceptable to all WTO members. This would ensure an equivalent understanding among developed, developing, and least developed countries (LDCs). The common understanding can be established through forums such as OECD, the G7, and G20, and then brought to the WTO to be endorsed as an agreed-upon understanding in international trade. Within the WTO agreements, green subsidies could potentially be included under a new category of 'brown box' (associated with the 'earth' color)⁶⁸ to avoid confusion with the green-light box.

- b) *Specific provisions under the 'brown box'*

Certain conditions must be met when approving these green subsidies to ensure they do not deviate from the subsidy policies established by the ASCM. Some policy proposals for the 'brown box' category include: (i) Green subsidies should be specifically targeted to address climate change.⁶⁹ In this regard, member states should first submit a proposal (instead of a notification) to the WTO Secretariat regarding the policy they intend to implement to support 'green' projects in their country, such as emissions reduction or climate change prevention. The proposal should present the policy measures related to green subsidies,⁷⁰ the government's short-term objectives describing the current urgency of the situation, the anticipated impact on achieving those objectives, and the short-term goal. To prevent trade disguise, (ii) short-term progress reports on the targets set by the proposing member countries should be made available to the WTO Secretariat, SCM Committee, and other member countries, along with evidence of the climate change outcomes achieved by member countries. For example, a member country set a target of reducing GHG emissions by 10% within a five-year period, should provide a prove whether the goal has been achieved or close to being achieved in that proposed time. This ensures that the subsidies are controlled and do not distort the market.

Specific provisions under "brown box":

- 1) Submit a proposal specifically targeted to address climate change;
- 2) short-term progress reports;
- 3) proposed further goals or, if failed, withdraw current subsidies;
- 4) special and differential treatment for developing countries and LDCs.

Next step, once the initial goals achieved, (iii) member states can submit another proposal for green subsidies within a three-year period, restarting the process outlined in number (i) above with further goals. On the other hand, if the first green subsidies proposal cannot be achieved, irrespective of whether other member states make a consultation or challenge, upon review from the WTO secretariat, the member country must reconsider its policy and withdraw the subsidies currently in place to prevent complaints at the Dispute Settlement Body (DSB) and countervailing duty (CVD)

⁶⁸ Associated with climate change meaning for 'earth.'

⁶⁹ deviating a bit from ASCM's conditions, an exception to this blue box needs to be established because it involves the specific issue of climate change, as a narrow alternative to Article XX and XXI GATT

⁷⁰ Proposals submitted by member countries should also adhere to the WTO's main principles, such as the Most-Favored Nation (MFN) and National Treatment principles

investigations. (iv) Regarding special and differential treatment for developing countries and LDCs, specific policies should be implemented, such as providing technical assistance and facilitating technology and knowledge transfer. Additionally, there should be relaxed limitations (i.e. easing intellectual property rights in technology transfer, similar to the case of COVID-19 vaccines) to assist these countries in addressing climate change. Countries that have advanced in renewable technology should consider the potential trade-offs between promoting green subsidies and protecting free trade. They should design policies that achieve both goals in a sustainable and equitable manner.

c) Create a 'peace clause'

To ensure the smooth implementation of these proposals, a specific “peace clause” for green subsidies could be established, stating that the policy adopted by a country will not be challenged at the DSB during the proposed timeframe. If other member countries believe that the proposed green subsidies would affect their trade performance either before the policy is approved or during its implementation, they can engage in consultations to reach a mutual agreement before taking the issue to the DSB.

Although learning from the long-run discussion of fisheries subsidies recently just being adopted after more than 20 years,⁷¹ it would be worth the effort to create either a new agreement or amend the ASCM regarding green subsidies to support the action of fighting climate change. This proposal could also be an avenue to achieve member countries' commitment under Paris Agreement and Kyoto Protocol and simultaneously create harmonization between environmental considerations and international trade regulations.

III. CONCLUSION

There is an urgent need to address climate change and promote renewable energy development. Governments play a critical role in supporting this transition through subsidies and other financial assistance. However, there is a debate surrounding the appropriate level and scope of subsidies, as they can be seen as protectionist and distortive to the market. The World Trade Organization (WTO) rules, particularly the Agreement on Subsidies and Countervailing Measures (ASCM), impose constraints on subsidies to ensure fair trade practices.

As countries implement renewable energy initiatives, it is crucial to consider the new definition of subsidies and its supporting policies to accommodate the crisis issues related to climate change mitigation under the international trade regime. The definition and scope of subsidies, especially “green subsidies,” need to be reevaluated to align with climate change goals while preserving the fundamental principles of the WTO. This paper explores a new definition of subsidies by explaining the scope of ASCM and identifying definitions from international institutions and governments.

Due to the importance of creating new rules, there is a need to solidify the definition that is acceptable among all WTO member countries. To support the definition, there must be several proposed provisions under the new ‘brown box’ category in the WTO Agreement. There is also a need to create a ‘peace clause’ to ensure no member state will challenge the proposal at the WTO.

⁷¹ Ernesto Fernández Monge, “Fisheries Subsidies Agreement: What’s the Big Deal?,” Pew, May 10 2023, accessed on <https://www.pewtrusts.org/-/media/assets/2023/05/fisheries-subsidies-agreement.pdf>

Redefining subsidies is an important issue, as it can help balance environmental concerns and international trade regulations, enabling coherence between climate change policies and WTO law. Besides, it would also be an avenue for member states to help expedite its commitment under Paris Agreement and Kyoto Protocol.

CHAPTER 15: COMBATING FOSSIL FUEL SUBSIDIES THROUGH THE WTO

LUKE ROWE

Fossil fuel subsidies incentivize the use of fuels which are the primary drivers of the changing climate that threatens the future of all people, and especially those in developing countries. Despite extensive efforts to prompt removal of government subsidies to the fossil fuel industry, and despite record industry profits, they remain pervasive.

This paper explores fossil fuel subsidies within the framework of the World Trade Organization's (WTO) Agreement on Subsidies and Countervailing Duties. It examines whether fossil fuel subsidies are caught by these WTO disciplines, and whether it would be possible to bring a dispute to the WTO arguing that they constitute a violation of these rules. The paper concludes that it is possible to bring an action against fossil fuel subsidies by arguing that they cause adverse effects by inflicting serious prejudice on many members of the WTO, and nullify the ability of others to effectively participate in the trading system. There are arguments for narrow, medium and broad claims based on the categorization of products, and scope to argue that the adverse flow on effects of the subsidies on the natural and human environment should be considered in addressing remedies.

An adverse effects case is difficult to make out, but possible. It represents one avenue among the many already tried, and to be tried, in addressing fossil fuel subsidies and hastening the transition to renewable energies.

INTRODUCTION – THE IMPACT OF FOSSIL FUELS AND SUBSIDIES

On March 20, 2023, the Intergovernmental Panel on Climate Change (IPCC) released a summary of the IPCC Sixth Assessment Report,¹ warning that the planet will cross a critical climate threshold within a decade unless there is an immediate and decisive shift away from fossil fuels.² Crossing that threshold, the report warns, would lead to a dangerously overheating world and catastrophic flow on effects. The language is stark (emphasis in original): “There is a rapidly closing window of opportunity to secure a liveable and sustainable future for all (*very high confidence*).”³ In terms of the causes of this crisis, fossil fuels are “by far the largest contributor to global climate change, accounting for over 75 percent of global greenhouse gas emissions and nearly 90 percent of all carbon dioxide emissions.”⁴

¹ *Sixth Assessment Report*, INTERGOVERNMENTAL PANEL ON CLIMATE Change (Mar. 20, 2023) <https://www.ipcc.ch/report/ar6/syr/>.

² Brad Plumer, *Climate Change Is Speeding Toward Catastrophe. The Next Decade Is Crucial, U.N. Panel Says*, THE NEW YORK TIMES (Mar. 21, 2023), <https://www.nytimes.com/2023/03/20/climate/global-warming-ipcc-earth.html?smid=url-share>.

³ *Synthesis Report of the IPCC Sixth Assessment Report (AR6) Summary for Policymakers*, INTERGOVERNMENTAL PANEL ON CLIMATE Change (Mar. 20, 2023), https://report.ipcc.ch/ar6syr/pdf/IPCC_AR6_SYR_SPM.pdf.

⁴ *Causes and Effects of Climate Change*, UNITED NATIONS CLIMATE ACTION, <https://www.un.org/en/climatechange/science/causes-effects-climate-change> (last visited May 16, 2023).

The scale of the shift required is so significant that it would require cutting greenhouse gasses in half as soon as 2030,⁵ and the full report (IPCC Report) notes that “[l]imiting global warming to 2°C or below will leave a substantial amount of fossil fuels unburned.”⁶ Yet in the same week as the release of the summary report, U.S. President Biden approved a US\$8 billion development on federal lands in Alaska, which will remove around 600 million barrels of oil from the ground.⁷ Meanwhile, oil companies are making record profits. The largest oil company in the world, Saudi Aramco, made profits of \$161 billion in 2022.⁸ British Petroleum and Exxon also announced record profits in 2022.⁹ As energy security concerns have returned to prominence, fossil fuel companies have started to backtrack on promises to reduce the carbon emissions of their products and to invest in alternative fuels after the down years at the height of the COVID-19 pandemic.¹⁰

Despite the enormous profits of the fossil fuel industry, it is also the recipient of hundreds of millions of dollars in subsidies from governments around the world. These subsidies cover production and consumption of fossil fuels, and general services related to fossil fuels (which create the enabling conditions for the fossil fuel sector through provision of public services, institutions and infrastructure).¹¹ The subsidies permeate all stages of fossil fuel production and use, from the raw products such as crude oil, natural gas and coal, to refined products and their downstream uses. The Organisation for Economic Co-operation and Development (OECD) and International Energy Agency (IEA) estimate that fossil fuel subsidies in 51 countries alone amounted to US\$697.2 billion in 2021, almost double the 2020 figure.¹² In 2019, the OECD and International Institute for Sustainable Development (IISD) estimated the breakdown of subsidies as 86% going to consumption, 9% going to production, and 5% to general services.¹³ The IEA’s first estimates for 2022 place total fossil fuel consumption subsidies at US\$1

⁵ Brad Plumer, *Climate Change Is Speeding Toward Catastrophe. The Next Decade Is Crucial, U.N. Panel Says*, THE NEW YORK TIMES (Mar. 21, 2023), <https://www.nytimes.com/2023/03/20/climate/global-warming-ippc-earth.html?smid=url-share>.

⁶ *Synthesis Report of the IPCC Sixth Assessment Report (AR6) Longer Report*, INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE 60 (Mar. 20, 2023), https://www.ipcc.ch/report/ar6/syr/downloads/report/IPCC_AR6_SYR_LongerReport.pdf [hereinafter *IPCC Longer Report*].

⁷ David Wallace-Wells, *The world wants to have it both ways on fossil fuels*, THE NEW YORK TIMES (Mar. 16, 2023), <https://www.nytimes.com/2023/03/16/opinion/willow-oil-project-alaska-climate-change.html>.

⁸ *Id.*

⁹ Sam Meredith, *BP posts record 2022 earnings to join Big Oil profit bonanza*, CNBC (Feb. 7, 2023), <https://www.cnbc.com/2023/02/07/bp-earnings-q4-and-fy-2022.html>.

¹⁰ Lisa Friedman, *Climate Forward*, THE NEW YORK TIMES (Mar. 14, 2023), <https://www.nytimes.com/2023/03/14/climate/oil-gas-industry.html>.

¹¹ *Methodology, Fossil Fuel Subsidy Tracker*, ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT & INTERNATIONAL INSTITUTE FOR SUSTAINABLE DEVELOPMENT, <https://fossilfuelsubsidytracker.org/methodology/> (last visited May 16, 2023) [hereinafter *Fossil Fuel Subsidy Tracker Methodology*].

¹² *Support for fossil fuels almost doubled in 2021, slowing progress toward international climate goals, according to new analysis from OECD and IEA*, OECD (Aug. 29, 2022), <https://www.oecd.org/newsroom/support-for-fossil-fuels-almost-doubled-in-2021-slowing-progress-toward-international-climate-goals-according-to-new-analysis-from-oecd-and-ica.htm> (although note the 2020 figure was a significant downturn from prior years due to the COVID-19 pandemic. 2021 is in between the 2018 and 2019 figures for subsidies).

¹³ Ieva Baršauskaitė, *Background Note on Fossil Fuel Subsidy Reform*, INTERNATIONAL INSTITUTE FOR SUSTAINABLE DEVELOPMENT 4 (Sep. 2022), <https://www.iisd.org/system/files/2022-08/background-note-fossil-fuel-subsidy-reform.pdf>.

trillion.¹⁴ Governments are actively incentivizing the production and consumption of the very products which are making the world unliveable.

The IPCC Report finds that fossil fuel subsidy removal might reduce global carbon dioxide (CO₂) emissions by 1-4% and greenhouse gas (GHG) emissions by 10% by 2030.¹⁵ Removing subsidies would also have direct economic benefits, such as improving public revenue and macroeconomic performance in the long term, though removal would need to be done with the distributional impacts on vulnerable populations accounted for.¹⁶ Removing fossil fuel subsidies will take efforts on multiple fronts, including political, economic and social.

The area of trade also provides avenues to explore removing fossil fuels. World Trade Organization (WTO) rules forbid certain types of subsidies. Yet one of the more perverse outcomes of the energy and climate crisis is that renewables, and not fossil fuels, have found themselves at the center of subsidies actions.¹⁷ This paper considers the possibility of utilizing the dispute settlement mechanism of the WTO to bring a case under the Agreement on Subsidies and Countervailing Measures (SCM Agreement),¹⁸ which governs WTO rules on subsidies. Under the SCM Agreement, some subsidies are prohibited *per se*, that is, they are not allowed in any circumstances. These include subsidies contingent on export or local content requirements. Otherwise, subsidies are ‘actionable’ if they are ‘specific’ to enterprises or industries, and are in breach of the rules if they cause adverse effects.

The analysis is broken down into the following topics: (1) whether fossil fuel subsidies are caught by the definition of a ‘subsidy’ under the SCM Agreement; (2) the scope of products that could be caught by a fossil fuel subsidies case; (3) which action provided by the SCM Agreement is the most appropriate avenue to pursue, being either a countervailing duty (CVD) on injury suffered, or an adverse effects case; (4) how injury or adverse effects could be established; and (5) what remedy or remedies could be pursued. For a country wishing to use all available tools to fight climate change, this paper concludes that a WTO adverse effects action is a viable method by which to challenge fossil fuel subsidies and to disincentivize the use of fossil fuels. This paper concludes that not only is it possible to bring an action against fossil fuel subsidies, but that there are multiple avenues for argument and a wide number of complainants who could bring a claim. There is also scope to argue that the very significant flow on effects of fossil fuel subsidies on human health and the environment should be taken into account in the formulation of remedies.

I. ARE FOSSIL FUEL SUBSIDIES CAUGHT BY WTO DISCIPLINES?

The following section explores whether fossil fuel subsidies meet the definition found in the SCM Agreement, and concludes that many, if not most, do. It then explores whether any of these subsidies are prohibited, or are otherwise specific and actionable.

¹⁴ *Fossil Fuels Consumption Subsidies 2022*, INTERNATIONAL ENERGY AGENCY (Feb. 2023), https://www.iea.org/reports/fossil-fuels-consumption-subsidies-2022?campaign_id=54&emc=edit_clim_20230411&instance_id=89942&nl=climate-forward®i_id=196708274&segment_id=130143&tc=1&user_id=5a729389d779e9cf0c9720f3d066c5cf.

¹⁵ *IPCC Longer Report*, *supra* note 6, at 79.

¹⁶ *Id.*

¹⁷ Cleo Verkuijl et al., *Tackling Fossil Fuel Subsidies through International Trade Agreements*, CLIMATE STRATEGIES 23 (Nov. 2017), https://climatestrategies.org/wp-content/uploads/2017/11/CS-Report_FFS-2017.pdf.

¹⁸ Agreement on Subsidies and Countervailing Measures, Apr. 15, 1994, Marrakesh Agreement Establishing the World Trade Organization, Annex 1A, 1869 U.N.T.S. 14 [hereinafter *SCM Agreement*].

A. *Is there a subsidy?*

A subsidy is identified by three elements as set out in the SCM Agreement: (1) a financial contribution (Art 1.1(a)(1)) or income price support (Art 1.1(a)(2)); (2) provided by a government or public body (Art 1.1(a)(1)); which (3) confers a benefit (Art 1.1(b)).

The first element, a financial contribution, can be understood to be a transfer or potential transfer of funds or liabilities, government revenue forgone, or government-provided goods or services (other than general infrastructure).¹⁹ The second element, a government or public body, “encompasses both the government in the ‘narrow sense’ and ‘any public body within the territory of a Member.’”²⁰ State Owned Enterprises (SOE) are considered a government or public body to the extent that they exercise a government function.²¹ The third element, conferring a benefit, considers whether the recipient of the financial contribution did in fact receive an advantage. This is most commonly assessed by reference to a benchmark of what the recipient could have received on the market.²² The reference point for the first element is the giver of the contribution, the reference point for the third element is the recipient of the contribution.

Key categories of fossil fuel subsidies include direct transfers, tax expenditures and induced transfers (price support).²³ The OECD and IISD track and record an inventory of subsidies, using a methodology in line with the SCM Agreement definition.²⁴ Many subsidies fit comfortably within the definition of a subsidy in the SCM Agreement. Two common types of subsidies are considered below by way of illustration.

1. Direct budgetary transfers

These are defined as “payments made by governments, or bodies acting on behalf of governments, to individual recipients.”²⁵ They are (1) a financial contribution which (3) confers a direct benefit. Whether the spending comes from the government or public body will then determine whether it is a subsidy or not for the purposes of the SCM Agreement. The line could be somewhat gray in non-market economies where SOEs are prominent, but identifying payments from government entities in market economies is clearer. The OECD estimates the scale of direct budgetary transfer subsidies for fossil fuels at US\$74 billion worldwide.²⁶

¹⁹ *SCM Agreement*, *supra* note 18, at Art. 1.1(a)(1); see also Dominic Coppens, *Ch. 3 The scope of the SCM Agreement*, in WTO DISCIPLINES ON SUBSIDIES AND COUNTERVAILING MEASURES 3.1.1 (Jun. 2014).

²⁰ Appellate Body Report, *United States - Countervailing Duty Measures on Certain Products from China*, 4.42, WT/DS437/AB/R, (Dec. 18, 2014) (adopted on Jan. 16, 2015).

²¹ Appellate Body Report, *United States - Definitive Anti-Dumping and Countervailing Duties on Certain Products from China*, 286, WT/DS379/AB/R, (Mar. 11, 2011) (adopted on Mar. 25, 2011).

²² Coppens, *supra* note 19, at 3.1.1.3.

²³ *Measuring Fossil Fuel Subsidies in the Context of the Sustainable Development Goals*, UNITED NATIONS ENVIRONMENT PROGRAMME 62 (2019), <https://wedocs.unep.org/bitstream/handle/20.500.11822/28111/FossilFuel.pdf?sequence=1&isAllowed=y>; see also Brianna Nicker, *Reforming global fossil fuel subsidies: How the United States can restart international cooperation*, THE BROOKINGS INSTITUTION (Jul. 14, 2021), <https://www.brookings.edu/research/reforming-global-fossil-fuel-subsidies-how-the-united-states-can-restart-international-cooperation/>.

²⁴ *Fossil Fuel Subsidy Tracker Methodology*, *supra* note 11.

²⁵ *Id.* The definition also captures “direct spending, e.g. for specific support programmes, and government ownership (fully or through equity shares) of energy-related enterprises.”

²⁶ Fossil Fuel Subsidy Tracker, ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT & INTERNATIONAL INSTITUTE FOR SUSTAINABLE DEVELOPMENT, <https://fossilfuelsubsidytracker.org/country/> (last visited May 15, 2023) [hereinafter *Fossil Fuel Subsidy Tracker Country Data*]

An example of a direct budgetary transfer is the U.S. Fossil Energy Research and Development Programme, which was valued by the OECD as US\$0.8 billion in 2020.²⁷ According to the OECD, the “programme provides funding for research and development projects related to fossil energy such as fuel conversion or coal liquefaction” and is sufficiently broken down by objective so as to allow for allocation between different fossil fuel sources.²⁸

2. Tax breaks

Tax breaks can include tax credits, other government revenue foregone, and underpricing of goods and services, including risk. They can be both income tax expenditures and exemptions from certain taxes.²⁹ Broadly speaking they are measured by the OECD using a revenue foregone approach, which captures “the difference between the tax revenue raised with and without the tax expenditure, all else being equal.”³⁰ Tax expenditures fall within (1) a financial contribution, because by their nature they are revenue foregone, and are (2) provided by the government, who is the only actor who can confer a tax benefit. Paying a lower tax when benchmarked against what the company or consumer would otherwise pay (3) confers a benefit. The OECD estimates the scale of tax expenditure subsidies for fossil fuels at US\$115 billion worldwide.³¹

An example of a tax expenditure is the taxable per barrel credit in the U.S. for crude oil production, which the OECD calculated as a US\$1 billion subsidy in 2020.³² The measure involves credits per taxable barrel of oil in the North Slope region of Alaska.³³

B. Are any of these subsidies prohibited?

The simplest path for bringing an action against fossil fuel subsidies is if they meet the test of being prohibited under the SCM Agreement. Prohibited subsidies are those contingent on export performance (Art 3.1(a)) or contingent on the use of domestic over imported goods (Art 3.2(b)).³⁴ While fossil fuel subsidies for production are designed to increase production capacity, many or most are likely agnostic as to whether that fuel is used domestically or for export, or whether local content is required. Consumption subsidies are even less likely to be prohibited.

Nevertheless, there are likely some subsidies which are in law or in fact contingent on export or use of local content. For example, Christian Slattery conducted an analysis of the Australian Government’s planned provision of an AU\$1 billion low-interest loan from

²⁷ *OECD Inventory of Support Measures for Fossil Fuels: Country Notes (United States)*, OECD iLIBRARY, https://www.oecd-ilibrary.org/sites/5a3efe65-en/1/3/51/index.html?itemId=/content/publication/5a3efe65-en&_csp_=2ffa7a733148fec42dccb926d7619e1c&itemIGO=oecd&itemContent-Type=book (last visited May 16, 2023) [hereinafter *OECD Inventory (United States)*]

²⁸ *Id.*

²⁹ UNITED NATIONS ENVIRONMENT PROGRAMME, *supra* note 23, at 62.

³⁰ *Fossil Fuel Subsidy Tracker Methodology*, *supra* note 11. Note though that it “does not account for behavioural responses related to the removal of the tax expenditure.”

³¹ *Fossil Fuel Subsidy Tracker Country Data*, *supra* note 26.

³² *OECD Inventory (United States)*, *supra* note 27.

³³ *Id.* Full description from OECD: “This measure was introduced on 1 January 2014 to encourage crude-oil production on the North Slope, AK. The credit amounts to USD 5 per taxable barrel in areas qualifying for the provision for Gross Value Reduction (see “Gross Value Reduction”). In all other qualifying areas the credit ranges from USD 0 to USD 8 per taxable barrel depending on the price of oil at wellhead, with the credit gradually phasing out as the wellhead price of oil approaches USD 150.”

³⁴ Certain fisheries subsidies are also prohibited, but those are not relevant to fossil fuel subsidies.

the Government of Queensland, to be provided through the Northern Australia Infrastructure Facility for construction of a rail line solely to connect the Carmichael coal mine to the Abbot Point international coal port.³⁵ He determined that the subsidy was *de facto* contingent on export performance, and therefore a prohibited subsidy.³⁶ While the loan ultimately did not proceed,³⁷ the analysis stands and suggests that there are likely other examples. There may be many.

If any fossil fuel subsidies do meet these requirements, a country could immediately bring an action at the WTO against each prohibited subsidy without having to show any injury to a domestic industry or without having to show adverse effects. This significantly lowers the burden for a country bringing a claim. However, even if some subsidies do meet the test of being prohibited, it is likely that most do not, meaning that it is necessary to explore other avenues.

C. If not prohibited, are the subsidies otherwise specific?

If a subsidy is not prohibited, whether the subsidy is specific serves as a gateway to further analysis – a subsidy must be specific to be actionable under the SCM Agreement. To be specific, the subsidy must be for an “enterprise or industry or group of enterprises or industries,” or limited to certain enterprises in a designated geographical region.³⁸

Production subsidies are likely to meet the specificity requirement. Using the examples above, the R&D subsidy is specific to the fossil fuel industry, or because the subsidy allocation can be determined as between different fuels, the subsidy applies to the oil or gas or coal production industry, which together form a group of industries in accordance with the definition. The TBC AK is even more straightforward, because it is specific to crude oil production enterprises located within a certain region of Alaska. Likewise, many consumption subsidies likely meet the specificity requirement, being specific to the energy industry. General services subsidies, however, by creating enabling conditions for the fossil fuel sector, may also benefit other industries or sectors. It is therefore difficult to provide general observations on specificity at a high level for these types of subsidies.

II. DECIDING ON THE AVENUE TO PURSUE THE ACTION

Having determined that most fossil fuel subsidies will meet the definition of ‘subsidy’ and are specific, but are not prohibited, the SCM Agreement provides two avenues for remedies. The first is to domestically impose a CVD on subsidized imports if they are causing injury to a country’s domestic producers. The second is to bring a case to the WTO arguing that the subsidies are causing adverse effects. Both options are explored below, with an adverse effects case being considered the preferable option because it is

³⁵ Christian Slattery, *Fossil Fueling the Apocalypse: Australian Coal Subsidies and the Agreement on Subsidies and Countervailing Measures*, 18(1) WORLD TRADE REVIEW 109, 119 (2019).

³⁶ *Id.* at 124-125. Factors included: (1) Australia’s domestic coal consumption needs were already satisfied, (2) the scale of the exports from the Carmichael would be significant, with the connection to the port resulting in a potential increase in Australia’s coal export capacity of more than 25%, and a potential operating capacity of 10% of world trade in steam coal, (3) the rail line was unlikely to be viable without financial assistance, (4) government statements had emphasized exports of coal in connection with the loan, and (5) a government white paper referred to development of the region being a means to ‘unlock investment’ through exports.

³⁷ Alison Bevege, *Australian official confirms no federal financing for Adani mine*, REUTERS (Feb. 3, 2018), <https://www.reuters.com/article/us-australia-adani-ent/australian-official-confirms-no-federal-financing-for-adani-mine-idUSKBN1FO017>.

³⁸ *SCM Agreement*, *supra* note 18, at Art. 2.1-2.2.

likely to cover the most subsidies and more likely to achieve the desired outcome of prompting the removal of the subsidies.

A. Avenues to address non-prohibited subsidies

1. Countervailing duty

A CVD is a unilateral action made by a government against subsidized imported goods injuring its domestic industry. A benefit of the CVD is that it is a unilateral measure, although it can be challenged by the subsidizing country at the WTO.

But there are downsides to CVDs. First, the CVD does not directly result in the removal of the subsidy, and it may simply result in the subsidized producer sending their products elsewhere. If multiple countries were to place CVDs on subsidized fossil fuels, that may begin to have an effect on the ability of the product to simply be diverted, and may pressure the subsidizing country to remove the subsidy. For example, if 20 different countries placed CVDs on products from the top 10 coal or oil producing companies that are subsidized, that would begin to put some pressure on those countries. However, a CVD does require injury to a domestic industry, and only a certain number of countries are fossil fuel producers. It may also be a difficult decision to make politically. For a country placing a CVD on imported oil, unilaterally making oil imports more expensive for a country's domestic population is not a particularly attractive political decision, even if it does benefit the domestic industry. These factors would reduce the number of potential complainants, making the effectiveness of this approach limited.

2. A WTO dispute for removal of adverse effects

An adverse effects case is established under Article 5 of the SCM Agreement by demonstrating any of (1) material injury to a domestic industry, (2) nullification or impairment of a benefit under the General Agreement on Tariffs and Trade (GATT),³⁹ or (3) through serious prejudice. Each avenue will be considered below at part IV in more detail, but it is important to note that the third option, serious prejudice, can be established in the following ways, because (1) it helps frame the positives and negatives of an adverse effects case, and (2) it makes the connection between like products and adverse effects. Serious prejudice is caused: if the subsidy causes displacement or impedes imports of a *like product* into the *market of the subsidizing member*, or of exports in a *third country market* (Art 6.3(a)-(b)); if the effect of the subsidy is *significant price undercutting* compared to a *like product* of another member in the *same market*, or *significant price suppression or depression* in the *same market* (Art 6.3(c)); or if the effect of the subsidy is an increase in world market share of a particular *subsidized primary product or commodity* (Art 6.3(d)).

The variety of these factors, combined with some of them not requiring a complainant to have a domestic fossil fuel industry being injured, means that any WTO member could bring a claim. Further, a country does not have to have 'clean hands.' Though there may be some strategic value in the complainant being relatively free of subsidies, they are not required to be non-subsidizers themselves to bring a subsidies case against another member. Because any member of the WTO can bring an adverse effects case, it also gives broader scope to which subsidies, and which subsidizers, to strategically target. Three of

³⁹ General Agreement on Tariffs and Trade, Oct. 30, 1947, 61 Stat. pt. 5, 55 U.N.T.S. 194, as incorporated General Agreement on Tariffs and Trade 1994, Apr. 15, 1994, Marrakesh Agreement Establishing the World Trade Organization, Annex 1A, 1867 U.N.T.S. 187.

the largest subsidizers in 2021 according to the OECD were Russia (US\$28.97 billion), China (US\$24.77 billion) and the U.S. (US\$9.49 billion).⁴⁰

The remedy for a successful adverse effects case brought to the WTO is the removal of the subsidy or the adverse effects of the subsidy. If the outcome sought is an overall reduction in fossil fuel subsidies to disincentivize fossil fuel production, an adverse effects case can achieve what a CVD cannot. The question of what ‘removing the adverse effects’ of the subsidy means though is fraught with difficulty. The possibility must be acknowledged that fossil fuel subsidies are so firmly entrenched that a country with an adverse finding may simply refuse to remove the subsidies themselves, or their adverse effects, whatever those are determined to be. The WTO dispute settlement mechanism does, however, provide for compensation in those circumstances. Determining compensation too can be difficult, but it is not impossible, and it may even provide the possibility of quantifying the broader effects of the subsidies, and so this should not dissuade a country from bringing such an action.

As an adverse effects case is likely to capture the most fossil fuel subsidies and is preferable to a CVD, defining the scope of the claim will be explored below at part III, the means of demonstrating adverse effects will be explored below at part IV, and the remedy for an adverse effects case will be considered in more detail below at part V.

III. DEFINING THE SCOPE OF PRODUCTS CAPTURED

Having determined that most fossil fuel subsidies are specific and actionable, but not prohibited, and that an adverse effects case has greater strategic and practical value than a CVD, a country wanting to bring a claim against fossil fuel subsidies would need to consider which are the subsidized products to capture in the claim.⁴¹ Fundamental to this exercise is determining whether different products are ‘like’ each other, or in a competitive relationship with each other, because the adverse effects to be demonstrated are measured using that reference. Because an adverse effects case does not necessarily require a domestic industry that has been injured by imports, the test for harm as a result of a subsidy is broader and may be able to incorporate a broader like product definition.

The largest subsidies for fossil fuels are for petroleum products (52.55%), electricity production by fossil fuels (28.14%), natural gas (15.36%) and coal (3.94%).⁴² Subsidies permeate all stages of the fossil fuel value chain. Producer subsidies occur in the exploration, extraction and production stages of raw fossil fuels such as crude oil, natural gas and coal. Producer and consumer subsidies occur in domestic transformation of the raw fossil fuels into refined energy products such as gasoline, diesel and electricity. They are also used as input for non-energy products, where further consumer subsidies may occur.⁴³ Disentangling this supply chain is complex.

Clearly the more subsidies are in scope, the greater the cumulative adverse effects of the subsidies are, but the complaining country would have to make a determination of which products and how much of the value chain to try to capture within the claim, while being mindful that it would have to show how the subsidies cause adverse effects.

⁴⁰ *Fossil Fuel Subsidy Tracker Country Data*, *supra* note 26.

⁴¹ The analysis would not always be so linear – this paper considers the issue at a high level. As a matter of practicality, an individual country’s decision of whether to pursue a CVD or an adverse effects case will be influenced by which products concern it the most, and the way that those products produce injury or prejudice to it specifically – the various considerations inform each other.

⁴² Baršauskaitė, *supra* note 13, at 2.

⁴³ *Id.* at 14.

Determining the scope would be a balance of a wider scope, making it easier to show adverse effects on a large scale, and a narrower scope, making it easier to track the economic impact of particular products in international markets.

Three different approaches for capturing the greatest overall amount of fossil fuel subsidies are explored here, ranging from a narrow to a broad definition of ‘likeness.’ Though the definition of likeness expands and contracts depending on the context and case by case analysis of WTO disputes,⁴⁴ the SCM Agreement, unlike other WTO agreements,⁴⁵ contains a definition of ‘like product’ which frames the analysis:

“a product which is identical, i.e. alike in all respects to the product under consideration, or in the absence of such a product, another product which, although not alike in all respects, has characteristics closely resembling those of the product under consideration.”⁴⁶

The below analysis will consider how broadly this definition can be expanded, starting with the narrow approach.

A. Narrow interpretation of likeness

A case involving a narrow definition of like product will have little difficulty based on the above definition. A narrower definition of ‘like’ product would define fossil fuels by their different raw materials, oil, gas and coal, and / or their separate downstream products. For example, even if crude oil from one location is not identical to crude oil from another location in chemical make-up, the definition allows for this with the words “or in the absence of such [an identical] product,” and these two types of oil would clearly have characteristics closely resembling each other.⁴⁷ The same could be said about the same downstream products of the same fossil fuels. For example, finished motor gasolines, a refined petroleum product, while having minor differences are likely to be considered as having characteristics closely resembling each other.

B. Broader interpretations of likeness

While the language of the SCM Agreement definition of ‘likeness’ appears to allow only a very narrow definition of like product, its application by WTO Panels in the limited consideration it has received indicates that a broader application is possible. In the dispute *Indonesia-Autos*,⁴⁸ the WTO Panel considered whether certain cars produced in the European Union and United States were like a particular car produced in Indonesia. Noting that there were no ‘identical’ cars in question, they considered whether the cars had characteristics closely resembling each other.⁴⁹ The Panel considered not only the physical characteristics of the cars, but also brand image, status, resale value, consumer preferences and price,⁵⁰ and the way the automotive industry itself analyzed market

⁴⁴ Appellate Body Report, *Japan - Taxes on Alcoholic Beverages* WT/DS8/AB/R ; WT/DS10/AB/R ; WT/DS11/AB/R, 21 (Oct. 4, 1996) (adopted on Nov. 1, 1996).

⁴⁵ Except for the Agreement on Implementation of Article VI of GATT 1994, (Apr. 15, 1994), Marrakesh Agreement Establishing the World Trade Organization, Annex IA, 1867 U.N.T.S. 14.

⁴⁶ *SCM Agreement*, *supra* note 18, at ft. 46.

⁴⁷ Janet Raloff, *Explainer: All crude oil is not alike*, SCIENCE NEWS EXPLORES (Aug. 30, 2013), <https://www.snexplores.org/article/explainer-all-crude-oil-not-alike>.

⁴⁸ *Indonesia-Certain Measures Affecting the Automobile Industry*, WT/DS54, WT/DS59.

⁴⁹ Panel Report, *Indonesia-Certain Measures Affecting the Automobile Industry*, 14.172, WT/DS54/R, WT/DS59/R (July 2, 1998) (adopted July 23, 1998) [hereinafter Panel Report, *Indonesia-Autos*].

⁵⁰ *Id.* at 14.170-175.

segmentation.⁵¹ So while the Panel noted that the language of the definition was narrow, they still applied broader economic factors to the analysis of whether the products were like each other.⁵² The Panel determined that three cars produced by the complainants were ‘like’ the car produced in Indonesia,⁵³ and that together the unassembled pieces of a car were ‘like’ the assembled car.⁵⁴ This approach leaves the door open to somewhat broader approaches to likeness.

1. Medium: fossil fuels

A broader approach to like product would view all fossil fuels as like each other. This would argue that crude oil, natural gas and coal have product characteristics closely resembling each other. As the Panel in *Indonesia-Autos* noted, ‘likeness’ in other WTO contexts can help inform the case by case analysis in the subsidies arena, and so the following elements of a product could help frame the analysis: physical characteristics, end uses, consumer tastes and habits, and tariff classification.⁵⁵ While crude oil, natural gas and coal do have many different end uses as refined products, they also do share substantial end uses (though to varying extents and in different combinations), such as electricity production, sources of heating, industrial processes and transportation. For many of the end uses of fossil fuels, consumers are likely to simply follow price. Different tariff classifications will weigh against the analysis, but is not determinative. Further, if an unassembled car is ‘like’ an assembled car, this may provide an avenue to argue that raw fossil fuels are ‘like’ their downstream products. However, unlike in the case of *Indonesia-Autos*,⁵⁶ downstream fossil fuel products will have different tariff classifications and various uses, but there is nevertheless some conceptual overlap.

2. Broad: energy

The broadest definition of like product would group all energy products together, considering renewable energies as like fossil fuel energies. It would be a very difficult argument to make based on the SCM Agreement definition of likeness, even considering the somewhat broader interpretation of WTO Panels. The arguments, however, would be similar when arguing that all fossil fuels are alike – for instance, though renewable energies do not look like fossil fuel,⁵⁷ they share many of the same end uses, such as electricity

⁵¹ *Id.* at 14.177.

⁵² Chris Wold, Grant Wilson & Sara Foroshani, *Leveraging Climate Change Benefits through the World Trade Organization: Are Fossil Fuel Subsidies Actionable*, 43 GEORGETOWN JOURNAL OF INTERNATIONAL LAW 635, 665 (2012).

⁵³ Panel Report, *Indonesia-Autos*, *supra* note 49, at 14.193.

⁵⁴ *Id.* at 14.197.

⁵⁵ *Id.* at 14.174. Panel Report, *United States - Certain Measures Affecting Imports of Poultry from China*, 7.425, WT/DS392/R (Sep. 29, 2010) (adopted on Oct. 25, 2010).

⁵⁶ Panel Report, *Indonesia-Autos*, *supra* note 49, at 14.174.

⁵⁷ It may also be worth querying whether physical characteristics should really have anything to do with likeness between different fossil fuels, or between renewable and non-renewable energies. In Panel Report, *Indonesia-Autos*, *supra* note 49, at 14.173, the Panel said, “[a]lthough it is possible that products that are physically very different can be put to the same uses, differences in uses generally arise out of, and assist in assessing the importance of, different physical characteristics of products.” That is not necessarily the case when considering the difference between different fossil fuels, or even between renewable energies and fossil fuel energies. The physical characteristics of a wind farm are completely different to coal, but substantially they both exist to create energy which can be transformed for various uses, like electricity and heating. This is completely different to the context of other products. For example, different types of bags must look at least somewhat similar to perform the same basic function of holding goods. The appearance of different fossil fuels on the other hand is not relevant to their uses.

generation, heating, and transport. Renewable energies are also becoming larger proportions of what have been the traditional end uses of fossil fuels, notably in the transportation sector.⁵⁸ Consumer tastes and habits are likely to be a complicated mix of preferences for renewable technologies for environmental reasons and simple cost comparisons. On the narrower end of this analysis, Wold and others consider that there is at least a strong argument that certain fuels and biofuels could be considered like products.⁵⁹ They also argue for a linkage between electricity generated by renewable energies and electricity generated by coal. They conclude that “there is no question that electricity produced from nonrenewable energy sources is “like” electricity produced from renewable energy sources.”⁶⁰

However, there is another way to argue for a broader approach to competing products causing adverse effects.

C. *Beyond the likeness test*

There are two relevant caveats to the ‘likeness’ analysis for an adverse effects case under the SCM Agreement. First, while each of Articles 6.3(a)-(c) refer to a likeness test, 6.3(d) does not. Article 6.3(d) deals with an increase in world market share of a particular “subsidized primary product or commodity.” The qualifier ‘primary’ alongside commodity indicates raw products, which would likely capture unrefined fossil fuels, but potentially not refined fuels. Renewable energy technologies are not raw products or commodities, although as with fossil fuels, the energy they produce may be. This presents an opportunity to argue that subsidies to any of the raw fossil fuels cause adverse effects by increasing the world market share of those commodities, without there having to be a like product to compare against.

Second, and perhaps more importantly, while Article 6.3(c) does refer to likeness, it does so only in relation to price undercutting, and not in relation to significant price suppression, price depression or lost sales. In *Korea-Vessels*,⁶¹ the dispute Panel determined that likeness “is not a legal requirement for claims of price suppression/price depression pursuant to Article 6.3(c).”⁶² Therefore, “the basic analytical question would be how to demonstrate such a causal relationship between the subsidy or subsidies in question, on the one hand, and movements in the prices of the product of concern to the complaining Member in the relevant market, on the other hand.”⁶³ Product comparisons would not be irrelevant, because there is always a price for a particular “thing,”⁶⁴ but the focus is on the causal relationship between the subsidies and price effects alleged.⁶⁵ Relevant factors in such as analysis would include (among others):

⁵⁸ *Electric Vehicles*, INTERNATIONAL ENERGY AGENCY (Sep. 2022), <https://www.iea.org/reports/electric-vehicles>.

⁵⁹ Wold et al., *supra* note 52, at 670-682. Note that this conclusion is in part based on the assumption that process and production methods (PPMs) would not be considered. While that assumption is open to challenge, a PPM would not necessarily distinguish the two.

⁶⁰ *Id.* at 683. This too is in part based on the assumption that PPMs cannot be considered.

⁶¹ *Korea - Measures Affecting Trade in Commercial Vessels*, WT/DS273.

⁶² Panel Report, *Korea - Measures Affecting Trade in Commercial Vessels*, 7.545-553, WT/DS273/R (Mar. 7, 2005) (adopted on Apr. 11, 2005) [hereinafter Panel Report, *Korea - Commercial Vessels*]; Further, from *id.* at 7.557, the implication is that “a structured price-to-price comparison would not be *required* in terms of the *SCM Agreement*” (emphasis in original).

⁶³ *Id.* at 7.557.

⁶⁴ *Id.* at 7.558.

⁶⁵ *Id.* at 7.559.

“the nature of the subsidy, the way in which the subsidy operates, the extent to which the subsidy is provided in respect of a particular **product or products**, conditions in the market, the **conceptual distance between the activities of the subsidy recipient and the products in respect of which price suppression/price depression is alleged**”⁶⁶ (emphasis added).

These comments from the Panel appear to give scope to an argument that goes beyond simply whether the products are alike, to a focus on the effect on competitive relationships in the marketplace. There is clearly a competitive relationship between renewable energies and fossil fuel energies, such that fossil fuel subsidies may unfairly suppress the price of fossil fuel energies vis-à-vis renewable energies. The analysis now turns to avenues for a complainant to demonstrate adverse effects of these like, or competitive, products, and how the positive and negatives of a narrow, medium and broad approach would inform a determination of adverse effects.

IV. DEMONSTRATING ADVERSE EFFECTS

There are three avenues under Article 5 of the SCM Agreement to determine subsidies as having an adverse effect:

- a) material injury to a domestic industry of a WTO member;
- b) nullification or impairment of a member’s benefits under the GATT; or
- c) serious prejudice to the interests of a member.

The first option, material injury to a domestic industry, suffers from some of the drawbacks of the CVD approach, in that there is a limited number of producing countries who could bring such a claim. It would also be difficult to show injury to domestic industries, as when noted above, so many fossil fuel producers are posting record profits. However, both 5(b) and 5(c) present viable options to demonstrate the adverse effects of fossil fuel subsidies. They will be considered in reverse order.

A. Serious prejudice to the interests of a member

The below analysis considers different avenues to bring an adverse effects case framed by the groupings of ‘like’ products discussed above at part III.

1. A narrow claim for adverse effects

Considering the scope of like products as discussed above, any of the clauses of Article 6.3 could be used as an avenue to pursue a claim in which like products are construed narrowly. While using (a) or (b) might be difficult for consumption subsidies, for countries which produce fossil fuels, clauses (a) and (b) present a clear opportunity to demonstrate adverse effects. A country or group of countries could individually consider the adverse effects of these products and then bring a claim with multiple discrete elements. This is likely the easiest like product approach to make out. For example, it should not be difficult for a country to show that crude oil from different countries are ‘like’ the crude oil from other countries. Similarly with natural gas and coal, or with downstream products. It lowers the legal burden on the complaining party or parties.

Practically though, if a country wanted to capture as much as possible of the value chain, it would effectively need to aggregate subsidies by category, and conduct an economic analysis of the adverse effects of subsidies within that category. For example, a claim against the various subsidies provided for each of the raw fossil fuels, broken down

⁶⁶ *Id.* at 7.560.

by fuel type, and separate claims against the most trade distorting refined products. The amount of data and analysis to collect for evidence for each subsidy and fuel type covered, however, would increase significantly with each element of the overall dispute, meaning the country would have to make a strategic choice, or employ a cost benefit analysis, to determine how much to bring into the dispute. Further, because one country does not compete in all products in all markets, it is not feasible to tackle all subsidies, or even all production subsidies, through one country. Multiple countries would need to bring multiple actions to capture as many subsidies as possible. A hypothetical action is set out below against the United States for subsidies to crude oil production.

Example: Action on production subsidies for oil production

Two countries that might have a particular interest in bringing a claim on the production side of subsidies are Norway and New Zealand, both members of the Friends of Fossil Fuel Subsidy Reform.⁶⁷ New Zealand currently has no production subsidies for fossil fuels in place, and Norway has only US\$1 million in fossil fuel production subsidies in place.⁶⁸

Each could, for example, bring a case challenging the United States' subsidies. The United States is a heavy subsidizer of fossil fuels. As of 2020 44% of government support for fossil fuels went to firms (producers and some general services),⁶⁹ a much higher proportion than the global average.⁷⁰ The bulk of U.S. production subsidies as of 2021 went towards petroleum (US\$1.65 billion) and natural gas (US\$1.01 billion),⁷¹ both products which Norway exports.

Norway and the U.S. also compete in some of the same markets. For example, as of 2021, 14.7% (US\$6.2 billion) of Norway's crude oil, and 9.55% (US\$6.46 billion) of the U.S.'s crude oil exports were to the Netherlands.⁷² A question for Norway in that circumstance, is whether its market share in the Netherlands, for example, would be higher if the U.S. did not subsidize crude oil production. Norway would then have to undertake economic analysis to establish the displacement of its oil from that external market. Norway could also include China or Russia in the case to the extent they compete in the same markets, and also include other products against which they compete in foreign markets with the US, China and / or Russia.⁷³

⁶⁷ *What is the Friends of Fossil Fuel Subsidy Reform?*, FRIENDS OF FOSSIL FUEL SUBSIDY REFORM, <https://ffsr.org/> (last visited May 16, 2023).

⁶⁸ *Fossil Fuel Subsidy Tracker Country Data*, *supra* note 26.

⁶⁹ *OECD Inventory (United States)*, *supra* note 27.

⁷⁰ Baršauskaitė, *supra* note 13, at 4.

⁷¹ *Fossil Fuel Subsidy Tracker Country Data*, *supra* note 26.

⁷² *Crude Petroleum in the United States*, OBSERVATORY OF ECONOMIC COMPLEXITY, <https://oec.world/en/profile/bilateral-product/crude-petroleum/reporter/usa> (last visited May 16, 2023); *Crude Petroleum in Norway*, OBSERVATORY OF ECONOMIC COMPLEXITY, <https://oec.world/en/profile/bilateral-product/crude-petroleum/reporter/nor> (last visited May 16, 2023).

⁷³ Other countries could pursue a similar action. As of 2021, the 65.5% of U.S. crude oil imports, worth \$78.8b, were from Canada. Canada could similarly argue that U.S. oil production subsidies impede further imports of crude oil from Canada to the U.S. The same is true of countries which import smaller volumes of oil to the U.S. For example, as of 2021, 2.78% of US oil imports were from Colombia, worth \$3.35b. Colombia could argue that its exports to the US would be higher but for U.S. fossil fuel subsidies. See: *Crude*

Further, as clause (d) uses the language “particular subsidized primary product or commodity,” rather than ‘like product,’ this means that a narrow case would be able to use clause (d) to argue that the effect of the subsidy is an increase in the world market share of the subsidizing country. As no domestic industry is required to make the claim, any country or group of countries could bring a claim against the fossil fuel subsidies of the largest subsidizers, such as China, Russia and the US, for each of the main raw fossil fuel products, oil, gas and coal.

2. A medium or broad claim for adverse effects

While any of the clauses of Article 6.3 are available when considering a medium or broad claim for adverse effects, clauses (c) or (d) are likely the best options. A medium claim, in which all fossil fuels are considered like products, could use clause (c) to claim that fossil fuel subsidies in one or more countries, including production, consumption and general services, are suppressing the prices of fossil fuels vis-à-vis the fossil fuels originating in another country or countries. Considering all fossil fuels as being alike provides different avenues of showing adverse effects. It broadens the scope of potential claimants and potential respondents because the connection to showing adverse effects is not limited to a particular product or sub-product. It expands the target. A country could argue that the comparatively cleaner fuel of natural gas is being adversely affected by both crude oil and coal subsidies, and potentially their downstream products. On the other hand, it is still a difficult likeness argument. Further, if downstream products are not able to be included in like products, it does not expand the range of products included significantly, because the raw products are mostly limited to oil, coal and gas. It may not necessarily be more work to bring three separate actions against each fossil fuel than it is to argue that they are all alike.

A broad claim could similarly use clause (c) to argue that fossil fuel subsidies are suppressing the prices of fossil fuels which compete in the same market as renewable energies. Further, when considering clause (c) and the concept of the ‘same market,’ that market can be as wide as the ‘world market,’ rather than simply a ‘national market.’⁷⁴ The same market however would still need to be one in which the complainant and respondent both compete.⁷⁵ This does not mean the complaining party must demonstrate that any domestic industry is being damaged by or displaced by the products of the subsidizing member (because that is the test of Article 6.3(a) or (b)), but rather that they simply compete in the same market, which may in fact be as broad as the ‘world’ in the case of energy, as it was, for example, with cotton in the dispute that established the meaning of ‘same market.’⁷⁶

Article 6.3(c), to the extent that it relates to price suppression and does not require a ‘like’ product may provide the opportunity to explore the effects of fossil fuel subsidies on the price of fossil fuels as a whole and their competitive relationship with renewable energies. In other words, the causal relationship between the fossil fuel subsidies in

Petroleum in the United States, OBSERVATORY OF ECONOMIC COMPLEXITY, <https://oec.world/en/profile/bilateral-product/crude-petroleum/reporter/usa> (last visited May 16, 2023).

⁷⁴ Panel Report, *Korea - Commercial Vessels*, *supra* note 62, at 7.564-565; *United States — Subsidies on Upland Cotton*, 7.1245-7.1249, WT/DS267/R (Sep. 8, 2004) (adopted on Mar. 21, 2005) [hereinafter, Panel Report, *US - Upland Cotton*].

⁷⁵ Panel Report, *Korea - Commercial Vessels*, *supra* note 62, at 7.566; Panel Report, *US - Upland Cotton*, *supra* note 74, at 7.1248.

⁷⁶ Panel Report, *US - Upland Cotton*, *supra* note 74, at 7.1249.

question and movements in the prices of renewable energies. This might be a highly effective way of targeting a large range of fossil fuel subsidies at the same time and would open up avenues for different countries to bring a very significant claim. A country might argue that subsidies for fossil fuels are having an adverse effect on renewable energy because it requires renewables to be cost competitive with the subsidized fossil fuels.

Renewables do compete with fossil fuels,⁷⁷ directly in relation to production of electricity, and indirectly in areas such as heating and transport. They face significant market entry difficulties because of this direct competition.⁷⁸ For example, decreases in natural gas prices tend to result in displacement of generation from both coal and renewables.⁷⁹ There may also be a future oriented argument too. A sustainable future requires a move away from fossil fuels and to renewable energy. In this sense too fossil fuels and renewable energies are in direct competition with each other, and a cause for the delay in the necessary transition to renewable energies may well be the subsidies provided to fossil fuels and their downstream products.

Example: Action on subsidies for adverse effects on renewable energies

While Iceland, for example, has been able to make a successful transition to renewable energy from fossil fuels, which it did in response to fluctuations in global oil prices,⁸⁰ the subsidization of fossil fuels will make this transition difficult for other countries wishing to pursue the same path.

Many countries are in the process of transitioning to sourcing their national energy needs wholly from renewable energies. Such countries include Sweden, which generates 50% of its energy from renewables, and plans to be at 100% by 2040, Germany, which plans to generate 80% of power with renewables by 2030, and Denmark, which generates 43% of its power with renewables.⁸¹ On a broad approach under Article 6.3(c), these countries, or similarly situated countries, could bring an adverse effects action arguing that fossil fuel subsidies are suppressing energy costs to the detriment of renewable energy generation.

B. Nullification or impairment of GATT benefits

Another avenue to demonstrate adverse effects, under Article 5(b), is when subsidies nullify or impair a WTO member's benefits under the GATT, which regulates the international trade in goods. A nullification or impairment of benefits can be found even where there has not otherwise been a violation of the subsidies rules. That is, if no adverse effects could be established, or could only be established in a limited number of instances,

⁷⁷ See generally: Paolo Zeppini and Jeroen C.J.M. van den Bergh, *Global competition dynamics of fossil fuels and renewable energy under climate policies and peak oil: A behavioural model*, 136 ENERGY POLICY 110907 (2020).

⁷⁸ See, for example, Seetharaman, Krishna Moorthy, Nitin Patwa et al., *Breaking barriers in deployment of renewable energy*, 5(1) HELIYON, e01166 (Jan. 2019).

⁷⁹ Michelle Bowman, *Natural gas prices and renewable capital costs affect the generation mix in China*, U.S. ENERGY INFORMATION AGENCY (Oct. 29, 2020), <https://www.eia.gov/todayinenergy/detail.php?id=45676>.

⁸⁰ Halla Hrund Logadóttir, *Iceland's Sustainable Energy Story: A Model for the World?*, No. 3 Vol. LII UNITED NATIONS CHRONICLE (Dec. 2015), <https://www.un.org/en/chronicle/article/icelands-sustainable-energy-story-model-world>.

⁸¹ *11 Countries Leading the Charge on Renewable Energy*, CLIMATE COUNCIL (Aug. 15, 2022), <https://www.climatecouncil.org.au/11-countries-leading-the-charge-on-renewable-energy/>.

a ‘non-violation’ nullification or impairment claim is still an option.⁸² In effect, this would be an argument that the subsidies are a violation of the spirit of the WTO rules.

It should be noted that a non-violation nullification or impairment claims requires a high burden of proof and it is a difficult case to make out.⁸³ One reason that it is difficult is because “the strongest indicator of what benefits a WTO member can reasonably anticipate are the provisions of WTO law themselves, the fact that there is no violation usually means that no reasonably anticipated benefits have been nullified or impaired.”⁸⁴ However, this logic mostly applies in cases concerning tariff concessions, for example in response to national security measures.⁸⁵ The non-violation claim is designed to take account of the fact that the benefit of lower tariffs under the GATT might be nullified or impaired by subsidies which are compliant with the SCM Agreement in the same way as tariffs which are not compliant with the GATT (a legitimate subsidy might have the same economic effect as an illegitimate tariff).⁸⁶ But what is at issue in the fossil fuels context goes well beyond the benefit of lower tariffs – it goes to the future ability of some countries to benefit from the trading system at all. Two avenues to pursue under this clause are set out here.

Similar to a broad action outlined above, a country which produces renewable energy could bring an action claiming that fossil fuel subsidies provide an unfair advantage in energy markets over renewable energies, particularly in circumstances where it is widely accepted that at some point in the near future, a transition from fossil fuels to renewable energies must occur if the worst effects of climate change are to be prevented. The fossil fuel subsidies nullify or impair the necessary transition to renewable energies.

Another possibility has less to do with competition in energy products and more to do with the ability to trade at all. The effects of climate change, driven by the use of fossil fuels, are already being felt by many countries around the world, some in very severe ways. It affects the viability of crops because of flooding or draught, access to labor through climate migration, and funds that can be spent to facilitate trade because of funds required for climate adaptation. Climate change is beginning to directly impact the ability of some countries to participate in the global trading system. While it may be more difficult to argue adverse effects from consumption subsidies under the serious prejudice criteria, here consumption subsidies are front and center, because the focus is on the total scale of fossil fuel subsidies contributing to climate change, and consumption subsidies, at 86% of fossil fuel subsidies, are by far the largest proportion.⁸⁷

The ability of many island nations to effectively participate in the international trading system is at risk from climate change. Fiji, and other island nations, are already relocating settlements due to climate change and making systemic plans for long term relocation

⁸² Per *SCM Agreement*, *supra* note 18, at ft. 12, The test for nullification or impairment is the same as under GATT Article XXIII.

⁸³ Simon Lester, *National Security Disputes, Non-Violation Nullification or Impairment, and Authoritative Interpretations*, INTERNATIONAL ECONOMIC LAW AND POLICY BLOG (Jan. 27, 2023), <https://ielp.worldtradelaw.net/2023/01/national-security-disputes-non-violation-nullification-or-impairment-authoritative-interpretations.html>.

⁸⁴ Nicolas Lamp, *At the Vanishing Point of Law: Rebalancing, Non-Violation Claims, and the Role of the Multilateral Trade Regime in the Trade Wars*, 22(4) JOURNAL OF INTERNATIONAL ECONOMIC LAW 721, 736 (2019).

⁸⁵ See generally: *Id.* at 736.

⁸⁶ *Id.* at 737.

⁸⁷ Baršauskaitė, *supra* note 13, at 4.

plans.⁸⁸ Tuvalu (though not a WTO member) has been building a digital version of the country as a kind of archive in anticipation that it will be one day submerged.⁸⁹ Warming oceans are pushing fish stocks out of countries' exclusive economic zones⁹⁰ which could result in a collective loss for Pacific Island countries of \$140 million annually by 2050, and as much as 17% of annual government revenue for some nations or territories.⁹¹ The IMF calculates that the impact of natural disasters alone for poorer Pacific Island nations is between 14 and 21 percent of GDP.⁹² Pacific Island countries also face a climate finance gap of almost \$1 billion annually for the region ranging, from 6.5 to 9 percent of GDP.⁹³ Whatever benefit they receive from tariff reductions is offset by the necessity of spending substantial portions of their GDP on simply continuing to exist in a climate changed world.

⁸⁸ Kate Lyons, *How to move a country: Fiji's radical plan to escape rising sea levels*, THE GUARDIAN (Nov. 8, 2022), <https://www.theguardian.com/environment/2022/nov/08/how-to-move-a-country-fiji-radical-plan-escape-rising-seas-climate-crisis>; Anna Naupa, Murray Ackman and Patrick Tuimalealiifano, *Boe Declaration: navigating an uncertain Pacific*, LOWY INSTITUTE: THE INTERPRETER (Oct. 3, 2018), <https://www.lowyinstitute.org/the-interpreter/boe-declaration-navigating-uncertain-pacific>.

⁸⁹ Minister Simon Kofe, *Rising sea levels force Tuvalu to move to the Metaverse: COP27 speech*, YOUTUBE: SIMON KOFE (Nov. 15, 2022), <https://youtu.be/IXpeO5BgAOM>.

⁹⁰ *Sustaining Pacific Island Fisheries*, CONSERVATION INTERNATIONAL, <https://www.conservation.org/projects/sustaining-pacific-island-fisheries> (last visited May 16, 2023).

⁹¹ Kiley Price, *Shifting tuna populations could trigger 'climate justice issue': study*, CONSERVATION INTERNATIONAL (Jul. 29, 2021), <https://www.conservation.org/blog/shifting-tuna-populations-could-trigger-climate-justice-issue-study>.

⁹² Scott Roger, *Debt Landscape and Fiscal Management Issues in Pacific Small Island Developing States*, UNITED NATIONS ECONOMIC AND SOCIAL COMMISSION FOR ASIA AND THE PACIFIC [17] (Apr. 2022), https://www.unescap.org/sites/default/d8files/event-documents/2022%20Debt%20Conference%20Background%20Paper_Scott%20Roger_4.4.22.pdf, referring to Lee, Zhang, and Nguyen, *The Economic Impact of Natural Disasters in Pacific Island Countries: Adaptation and Preparedness*, IMF Working Paper 18/108, INTERNATIONAL MONETARY FUND (2018), and Nishizawa, Roger, and Zhang, *Fiscal Buffers for Natural Disasters in Pacific Island Countries*, IMF Working Paper 19/152, INTERNATIONAL MONETARY FUND (2019).

⁹³ Manal Fouad, Natalija Novta, Gemma Preston, Todd Schneider, and Sureni Weerathunga, *Unlocking Access to Climate Finance for Pacific Island Countries (DP/2021/020)*, INTERNATIONAL MONETARY FUND 7 (2021), <https://www.imf.org/en/Publications/Departmental-Papers-Policy-Papers/Issues/2021/09/23/Unlocking-Access-to-Climate-Finance-for-Pacific-Islands-Countries-464709>; Manal Fouad et al., *Unlocking Access to Climate Finance for Pacific Island Countries*, IMF PUBLIC FINANCIAL MANAGEMENT BLOG (Sep. 30, 2021), <https://blog-pfm.imf.org/en/pfmblog/2021/09/unlocking-access-to-climate-finance-for-pacific-islands-countries>.

Example: Action for nullification or impairment of benefits by low lying island nations

Vanuatu has been a leader in advocating for low lying island nations in the international context. For example, it has led a coalition of countries calling for an Advisory Opinion on Climate Change from the International Court of Justice, in relation to the obligation of states to ensure protection of the climate and what consequences should exist for breaches of such obligations.⁹⁴

Vanuatu could bring a claim, accompanied by and on behalf of other island nations, that fossil fuel subsidies, through incentivizing the use of fossil fuels, the chief contributor to climate change, have nullified and impaired their ability to make use of the trading system at all, let alone the benefit of lower tariff rates.

V. REMEDY

WTO rules provide for a multitiered approach to remedies. The first tier is bringing the subsidizing country's actions into compliance with the WTO rules set out in the SCM Agreement. For a prohibited subsidy case, this would mean removing the subsidy immediately,⁹⁵ but for an adverse effects case, that means removing the subsidy or the adverse effects of the subsidy.⁹⁶ If the subsidizing country, however, does not comply with a finding that it should remove the adverse effects of a subsidy, the SCM Agreement and WTO dispute settlement mechanism provides for compensation or retaliation up to a quantified sum.⁹⁷

A. Compliance

Remedying the adverse effects of subsidies is fraught with difficulty, in part because the remedy is in principle only prospective.⁹⁸ As a starting point, restoring compliance with WTO obligations under the SCM Agreement can be through either removing the subsidy or by removing the adverse effects of the subsidy.⁹⁹ In the context of the nature and scale of fossil fuel subsidies, it is difficult to imagine that their adverse effects could

⁹⁴ *Request for an advisory opinion of the International Court of Justice on the obligations of States in respect of climate change*, UNITED NATIONS GENERAL ASSEMBLY, A/77/L.58 (Mar. 1, 2023), <https://documents-dds-ny.un.org/doc/UNDOC/LTD/N23/063/82/PDF/N2306382.pdf?OpenElement>.

⁹⁵ *SCM Agreement*, *supra* note 18, at Art. 4.7.

⁹⁶ *Id.* at Art. 7.8.

⁹⁷ Understanding on Rules and Procedures Governing the Settlement of Disputes, Marrakesh Agreement Establishing the World Trade Organization, Annex 2, 1869 U.N.T.S. 401 (1994) [hereinafter *Dispute Settlement Understanding*]; *SCM Agreement*, *supra* note 18, at Art. 7.9-7.10.

⁹⁸ Chad P. Bown and Jennifer A. Hillman, *WTO'ing a Resolution to the China Subsidy Problem*, PETERSON INSTITUTE FOR INTERNATIONAL ECONOMICS 14 (Oct. 2019), <https://www.piie.com/publications/working-papers/wtoing-resolution-china-subsidy-problem>; (hereinafter Bown and Hillman) There has been one example though of a retrospective removal of adverse effects, but only in a prohibited subsidy case, rather than adverse effects. In one case involving a subsidy to leather producers in Australia, the compliance panel determined that prohibiting the granting or maintenance of export subsidies required restoring the situation to what it would be but for the prohibited subsidy, which meant retrospectively paying the subsidy back in full. See Bown and Hillman, 17; Australia–Automotive Leather, WT/DS/126/RW (adopted Feb. 11, 2000).

⁹⁹ *SCM Agreement*, *supra* note 18, at Art. 7.8; Appellate Body Report, *European Communities and Certain member States - Measures Affecting Trade in Large Civil Aircraft* (Article 21.5), 5.362, 5.364 WT/DS316/AB/RW (May 15, 2018) (adopted on May 28, 2018) [hereinafter *Appellate Body Report, EC-Large Civil Aircraft* (21.5)].

be removed without removing the subsidies themselves. While in other contexts, it may be possible to remove the adverse effects of the subsidy through effects-based measures,¹⁰⁰ it would be very difficult, if not impossible, to do so in relation to fossil fuel subsidies.

At the point of considering a remedy, the adverse economic effects of fossil fuel subsidies will have been established, for example through price suppression or market share enhancement. But fossil fuel subsidies also have other adverse effects, which go well beyond their immediate impact on the price of fossil fuel products. While their flow on effects might not be a part of the finding of adverse effects under Article 5, it may be possible to consider them as part of the remedy. The appropriate counterfactual to apply is “one under which the subsidies in question were never granted.”¹⁰¹

The quantitative figures for subsidies used so far apply the ‘inventory’ approach, which assesses the direct financial benefit extended to the producer or consumer under any give subsidy, i.e. how much money was included in a direct transfer, or how much less tax was paid. This follows the basic logic of the SCM Agreement. However, there are other ways to quantify not only the explicit dollar value of the subsidy itself, but also its flow on effects, or the implicit cost that it has elsewhere. In a 2021 study, the IMF calculated the ‘price gap’ between the cost of fossil fuel supply and what its efficient cost would be if its flow on economic effects were taken into account, such as effect on global warming, local air pollution and associated health issues.¹⁰² Using this methodology, the IMF calculated not only what the explicit subsidies to fossil fuel are, but what the implicit subsidies are – the difference between the total costs of fossil fuel supply (including its flow on economic effects), compared with what is actually charged to the consumer. It found: “Underpricing [i.e. subsidizing] leads to overconsumption of fossil fuels, which accelerates global warming and exacerbates domestic environmental problems including losses to human life from local air pollution and excessive and road congestion and accidents.”¹⁰³ In quantifying the total cost of fossil fuel subsidies, the IMF estimated that:

“Globally, fossil fuel subsidies... were \$5.9 trillion or 6.8 percent of GDP in 2020 and are expected to increase to 7.4 percent of GDP in 2025 as the share of fuel consumption in emerging markets (where price gaps are generally larger) continues to climb... Just 8 percent of the 2020 subsidy reflects undercharging for supply costs (explicit subsidies) and 92 percent for undercharging for environmental costs and foregone consumption taxes (implicit subsidies)... Efficient fuel pricing by 2025 would reduce global carbon dioxide (CO₂) emissions 36 percent below baseline levels, equivalent to a 32 percent cut below 2018 levels”¹⁰⁴

¹⁰⁰ See for example discussion of effects-based nature of Article 5 subsidy disciplines, Panel Report, *European Communities and Certain member States - Measures Affecting Trade in Large Civil Aircraft (Art. 21.5)*, 6.1078, WT/DS316/RW (Sep. 22, 2016).

¹⁰¹ Panel Report, *European Communities and Certain member States - Measures Affecting Trade in Large Civil Aircraft (Art. 21.5 No. 2)*, 7.268, WT/DS316/RW2 (Dec. 2, 2019).

¹⁰² Under the price gap approach, an explicit subsidy is the difference between the cost to supply and the cost to consumers in any given country. See further, Section III. Conceptual and Measurement Issues in Ian Parry, Simon Black and Nate Vernon, *Still Not Getting Energy Prices Right: A Global and Country Update of Fossil Fuel Subsidies*, IMF Working Paper WP/21/236, 10 INTERNATIONAL MONETARY FUND (2021).

¹⁰³ *Id.* at 3.

¹⁰⁴ *Id.* at 3, 5.

Subsidies therefore cause harm beyond the direct financial benefit they confer – they contribute to incentivizing the use of fossil fuels, and contribute to heating the planet and to health issues associated with air pollution. The IMF calculates that the worst offenders for combined explicit and implicit fossil fuel subsidies are China (US\$2.2 trillion), U.S. (US\$660 billion), and Russia (US\$520 billion).¹⁰⁵

Just 8% of the total subsidy underpricing, or subsidization, is from the explicit subsidies. The other contributors are broken down into: local air pollution costs (42%), global warming costs (29%), local externalities like road congestion (15%), and foregone consumption tax revenue (6%).¹⁰⁶ The subsidies to fossil fuels are estimated to cause 900,000 premature deaths per year from local air pollution.¹⁰⁷

What then would it mean to remove the adverse effects of fossil fuel subsidies? For local air pollution, removing the subsidy would relatively quickly result in an improvement in air quality corresponding to the level of the subsidy, although for many the damage from the air pollution will have already been done. Removing the adverse effects of the subsidy in that case might mean increasing public health resources for respiratory illnesses. For global warming, the adverse effects are so widespread and diffuse that it is difficult to know how the adverse effects would be removed. There are numerous arguments that a complaining country could make. Would it mean putting the subsidizing country on shorter path to net zero? A fund for adaptation in the same amount as the implicit underpricing corresponding to climate change? Mandatory contributions to the loss and damage fund proposed at COP27? In principle, it would at least require an acceleration of the transition to renewable energy to prevent the ongoing effects of the past subsidies, and a certain level of adaptation efforts to mitigate climate change's adverse effects to the extent they correspond with the proportion that was caused by fossil fuel subsidies. It may mean pushing in the same direction as current strategies, but in an accelerated manner.

One difficulty, however, has already been alluded to. Article 7.8 says “shall take appropriate steps to remove the adverse effects *or* shall withdraw the subsidy” (emphasis added), which would make it difficult for a Panel or Appellate Body to force a member to take one path over the other.¹⁰⁸

B. Non-compliance remedies

If a WTO adverse effects case is determined against a respondent country and the complainant country does not consider that the subsidy or the adverse effects of the subsidy have been removed, the complaining country can request the WTO establish a Panel to determine the compliance or non-compliance of the respondent country.¹⁰⁹ If the Panel agrees that the subsidizing country has not complied with its obligations to remove the subsidy or its adverse effects, the complaining country must seek to agree compensation with the respondent.¹¹⁰ If no agreement is reached the complaining country can request authorization, under Article 7.9 of the SCM Agreement to take

¹⁰⁵ *Id.* at 26, 38.

¹⁰⁶ *Id.* at 4.

¹⁰⁷ *Id.* at 5.

¹⁰⁸ *Appellate Body Report, EC-Large Civil Aircraft (21.5)*, *supra* note 99, at 5.362: “The use of the word “or” in the context of the second clause of Article 7.8 suggests that the Member concerned may implement the recommendations and rulings of the DSB under Part III of the SCM Agreement by choosing either of these alternative pathways to achieving compliance.”

¹⁰⁹ *Dispute Settlement Understanding*, *supra* note 97, at Art. 21.5.

¹¹⁰ *Id.* at Art. 22.2; *SCM Agreement*, *supra* note 18, at Art. 7.9.

“countermeasures, commensurate with the degree and nature of the adverse effects determined to exist.”¹¹¹ This would be achieved by suspending concessions or other obligations that would ordinarily be given to the subsidizing country, for example, through additional tariffs that would otherwise be prohibited under WTO rules.¹¹² If the subsidizing country disagrees with the proposed level or method of retaliation, the matter is referred to an arbitrator for determination.¹¹³

This means that if a respondent country chose to come into compliance with a finding against it by removing the subsidy rather than removing the effects of the subsidy, the complaining country might consider that unsatisfactory and bring a complaint on compliance to the WTO, forcing the respondent country to explain why it felt that course of action was sufficient. Further, Article 7.9 does not limit compensation to the amount of the explicit subsidy, nor does it limit countermeasures to the amount of the explicit subsidy. This means that it allows a complainant to reject an attempt to agree compensation that does not include compensation for flow on effects of fossil fuel subsidies, and it allows a complainant to push for countermeasures commensurate with the adverse effects of the subsidy.

Article 7.9 “refers to the ‘degree and nature’ of the adverse effects rather than their ‘level’ or ‘magnitude.’”¹¹⁴ This means that the arbitrator must consider both the quantitative (degree) and qualitative (nature) of the adverse effects in determining the appropriate level of retaliation.¹¹⁵ While the nature of the adverse effects are framed by the adverse effects foreseen in Articles 5 and 6 of the SCM Agreement, the “effects could manifest themselves in a variety of ways, each reflecting a specific type of trade distortion.”¹¹⁶ In the context of fossil fuel subsidies, this leaves the door open for considering the flow on adverse effects of the subsidies.

In *US-Cotton*,¹¹⁷ the arbitrators limited the quantification to the adverse effects on Brazil (the complaining party), despite the market in question being the ‘world market.’¹¹⁸ This makes some sense in that it would be strange to compensate Brazil alone for the adverse effects in other locations. However, in the case of fossil fuels, having more parties join the complaint could significantly increase the scope of the adverse effects captured in the quantification exercise. For example, if it was a multiparty action, together the complainants could cover a very significant number of products against which to retaliate through tariff measures. Having a multiparty action would also spread out any negative effects of taking countermeasures against goods or services of the subsidizing country (although that the WTO has provisions to mitigate those negative effects too).¹¹⁹

¹¹¹ *SCM Agreement*, *supra* note 18, at Art. 7.9.

¹¹² *Dispute Settlement Understanding*, *supra* note 97, at Art. 22.2.

¹¹³ *Id.* at Art. 22.6; *SCM Agreement*, *supra* note 18, at Art. 7.10.

¹¹⁴ *SCM Agreement*, *supra* note 18, at Art. 7.9; Decision by the Arbitrator, *United States - Subsidies on Upland Cotton*, 100-101, WT/DS267/ARB/2 3 [hereinafter Arbitrator Decision, *US - Upland Cotton*].

¹¹⁵ Arbitrator Decision, *supra* note 114, *US - Upland Cotton*, at 4.41.

¹¹⁶ *Id.* at 4.43.

¹¹⁷ *United States - Subsidies on Upland Cotton*, DS267.

¹¹⁸ Arbitrator Decision, *supra* note 114, *US - Upland Cotton*, at 4.92; In Decision by the Arbitrator, *European Communities and Certain member States — Measures Affecting Trade in Large Civil Aircraft*, 6.475, WT/DS316/ARB (Oct. 2, 2019) (authorization to retaliate granted on Oct. 14, 2019), the arbitrators determined the adverse effects by reference to lost sales and the value of impedance, which as aircraft sales are for large value and lower volume than the trade in fossil fuels, does not give as much guidance in the fossil fuel subsidy context.

¹¹⁹ See *Dispute Settlement Understanding*, *supra* note 97, at Art. 22.3.

The argument for including the flow on adverse effects of fossil fuel subsidies is even stronger if a country could successfully bring a nullification or impairment case. Regarding compensation, the WTO Dispute Settlement Understanding notes that the “level of the suspension of concessions or other obligations authorized by the DSB [Dispute Settlement Body] shall be equivalent to the level of the nullification or impairment.”¹²⁰ While in a serious prejudice case, that would be framed by the serious prejudice caused by the adverse effects of the subsidies, in the context of a nullification or impairment case, only withdrawing the subsidies in question is not a satisfactory outcome, because the damage done by the fossil fuel subsidies has already been done, and removing the subsidy will not address the nullification or impairment of a low lying country’s ability to resume trade as normal. A low-lying Pacific Island nation might argue that the commensurate compensation or retaliation should be at least the percentage of the climate financing gap determined to be caused by fossil fuel subsidies, in addition to addressing other areas of trade nullification and impairment suffered by such low-lying island nations.

CONCLUSION

Addressing fossil fuel subsidies is a central issue in the transition to renewable energy necessary to prevent the worst effects of climate change. Renewable energies face trade distorting competition from subsidized fossil fuel industries and the window for the required transition to secure a liveable future is closing rapidly. Trade dispute mechanisms are one of the many tools that can and should be used to address these subsidies.

This analysis concludes that there are different approaches for bringing a claim against fossil fuel subsidies and a wide number of complainants who could bring such a claim. There are arguments for narrow, medium and broad claims based on categorization of like products or competing products. There are several avenues to demonstrate the serious prejudice required to establish an adverse effects case. A country does not need a domestic production industry to bring a claim and there are multiple categories of countries who stand to benefit from the removal of subsidies, ranging from producing countries who do not subsidize to countries trying to speed up their transition to renewables. There are arguments that fossil fuel subsidies have nullified and impaired the ability of some countries to trade at all. Each potential complainant can and should raise not only the explicit dollar value of subsidies, but also their flow on adverse effects in seeking redress from a subsidizing country or countries. There is no guarantee that an adverse effects case against fossil fuel subsidies would be successful. It is a difficult case to bring, but it is possible. The option is there – someone just needs to use it.

¹²⁰ *Id.* at Art. 22.4.

PART IV

TRADE LAW OPPORTUNITIES AND CHALLENGES

Economic growth has for many years taken precedence over the protection of the environment and its natural resources. As a result, international trade, as one of the oft-used engines of economic growth, has been categorized as one of the “enemies” of achieving environmental objectives and implementing sound climate policy. However, the urgency and scale of the climate crisis has led countries, policymakers, international organizations, and civil society to look anew at the role that international trade, trade policy, and the World Trade Organization (WTO) could play in affirmatively contributing to the fight against climate change.

Traditionally, trade measures to address climate change have taken the form of technical regulations, carbon taxes, green procurement requirements, and support for renewable energy programs. Recent years have seen these policies take formal shape in the form of, among other initiatives, the European Union’s (EU) Carbon Border Adjustment Mechanism (CBAM) and the United States’ tax credits for electric vehicles (EVs). Efforts to catalogue and coordinate the connection between positive action on climate change and trade policy have also blossomed at the WTO, with initiatives to curb fossil fuel subsidies and promote responsible trade in plastics on the agenda at the WTO’s Committee on Trade and Environment (CTE) and regular discussions on a wide array of issues occurring under the auspices of the Trade and Environmental Sustainability Structured Discussions (TESSD). The WTO’s most recent (2022) World Trade Report, an annual document focused on pressing issues, was dedicated to climate change, noting that while climate change is reshaping countries’ economic and trade prospects and is a major threat to future growth and prosperity, trade is also a force multiplier for countries’ adaptation efforts.¹ The report catalogues the ways trade can speed up the low-carbon transition while helping countries better prepare and respond through access to technologies and critical goods and services.

How to achieve those goals of allowing trade tools to be a force multiplier for climate measures while avoiding unnecessary frictions is the focus of this Part IV. These chapters recognize that international trade cooperation can make climate actions more effective, and the low-carbon transition more just, by minimizing trade tensions and investor uncertainty, if they are carefully designed to be consistent with WTO rules and principles. Each of the chapters looks at applying traditional trade tools in innovative ways to either advance climate mitigation or adaptation objectives, or to overcome existing frictions.

A prime example is the WTO trade policy review mechanism (TPRM). Although a traditional WTO mechanism to foster accountability, predictability, and transparency, Chapter 16, “The Sleeping Giant of Annex 3: The Trade Policy Review Mechanism,” outlines how the use of the TPRM could be extended to examine national climate actions and climate change-related WTO notifications, to highlight best practices, and to establish a baseline measure for what countries have done that both helps and hurts in the fight against climate change. It proposes using the TPRM in ways that would generate dialogue

¹ World Trade Organization. (2022). *World Trade Report 2022*. Available at: https://www.wto.org/english/res_e/publications_e/wtr22_e.htm

amongst WTO Members over the most effective climate actions while using the transparency that comes from the TPRM reporting process to spur further action in countries who can see that their actions are lagging behind their WTO peers.

Another area where climate change is having a major impact in a sector that is highly dependent on trade is that of food and food security. Climate change is already wreaking havoc on agricultural land, crop yields, and livestock productivity, and therefore, on food security. The multilateral trading system has for years strived to limit distortions and unnecessary barriers to ensure food safety and security through different agreements, including the WTO Agreement on Agriculture, the Agreement on the Application of Sanitary and Phytosanitary Measures (SPS Agreement), and the Technical Barriers to Trade Agreement (TBT Agreement). These agreements are designed to ensure that foods, fertilizers, and other agricultural goods and services reach the places where they are needed. In times of crisis, however, these same tools and others from the toolkit could be used in new ways to support the transition to sustainable food systems and food supply chains and to close the gaps between the climate impacts on agriculture and its effects on food security, particularly in developing countries. Two of the chapters of this Part IV explore how to do this.

Chapter 17, “How GE Seeds can Assist Developing Countries Adapting to Climate Change,” introduces the idea of using the existing compulsory licensing provision included in the WTO Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) to promote the distribution of seeds that have been engineered to grow crops in ways that are responsive to the changes brought on by climate change – crops that can grow with less water, less fertilizer and in ways that make them more resistant to drought and diseases. While recognizing the resistance in many countries to genetic-engineering (GE), this Chapter argues that GE seeds could serve as climate mitigation and adaptation measures for both food systems and food security, while providing developing countries policy space and latitude to adopt policies that will best meet the needs of their citizens.

Another aspect of the devastating impact that climate change is having on crop production is the growing use of bans on food exports done to protect against food shortages. Existing rules, particularly Article XI of the General Agreement on Tariffs and Trade (GATT), seek to balance the prevailing view that export bans are prohibited because they do long-term harm to the trading system and deprive trading partners of desperately needed goods, with the need of countries to guard against temporary food shortages. Chapter 18, “How the Trading System Can Deal with Food Security Concerns Associated with Climate Change,” addresses the thorny issue of the fact that food shortages due to climate change are unlikely to be temporary, and therefore do not fit neatly within the flexibilities currently provided under Article XI (2)(a). This Chapter suggests a path forward through coordinated mechanisms and capacity building schemes for developing countries as an incentive to maintain current prohibitions on non-temporary export bans.

Alongside these opportunities to use trade tools in new ways to address climate change are the challenges that arise when climate change policies collide with trade rules. These challenges to the trading system created by climate measures often occur in the realm of domestic policy rather than trade policy. Two prime examples come from the United States, where recent or proposed measures present significant potential for conflict along with great opportunity to advance the fight against climate change. The recently enacted Inflation Reduction Act (IRA), which provides hundreds of billions of dollars in

clean energy incentives – loans, tax breaks, and direct payments – meant to spur trillions more in private low-emissions investment, also contains provisions limiting its tax credits for Electric Vehicles (EVs) to those assembled in North America and with batteries and components sourced only from countries with trade agreements with the United States. Those local content requirements have raised red flags around the world as violations of the WTO rules. Chapter 19 “A Trade Tool to Tackle the ‘New’ EV Tax Credit’s WTO Inconsistency,” presents a way to ease the tensions so that the good that can come from substantial investments in EVs can be more widely shared and WTO challenges to the IRA avoided.

Another area of potential challenge to the trading system is the use of trade-related climate measures adopted in the name of national security. As discussed in Part VI of this book, much attention has focused recently on whether and how the essential security exceptions of GATT Article XXI could be invoked to justify climate change measures. The flip-side of that coin is the affirmative use of existing domestic national security tools to address climate change. In the United States, one powerful national security tool that could be twisted for climate change purposes is the International Emergency Economic Powers Act (IEEPA). Chapter 20, “Domestic and International Law Constraints on the President’s Authority to Impose Sanctions for Climate Change Purposes,” analyzes whether and how to use the broad and extraterritorial powers of IEEPA to impose sanctions on traded goods if those goods or the process by which they are made contributes to climate change.

Despite the challenges, the multilateral trading system and its trade tools have much to offer in the fight against climate change. Using trade policy to achieve Paris Agreement goals would be consistent with the mandate established in the preamble to the Marrakesh Agreement promoting sustainable development through its call to “allow for the optimal use of the world’s resources.” Finding ways to use traditional trade tools in new ways to speed up decarbonization and to support adaptation to climate change’s most pernicious effects while minimizing trade frictions will be important if trade policy is to be the force multiplier that the world needs it to be.

CHAPTER 16: THE SLEEPING GIANT OF ANNEX 3: THE TRADE POLICY REVIEW MECHANISM

YAHIA AMAR AMEIR

INTRODUCTION

Climate change is a deceptively straightforward problem. Limiting the worst effects of climate change requires at least two things: achieving net zero CO₂ emissions and collective action. The current international trade architecture is well equipped to help on both fronts—that is, if we’re willing to allow it. And while much has been written about how to transform the current architecture to better address climate change, this chapter takes a different approach by focusing on a tool that’s already in the arsenal: the World Trade Organization’s Trade Policy Review Mechanism (TPRM). Introduced in 1989, the TPRM was designed to “achieve greater transparency in the trade policies and practices of Members.” The problem, however, is that the TPRM has never been approached with the same rigor as comparable transparency tools. Take the IMF’s Article IV reports, for example. In the past two decades, Article IV reports underwent a process of reinvigoration that saw them emerge as a serious instrument capable of moving markets. The WTO’s TPRM should follow suit. This chapter seeks to lay the groundwork for a reinvigorated TPRM by providing several proposals for reform.

Part I explores the many linkages between trade and climate change. After providing a primer on carbon emissions in traded goods and services, it delves into the role that trade can play in diffusing green technology and shaping consumption decisions. Part II assesses the current state of affairs of trade and climate change at the WTO. It focuses on three fairly recent events that have garnered attention: the Trade and Environmental Sustainability Structured Dialogues (TESSD), the Fossil Fuel Subsidy Reform initiative (FFSR), and the 2022 World Trade Report. Part III of this chapter introduces the TPRM, provides an overview of the mechanics and benefits of the mechanism, and assesses how it is currently being used at the WTO. Part IV makes two sets of recommendations with respect to reforming the TPRM: recommendations to the Secretariat and recommendations to the individual Members. Finally, Part V summarizes the recommendations made in Part IV and offers a few concluding thoughts.

I. BACKGROUND ON THE LINK BETWEEN TRADE AND CLIMATE CHANGE

Climate change is a distinctively global problem that requires distinctively global solutions. That’s where trade comes in: international trade affects climate change in at least three different ways. 1) Traded goods and services account for almost a quarter of global carbon emissions,¹ 2) trade can be pivotal in diffusing green technology,² and 3) consumption decisions are overwhelmingly shaped by trade policies.³

¹ World Trade Organization, Trade and Climate Change: Challenges and Opportunities (Nov. 3, 2021), available at https://www.wto.org/english/news_e/news21_e/clim_03nov21-4_e.pdf.

² *Id.* at 3.

³ World Bank, The Trade and Climate Change Nexus (Sep. 9, 2021) available at <https://openknowledge.worldbank.org/server/api/core/bitstreams/5d543ded-1163-5fc6-8fe8-319d913cf269/content>

A. Traded Goods and Services Account for Almost a Quarter of Global Carbon Emissions

While measuring GHG emissions from trade can be a daunting task, we do have some indication of the amount of GHG emissions embedded in international trade. According to the WTO, GHG emissions generated by the production and transportation of traded goods represents between 20-30 percent of global GHG emissions.⁴ Two sectors in particular—energy and transportation – are responsible for over 75 percent of those emissions.⁵

Consistent with this data, the WTO has identified several factors that determine the amount of GHG emissions embedded in trade. Two particular factors are illustrative: the size of an economy and its sectoral composition.⁶ As a general rule, the largest economies are also the largest exporters and importers of GHG emissions.⁷ This is so because population size is directly correlated with consumption. The sectoral composition of an economy is also a key determinant, with commodity-dependent economies emitting the largest quantities of GHG emissions.

After the energy sector, transportation is an especially large contributor to GHG emissions.⁸ It is estimated that international freight transport represents around 33 percent of emissions generated by trade.⁹ Not all methods of transportation are created equal, however. The most efficient method of international transportation is through the sea, while the least efficient method (the most carbon-intensive method) of transportation is through the air.¹⁰

Notably, there are generally two approaches to reducing emissions in traded goods and services: more trade, or less trade. The WTO takes the position that adequately tackling climate change requires more trade, not less.¹¹ Enter green technologies.

B. Trade Can Be Pivotal in Diffusing Green Technology

Increasing trade in climate-friendly goods and technologies has the potential to limit surging GHG emissions. A sustainable path forward will require two commitments: 1) adopting low-carbon technologies, and 2) removing the barriers to trade in said technologies.¹²

Emerging green technologies like carbon capture and storage, renewable energy, and electric vehicles have the ability to reduce global emissions by approximately 600 metric tons of carbon dioxide by 2040.¹³ That reduction in emissions facilitated by green technology will help decarbonize the most carbon-intensive sectors like energy, agricultural, and transportation.

Low-carbon technologies alone are insufficient, however. This is where international trade can be pivotal: the current international trade architecture has a choice between accelerating decarbonization or standing in its way. Should international trade rules choose

⁴ World Trade Organization, *supra* note 1, at 3.

⁵ *Id.*

⁶ *Id.* at 7.

⁷ *Id.*

⁸ *Id.* at 8.

⁹ *Id.*

¹⁰ *Id.*

¹¹ *Id.* at 9.

¹² See World Bank, *supra* note 3, at 14.

¹³ *Id.*

to accelerate decarbonization, several trade barriers will need to be removed. These include supporting technology transfer and information sharing, permitting carbon border tax adjustments, and revealing biased tariff structures.¹⁴

C. Consumption Decisions Are Overwhelmingly Shaped by Trade Policies

Trade tools are one of the most effective means at changing consumption patterns. Implementing policies that encourage renewable energy consumption and reduce traditional energy consumption, for example, can help mitigate the effects of climate change.¹⁵ And while changes in consumption are usually framed as a “long-term exercise,” countries are not without options in the present.

Recent research indicates that current trade policies are skewed in favor of dirty industries, with tariff and nontariff barriers both operating to implicitly subsidize carbon emissions.¹⁶ It is estimated that direct global subsidies for fossil fuel consumption sit at around US\$530 billion per year, with implicit subsidies surpassing that amount.¹⁷ Countries can correct course in one of two ways, either by imposing similar barriers on clean and dirty industries, or, at the very least, by limiting fossil fuel subsidies to consumption only.

II. THE CURRENT STATE OF AFFAIRS: TRADE AND CLIMATE CHANGE AT THE WTO

The nexus between trade and climate change has not gone unnoticed at the WTO. In the span of a few short years, climate change has become all the fuss at the WTO. Indeed, that trend began in 2020, when fifty WTO members announced their intention to organize structured discussions on trade and the environment – the TESS Dialogue.¹⁸ In June 2022, another bombshell emerged – a group of WTO members known as the Fossil Fuel Subsidy Reform initiative put out their shared understandings.¹⁹ Eventually the WTO Secretariat caught on too: recognizing the profound impact of climate change on people’s lives, the 2022 World Trade Report chose climate change as its central theme.²⁰ That choice was very much intentional, and builds on an emerging trend inside the WTO that recognizes the force of trade tools in tackling climate change.

A. The Trade and Environmental Sustainability Structured Discussions (TESSD)

On November 17th, 2020, fifty WTO Members announced their intention to collaborate and advance discussions on trade and environmental sustainability.²¹ Several concrete steps to advance collaboration were adopted, including sharing experiences and best practices; promoting transparency and information sharing; and working with the

¹⁴ *Id.*

¹⁵ *Id.* at 9.

¹⁶ *Id.* at 15.

¹⁷ *Id.*

¹⁸ World Trade Organization, Trade in Services: Services Database (TESS) (last visited May 12, 2023), available at https://www.wto.org/english/tratop_e/tessd_e/tessd_e.htm.

¹⁹ World Trade Organization, Fossil Fuel Subsidies and Trade (last visited May 12, 2023), available at https://www.wto.org/english/tratop_e/envir_e/fossil_fuel_e.htm

²⁰ World Trade Organization, World Trade Report 2022 (WTR22) (WTO, 2022), available at chrome-extension://efaidnbmnnnibpcajpcgclefindmkaj/https://www.wto.org/english/res_e/booksp_e/wtr22_e/wtr22_e.pdf.

²¹ World Trade Organization, *supra* note 18.

private sector to provide technical assistance to least-developed countries.²² The group made clear that this is a standalone initiative not intended to replace any other WTO agreements or mandates. Building off this effort, on February 18th, 2022, the group announced the creation of informal working groups covering four themes: trade-related climate measures, environmental goods and services, circular economy, and subsidies.

TESSD has helped move the needle on trade and climate change in multiple ways. First, the membership of the group reflects a wide cross-section of interests, not just those with a strong record on trade and climate. The Russian Federation, the Kingdom of Saudi Arabia, and the United States are just a few noteworthy members.²³ Second, the group's membership has also seen an impressive increase. When the effort was first announced in November 2020, the group composed of fifty members; the group's current membership sits at seventy-four.²⁴ Finally, the level of activity has not been insignificant. In the two years since forming, they have met several times, divided responsibilities, developed a roadmap, and committed to reviewing progress in a year's time.²⁵

Despite its successes, however, the initiative has faced several drawbacks. First, it is not clear that the initiative has produced any actionable recommendations. The informal nature of the working groups and their discussion topics seems to defang them of any teeth. In addition, at the time of this writing (May 2023), the group is yet to convene or even establish a working plan for 2023. Finally, and most importantly, the language used in the shared understandings limits the force of this initiative. The most forceful provision of the Ministerial Statement of December 14th, 2021, agrees to intensify work and identify concrete actions that Members “could take” to advance environmentally sustainable trade.²⁶

B. The Fossil Fuel Subsidy Reform Initiative

Designed to phaseout inefficient fossil fuel subsidies and promote information sharing, the Fossil Fuel Subsidy Reform (FFSR) initiative was the next major milestone on the trade and climate change front. Led by New Zealand, the initiative was launched in December 2021, and currently has forty-eight WTO Members as co-sponsors.²⁷ The pertinent language from the initial Ministerial Statement reads:

We seek the rationalization and phase out of inefficient fossil fuel subsidies that encourage wasteful consumption along a clear timeline and encourage the remaining WTO Members to join us in those efforts, recognizing the substantial financial resource this could unlock globally to support the transition.²⁸

Several things become apparent from the language of the text. First, this call to action seems to have more bite than the Ministerial Statement on TESSD. The language affirmatively calls for inefficient fossil fuel subsidies to be “phase[d] out along a clear

²² *Id.*

²³ World Trade Organization, Ministerial Statement on Trade and Environmental Sustainability (Dec. 2021), available at <https://docs.wto.org/dol2fe/Pages/SS/directdoc.aspx?filename=q:/WT/MIN21/6R2.pdf&Open=True>

²⁴ See *supra*, note 18.

²⁵ *Id.*

²⁶ See *supra*, note 23.

²⁷ See *supra*, note 19.

²⁸ World Trade Organization, Ministerial Statement on Fossil Fuel Subsidies (Dec. 2021), available at <https://docs.wto.org/dol2fe/Pages/SS/directdoc.aspx?filename=q:/WT/MIN21/9r1.pdf&Open=True>

timeline.”²⁹ And while the text does create a limiting principle in the form of the words “inefficient fossil fuel subsidies,” it does provide some context by defining inefficient fossil fuel subsidies as those that “encourage wasteful consumption.”³⁰ Additionally, unlike TESSD, the initiative’s members have already convened once in 2023.³¹

This initiative too is not without its drawbacks. While some see the language of the text as forceful and an incremental step forward, yet others see it as an unconvincing attempt to pull the wool over their eyes.³² Those critics argued that all fossil fuel subsidies are inefficient because they prevent effective climate action, so the commitment in the statement simply amounts to a hollow promise.³³ In addition, critics also drew a stark parallel between fisheries subsidies and fossil fuel subsidies. Pointing out that it took over 20 years to eliminate US\$22 billion in fisheries subsidies, meanwhile current fossil fuel subsidies amount to over US\$500 billion.³⁴

C. World Trade Report 2022: Climate Change and International Trade

Each year, the WTO selects a theme for its annual report. In 2022, that theme was international trade and climate change.³⁵ Before exploring the report’s substantive content, it is worth briefly highlighting the foreword by WTO Director-General Ngozi. Director-General Ngozi’s note seems to echo sentiments expressed by the most progressive voices at the intersection of trade and climate change. The second paragraph, for example, describes the climate crisis as a “problem of the global commons,”³⁶ likely a not so veiled message to climate change activists that the Director-General hears them.

The core of the report contains four key messages: climate change is a major threat, trade is a force multiplier, trade can reduce the cost of mitigation, and trade cooperation can make climate actions more effective.³⁷

First, the report recognizes the need for what it calls “significant reductions in global GHG emissions” in order to combat the worst effects of climate change. Consistent with past recommendations, the report offers a number of suggestions on how to leverage trade policy to support climate adaptation. Investing in infrastructure to increase resilience, integrating risk-management into decision-making, and liberalizing trade are just a sample of the suggestions offered by the report.³⁸ Next, the report describes trade as a force multiplier; proposing that countries thoughtfully consider how trade can be used to gain access to crucial technologies, goods, and services.³⁹

The third key message advanced by the report is that a transition to a low-carbon economy does not have to be economically harmful. By incentivizing low-carbon technologies and fostering competition and economies of scale, countries can create green

²⁹ *Id.*

³⁰ *Id.*

³¹ See *supra*, note 19.

³² Remi Parmentier, From Glasgow to Geneva: Stop Subsidizing the Beasts, SDG Knowledge Hub (Nov. 22, 2021), available at <https://sdg.iisd.org/commentary/guest-articles/from-glasgow-to-geneva-stop-subsidizing-the-beasts/>

³³ *Id.*

³⁴ *Id.*

³⁵ See *supra*, note 20.

³⁶ *Id.* at 6.

³⁷ *Id.* at 8.

³⁸ *Id.* at 34.

³⁹ *Id.* at 47.

jobs and mitigate climate change.⁴⁰ The fourth and final key message is a cautionary tale. The report counsels cooperation in favor of unilateralism, stating that unilateral measures risk creating trade tensions – a problem that seems to have already materialized.⁴¹

The three initiatives discussed in this section are – no doubt – a step in the right direction. TESSD and FFSR both benefit from being member-led, and at the very least, they seem to be cultivating soft law norms. But their informal nature means that they rely entirely on the goodwill of Members. And while the World Trade Report strikes the right tone, it suffers from being exclusively Secretariat-led and carries with it no binding authority, soft or hard. In order to comprehensively address climate change, the WTO ought to use *all* of the tools at its disposal. That is where the Trade Policy Review Mechanism comes in.

III. THE WTO'S TRADE POLICY REVIEW MECHANISM

Introduced in 1989 following the Uruguay Round, the Trade Policy Review Mechanism (TPRM) sought to achieve greater transparency and understanding of members policies by improving adherence to WTO rules.⁴² Trade policy reviews primarily benefit two constituencies: the member-country under review and the multilateral trading system as a whole. Procedurally, the review process generally proceeds in four-steps: collection of information, capital visit, document preparation (including Member questions), and final publication.⁴³ For purposes of this paper, the focus will be on the first and third steps.

A. Benefits of the TPRM: The Member Under Review and the Multilateral Trading System

For the member under review, trade reviews promote increased internal evaluation and greater trade liberalization. Particularly for developing countries, reviews prompt a process of self-examination as members are forced to rationalize and come to terms with their trade policies. As a consequence of this rationalization, members often re-evaluate and ultimately reform their trade practices in favor of two things: greater trade liberalization and increased transparency.⁴⁴

The multilateral trading system also stands to benefit substantially from regular trade policy reviews. Two particular benefits are worth underscoring. First, by highlighting WTO obligations that tend to fly under the radar, the TPRM helps ensure that members are acting consistently with *all* of their WTO obligations.⁴⁵ And second, despite review cycles differing based on the size of an economy, the TPRM spotlights prominent trends in world trade: a benefit that can lead to more negotiations, and ultimately, more agreements.⁴⁶

Two built-in safeguards are essential to the TPRM: the scope and frequency of reviews. The scope of reviews has expanded as the multilateral trading system continues to expand. Since 1995, the TPRM's scope has extended beyond goods to include areas

⁴⁰ *Id.* at 8.

⁴¹ *Id.*

⁴² Institute for International Economics, Appendix B: A WTO Description of the Trade Policy Review Mechanism, available at https://www.piie.com/publications/chapters_preview/60/appbie2512.pdf

⁴³ *Id.* at 66.

⁴⁴ *Id.* at 63.

⁴⁵ *Id.*

⁴⁶ *Id.*

such as services and intellectual property.⁴⁷ In addition, a brief appraisal of current TPRM practices indicates that members are asking (and being asked) a variety of questions, even if only tangentially related to trade policy. The frequency of reviews is determined by a country's overall weight in the multilateral trading system. Generally, the larger a country's weight in the trading system, the more frequently it undergoes review.⁴⁸

B. Mechanics of the TPRM

The TPRM process consists of four steps. 1) The initial round of information collection, 2) the WTO Secretariat's visit to the capital, 3) the preparation and dissemination of documents accompanied by an official meeting of the Trade Policy Review Body (TPRB) and, 4) the final publication of documents.⁴⁹ Each will be discussed in turn.

At the outset, the Secretariat prepares an elaborate questionnaire that is sent to the authorities of the member under review. The member typically has four weeks to provide replies to the questions and provide any additional data requested by the Secretariat (to which the Secretariat may respond with a second round of questions). Next, the staff of the WTO Trade Policy Review Division conduct a capital visit. The visit acts as an in-person follow-up to the questionnaire; with the WTO staff meeting with a host of government personnel as well as nongovernmental actors such as think tanks.⁵⁰

With all of the relevant information in hand, the Secretariat then circulates two reports: the government policy statement and the initial Secretariat's report. The government policy statement is a document prepared by the member under review. It provides a forward-looking perspective on their trade policies, as well as an outline of the trends and obstacles they have faced when trying to access foreign markets. In general, the length and detail of the government policy statement is at the discretion of the member under review.⁵¹

The initial Secretariat's report is based on the information collected during the previous two steps of the process, as well as the government policy statement produced by the member under review. This initial report seeks to situate the member's trade policies relative to their macroeconomic and structural policies, with an eye towards the evolution of their trade policies.⁵² The structure of the report is supposed to be identical for all members, with the only major difference being the context and evolution of policies. The four chapters of the report are structured as follows:

- I. The economic environment (covering major features of the economy, recent economic performance, trade patterns in goods and services, evolution of foreign investment, and trade related aspects of the foreign exchange regime)
- II. Institutional aspects of trade and investment policymaking, including participation in multilateral and regional trade agreements, and trade disputes and consultations
- III. Trade policies and practices by measure (covering all types of measures directly affecting imports, exports, trade in services, and production and trade in goods)

⁴⁷ *Id.* at 62.

⁴⁸ *Id.* at 63.

⁴⁹ See generally, *supra*, note 42.

⁵⁰ *Id.*

⁵¹ *Id.* at 65-67.

⁵² *Id.*

IV. Trade policies and practices by sector (agriculture, forestry, fisheries, mining, industry, and services)⁵³

With the relevant documents prepared and disseminated (the Secretariat's report and government policy statement), the next part of the third step is for the Trade Policy Review Body (TPRB) to convene. The TPRB is open to all WTO members and even includes international organizations who are permitted to attend the meetings as observers.⁵⁴

During this meeting, members are encouraged to submit questions to the member under review. And as previously noted, in practice, members tend to ask a wide variety of questions; beyond just those that focus on trade policy. After the member has fielded questions and provided written answers, the process concludes with the final step: the publication of all documents relevant to the review process.⁵⁵

C. The Current State of Affairs: Climate Change and the TPRM

In the current state of affairs, climate change intersects with the TPRM in three ways. 1) The reports by the Secretariat tend to vary, with some being more climate-focused than others, 2) The WTO's environmental database keeps track of environment-related TPR entries, and 3) Certain members ask thoughtful, climate change-related questions during the TPRB's question and answer portion.

The Secretariat's report tends to vary in its structure, with several factors likely informing how a certain report is structured, such as: its authors, the institutional competence of the member under review, and the size of the economy under review. For example, when China was last under review on March 9th, 2022, the Secretariat's report was thorough and reflected genuine interest in climate change-related policies.⁵⁶ Indeed, unlike other reports, the China report included a section that provided an overview of China's environmental policies.⁵⁷ It provided useful data on levels of energy production, consumption, and the breakdown of the energy mix. In addition, the report also outlined China's Five-Year Plan for Energy Development, which provided detailed targets on how China plans to diversify their energy mix.⁵⁸ Including a general section on energy and environmental policy is crucial because it invites questions and accountability.

Directly related to the TPRM, the WTO manages a database that keeps track of environment related TPR entries.⁵⁹ In the twelve-year period between 2009-2021, the database recorded 10,899 environment-related TPR entries.⁶⁰ The database began when the WTO Committee on Trade and Environment mandated the WTO Secretariat to keep track of all environment-related measures notified to the WTO.⁶¹ And despite receiving minimal attention relative to other initiatives, the database is well-managed and provides relevant information such as TPR entries by Member, types of sectors, and types of measures.

⁵³ *Id.* at 65.

⁵⁴ *Id.* at 68.

⁵⁵ *Id.* at 70-71.

⁵⁶ See, Trade Policy Review – China, (Mar. 9, 2022), available at <https://docs.wto.org/dol2fe/Pages/SS/directdoc.aspx?filename=q:/WT/TPR/S415R1.pdf&Open=True>

⁵⁷ *Id.* at 5.

⁵⁸ *Id.* at 142.

⁵⁹ World Trade Organization, Environmental Database, available at <https://edb.wto.org/tpm>

⁶⁰ *Id.*

⁶¹ *Id.*

Climate change features most prominently during the question-and-answer portion of the TPRM process. During this step, certain countries have developed a reputation for asking thoughtful climate change-related questions that either provoke self-reflection or illuminate best practices. Importantly, these questions strike a tone that is both respectful and courteous. New Zealand, the European Union, and Japan are especially skillful in this regard. The last time India was under review, for example, they fielded this question from Japan:

Japan would like to request India to provide details of its plan towards reducing the emission of CO₂ in the automotive sector from the perspectives of well-to-wheel and life-cycle assessment.⁶²

The challenges going forward are two-fold: how can the Secretariat improve the review process to ensure that climate change is always accounted for, and how can Members follow the lead of New Zealand, the European Union, and Japan in ensuring that trade and climate change remains top of mind.

IV. RECOMMENDATIONS FOR IMPROVING THE TPRM AT THE SECRETARIAT LEVEL AND THE INDIVIDUAL MEMBER LEVEL:

The TPRM can be improved in a variety of ways, both with respect to the Secretariat's report and the Member question-and-answer portion. Generally, three improvements can be made at the Secretariat level: 1) incorporate mandatory climate-related impact assessments, 2) consider reinvigorating the TPRM like the IMF did with Article IV Surveillance, and 3) establish internal processes in the Trade Policy Review Division to ensure that new reports track the progress made since a Member's last review. At the individual Member level, one major improvement can be made: Member's should approach the TPRM with a "peer review" mentality.

A. Recommendations for the WTO SECRETARIAT

1. Incorporate Mandatory Climate-Related Impact Assessments

The first recommendation was initially suggested in 2018 by an international, not-for-profit research group known as Climate Strategies. In describing the TPRM as a historically dormant peer-review assessment mechanism, the group recommended strengthening the TPRM to include a required impact assessment of relevant domestic measures on climate change.⁶³

Apart from climate-related impact assessments, Climate Strategies also argued for reforming trade policy reviews in the following ways: by surveying the impact of national environmental requirements on free trade, by surveying the impact of international agreements on the environment, and by developing a standardized approach for measuring responses to climate change across countries.⁶⁴ In July 2018, when Climate Strategies put out their recommendations, there were two obstacles standing in the way: the TPRM was being weakened, not strengthened; and the link between trade and climate was still attenuated.

⁶² Trade Policy Review – India (Mar. 12, 2021), available at <https://docs.wto.org/dol2fe/Pages/SS/directdoc.aspx?filename=q:/WT/TPR/M403A1.pdf&Open=True>.

⁶³ Kasturi Das et al., *Making the International Trade System Work for Climate Change: Assessing the Options* (July 2018), available at https://climatestrategies.org/wp-content/uploads/2018/07/CS-Report-_Trade-WP4.pdf

⁶⁴ *Id.* at 24-25.

Only one of those problems persists today. In 2017, Annex 3 was amended to reduce the frequency of reviews thereby weakening the TPRM.⁶⁵ This presented an obstacle at the time, because whereas Climate Strategies was arguing for a reinvigorated TPRM, the consensus at the WTO seemed to be in favor of a watered-down mechanism with less frequent reviews. The other obstacle – an attenuated link between trade and climate change – has since been overcome: both the WTO Secretariat and the membership acknowledge the interlinkages between trade and climate change.⁶⁶

Part I of this chapter surveyed those interlinkages in great detail. It is now evident that emissions generated by the production and transportation of traded goods accounts for between 20-30 percent of global GHG emissions; around one-third of emissions generated by traded goods result from international freight transportation; and trade in green technologies can reduce global emissions by almost 600 metric tons of CO₂ by 2040.⁶⁷ These facts have not been overlooked by the WTO's membership. Indeed, Part II of this chapter examined several *Member-led* initiatives aimed at reducing overall emissions, like TESSD and FFSR. Incorporating climate impact assessments into the TPRM is a pragmatic way for the WTO Secretariat to ensure that it is taking climate change as seriously as its membership.

2. Consider Reinvigorating the TPRM as the IMF did with Article IV Reports

In the early 2000's, the IMF undertook a comprehensive process of reinvigorating their Article IV process in a way that has had two lasting impacts. First, the Fund gave further meaning to the specific and general obligations required by Article IV; resulting in greater compliance and more robust Article IV reports. Second, by indicating a renewed level of seriousness in the surveillance process, the markets began to take Article IV reports seriously.⁶⁸ With respect to the TPRM, a more forceful alternative to climate impact assessments would be to amend the language of Annex 3.

At present, the TPRM cannot be used as a basis for three things: the enforcement of obligations under the Agreements, dispute settlement, or to impose new policy commitments on Members. In that sense, its scope is very limited. Because the WTO cannot establish new principles using their enabling authority in the way that the IMF can, it should consider amending the language of Annex 3 to give the TPRM more bite. An incremental textual reform would be to strike the following words from Part A (Objectives) of Annex 3: “the enforcement of specific obligations under the Agreements or.” Thus, the new pertinent language in Annex 3 would read:

It is not, however, intended to serve as a basis for dispute settlement procedures, or to impose new policy commitments on Members.

This incremental textual reform would continue to preclude the usage of information discovered through the TPRM as a basis for dispute settlement, and it would prevent the imposition of new policy commitments on members based on the TPRM. However, it *would* allow information that has come to light through the TPRM to serve as a basis for

⁶⁵ *Id.* at 25.

⁶⁶ See generally, *supra* notes 18, 19, 20.

⁶⁷ World Trade Organization, *supra* note 1.

⁶⁸ Domenico Lombardi and Ngaire Woods, *The Politics of Influence: An Analysis of IMF Surveillance, Review of International Political Economy*, available at https://www.brookings.edu/wp-content/uploads/2016/06/10_imf_lombardi.pdf

the enforcement of specific obligations under the Agreements. This would have the practical effect of giving the TPRM teeth – now, reviews would generate both transparency *and* accountability.

The lessons learned from the IMF are two-fold. First, pursuing important reforms brings about greater compliance and adherence with the rules, which generates accurate information and data. And second, that information sends an important signal to the market about the organization’s priorities. The WTO ought to heed both of these lessons. By pursuing incremental textual reform, the WTO could encourage greater adherence to the rules (not just the climate-related rules) and send an important signal about its priorities as an organization.

3. Establish Internal Processes To Ensure That Reports Adequately Track Progress

The final improvement that can be made at the WTO Secretariat level is to establish internal processes in the Trade Policy Review Division to ensure that new reports track the progress made since a Member’s last review. In the roughly three decades since the inception of the TPRM, the WTO has generated countless reports and overseen countless trade policy reviews. A fairly straightforward improvement would be to streamline the report process and ensure that, 1) the same questions are being asked of every country, including an environmental policy section like the one found in China’s report, and 2) that subsequent reviews include some form of comparative analysis with the reviewing members last review (potentially in the form of an appendix).

B. Recommendations for Individual Member Countries

While most countries have a long way to go when it comes to reducing emissions, it is worth highlighting that there is no shortage of innovative policies out there that have made a substantial difference in lowering emissions. In recent years, it has become commonplace for WTO Members to ask one another to elaborate on best practices in a certain industry or sector. Consistent with this emerging trend, WTO Members should rethink their approach to the TPRM – choosing to see it as a tool that can help illuminate best practices in trade and climate change policy.⁶⁹

To that end, this section will briefly evaluate three WTO Members who are subject to review in the coming months – Hong Kong, Türkiye, and Chile – and offer some suggested questions. These questions have a dual purpose: to illuminate best practices and to encourage accountability. The questions directed towards Hong Kong concern fossil fuel subsidies and climate mitigation and adaptation; Türkiye faces two questions both related to local content requirements; and one question is directed towards Chile concerning their commitment to fossil fuel subsidy reform.

1. Hong Kong, China

a. Fossil Fuel Subsidies

In 2021, Hong Kong, put in place the Hong Kong Climate Action Plan 2050. Central to the plan is the net-zero electricity generation pillar, which commits to ceasing coal for daily electricity generation by 2035 and increasing the share of cleaner, renewable forms

⁶⁹ The IMF is again illustrative here, with Article IV Surveillance being viewed as a mechanism for governments to learn from one another.

of energy such as solar and offshore wind farms.⁷⁰ In 2022, Hong Kong spent USD 4.1 billion, or 1.2% of GDP, on coal subsidies.⁷¹ Coal is by far the most heavily subsidized source of energy, representing 75% of all energy subsidies.⁷² In total, Hong Kong spent approximately USD 6.6 billion, or 1.7% of GDP, on energy subsidies.⁷³

- Can Hong Kong explain why it disproportionately subsidizes coal relative to other, cleaner sources of energy?
- Can Hong Kong share what steps have been taken since the report's publication two years ago to reduce Hong Kong's reliance on coal and natural gas?

b. Climate Mitigation and Adaptation

The Government of Hong Kong has earmarked 240 billion dollars in the next 15-20 years for climate mitigation and adaptation measures.⁷⁴ Hong Kong is especially vulnerable to extreme weather events including higher temperatures, tropical cyclones, rainstorms, landslides, and flooding.⁷⁵ Outside of the measures that have been introduced, the Hong Kong Government has announced that various departments within the government are conducting studies that pertain to adaptation decision-making. One such study sought to examine implementing improvement works for coastal low-lying and windy locations.⁷⁶

- Hong Kong's terrain and geographic location guarantees that it is especially vulnerable to climate change risks. In response, the Hong Kong Government has invested billions of dollars in climate adaptation measures. Can Hong Kong share best practices when it comes to climate adaptation measures in regions that share Hong Kong's terrain?
- Particularly with respect to members that might be similarly situated geographically, what have been the most effective investments Hong Kong, China has made on climate adaptation?

2. Türkiye

a. Local Content Requirements

In 2005, Türkiye passed the Law on Utilization of Renewable Energy Sources for the Purpose of Generating Electrical Energy. The main objective of the law was to increase the share of renewable energy in the overall energy mix.⁷⁷ In 2010, it was amended to include the language "use of domestic products," which was intended as an incentive to

⁷⁰ Climate Action Plan 2050: Towards a Carbon-neutral and Resilient Hong Kong (n.d.), available at https://www.climate-ready.gov.hk/files/pdf/CAP2050_4_en.pdf.

⁷¹ IMF, Fossil Fuel Subsidies by Country and Fuel Database, available at <https://www.imf.org/-/media/Files/Topics/Environment/energy-subsidies/fuel-subsidies-template-2022.ashx>

⁷² *Id.*

⁷³ *Id.*

⁷⁴ Wilson Center, Hong Kong's Pathway to Carbon Neutrality, Wilson Center Event, <https://www.wilsoncenter.org/event/hong-kongs-pathway-carbon-neutrality> (last visited May 11, 2023).

⁷⁵ *Id.*

⁷⁶ *Id.*

⁷⁷ Trade Policy Review – Türkiye (May 9, 2016), available at <https://docs.wto.org/dol2fe/Pages/SS/directdoc.aspx?filename=q:/WT/TPR/M331A1.pdf&Open=True>.

use domestic products for a limited period of time.⁷⁸ During the last trade policy review Türkiye underwent, it fielded multiple questions about this amendment to the 2005 law. Responding to these questions, Türkiye provided: “Türkiye aims to raise renewable energy resource share in electricity production to 30% at least, by 2023 according to Electricity Energy Market and Supply Security Strategy Document.”⁷⁹

In addition, Türkiye stated that importing technology associated with renewable energy leads to more dependency on other countries, and that Türkiye seeks to support the development of its own domestic renewable energy sector.⁸⁰ Thus, the law does not require the use of domestic equipment in order to benefit from the feed-in-tariff (FIT), it simply includes an additional FIT amount for local products in order to develop domestic industry.⁸¹

- Does Türkiye currently maintain any local content requirements in the renewable energy sector? Have all of the local content requirements incentivizing the use of domestic products been phased out?
- Can Türkiye speak to the success that the FIT program has had in developing its own domestic renewable energy sector and know-how? Has the program helped Türkiye decrease its dependency on other countries for renewable energy equipment and technology?

3. Chile

a. Fossil Fuel Subsidy Reform

Chile is a member of the Friends of Fossil Fuel Subsidy Reform group – a WTO member-led initiative that seeks to encourage fossil fuel subsidy reform.⁸² The OECD estimates that Chile spent US\$1.94 billion on support for fossil fuels in 2021; with all of the identified support going to end-users, not firms.⁸³

Historically, Chile has compensated low-income households directly, as opposed to providing direct or indirect support to firms.⁸⁴ As of 2018, it is estimated that fossil fuels account for 69% of Chile’s energy mix, with biomass coming next at 24%, and hydro power with 6% of the energy mix.⁸⁵ Chile has committed to carbon-neutrality by the year 2030 and have set the ambitious target of converting 70% of its total energy consumption to renewables by 2030.⁸⁶

- Can Chile elaborate on how consumption fossil fuel subsidies operate in Chile? As a member of the Friends of Fossil Fuel Subsidy reform group, does

⁷⁸ *Id.*

⁷⁹ *Id.* at 35.

⁸⁰ *Id.* at 36.

⁸¹ *Id.*

⁸² *Supra* note 19.

⁸³ OECD, Inventory of Support Measures for Fossil Fuels (last visited May 8, 2023) available at <https://www.oecd-ilibrary.org/sites/d3ec8d9c-en/index.html?itemId=/content/component/d3ec8d9c-en#:~:text=Government%20support%20to%20fossil%20fuels,to%20%25%20directed%20to%20firms.>

⁸⁴ *Id.*

⁸⁵ *Id.*

⁸⁶ Climate Action Tracker, Chile, <https://climateactiontracker.org/countries/chile/> (last visited May 12, 2023).

Chile plan on gradually eliminating inefficient fossil fuel subsidies in the coming years?

V. SUMMARY OF RECOMMENDATIONS FOR IMPROVING THE TPRM

For the TPRM to reach its full potential, it needs to be improved both at the Secretariat level and the individual Member level. At the Secretariat level, mandatory climate-related impact assessments should be incorporated into the review. These assessments are a pragmatic tool that can help provide a baseline for each country as they seek to decrease their greenhouse emissions. In addition, much like the IMF reinvigorated their Article IV process, the WTO should take heed and reinvigorate the TPRM by amending the language to allow the TPRM to serve as a basis for the enforcement of specific obligations under the Agreements. This crucial reform will indicate that the TPRM now stands as a transparency *and* accountability mechanism.

Finally, the Trade Policy Review Division should establish internal processes to ensure that new reports are tracking the progress made since a Member's last review. The recent Secretariat report on China is instructive here – moving forward, all reviews should contain an environmental policy section that surveys the member under review's trade and climate change policies. At the individual Member level, countries should approach the TPRM with an eye towards illuminating best practices and encouraging accountability. This dual purpose will allow Members to get the most out of the review process.

In closing, the TPRM will only be as effective as the WTO allows it to be. An earlier section of this chapter posed a crucial question of the international trade architecture: whether it wants to accelerate decarbonization or stand in its way. Reinvigorating the trade policy review mechanism is a surefire way to indicate that the WTO, for its part, is choosing to decisively act in favor of accelerating decarbonization.

CHAPTER 17: HOW GE SEEDS CAN ASSIST DEVELOPING COUNTRIES IN ADAPTING TO CLIMATE CHANGE, AND THE WTO'S ROLE IN ALLEVIATING BURDENS TO ACCESS

ALLIE WILLIAMS*

INTRODUCTION

As defined by the FAO, food security is a state in which “all people, at all times, have physical and economic access to sufficient safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life.”¹ An area’s designation as “food secure” depends on a four-dimensional analysis considering: 1.) the physical availability of food, 2.) one’s economic and physical access to food, 3.) the utilization of food nutrients within one’s body, and 4.) the stability of these three elements over time.² The second of the United Nation’s seventeen Sustainable Development Goal aspires to “[e]nd hunger, achieve food security and improved nutrition and promote sustainable agriculture.”³ Attaining this goal becomes an almost unimaginable realization when grappling with the reality that, in 2023, a predicted 345.2 million individuals will be designated as food insecure.⁴ The prospects of realizing food security on a widespread basis only seem to become bleaker when considering climate change’s role as a key-factor threatening to further catalyze the destabilization of food security.⁵

Those most harshly burdened by the food-security crisis reside in least developed countries (LDCs), with more than 251 million individuals residing in LDCs already indicated as severely food insecure.⁶ LDCs are often unable to by themselves meet domestic demand for food and are therefore highly dependent on international trade to provide residents with adequate food access.⁷ LDCs further exhibit a heightened vulnerability to weather, climate and water-related hazards.⁸ The combined momentum of heightened food insecurity and increased vulnerability to the effects of a changing climate leads one to question how vulnerable communities can effectively work towards ending hunger within their borders while conditions for agricultural farming only seem to worsen.

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¹ *An Introduction to the Basic Concepts of Food Security*, FAO FOOD SECURITY PROGRAMME (2008), <https://www.fao.org/3/al936e/al936e00.pdf>; *What is Food Security?*, THE WORLD BANK, <https://www.worldbank.org/en/topic/agriculture/brief/food-security-update/what-is-food-security>.

² *Id.*

³ *Goals*, THE UNITED NATIONS DEP’T. OF ECON. AND SOCIAL AFFAIRS, <https://sdgs.un.org/goals/goal2>.

⁴ *A global food crisis, 2023: Another Year of Extreme Jeopardy for those Struggling to Feed Their Families*, WORLD FOOD PROGRAMME (2023), <https://www.wfp.org/global-hunger-crisis#:~:text=The%20scale%20of%20the%20current,double%20the%20number%20in%202020>.

⁵ *Id.*

⁶ *The expanding threat to food security in least developed countries*, OECD (Jul. 5, 2022), [https://oecd-development-matters.org/2022/07/05/the-expanding-threat-to-food-security-in-least-developed-countries/#:~:text=Least%20developed%20countries%20\(LDCs\)%20are,LDCs%20are%20severely%20food%20insecure](https://oecd-development-matters.org/2022/07/05/the-expanding-threat-to-food-security-in-least-developed-countries/#:~:text=Least%20developed%20countries%20(LDCs)%20are,LDCs%20are%20severely%20food%20insecure).

⁷ *Id.*

⁸ *The low-carbon transition and its daunting implications of structural transformation: The Least Developed Countries Report*, THE UNITED NATIONS (2022) at 26, https://unctad.org/system/files/official-document/lde2022_en_0.pdf.

This chapter aims to explore 1.) How rising temperatures will further jeopardize the production of crops in LDCs, 2.) How genetically engineered (GE) seeds might pose as a lucrative tool capable of remedying the problem, and 3.) How international trade tools might be harnessed to increase access to GE seeds in LDCs.

I. THE IMPACT OF CLIMATE CHANGE ON THE AGRICULTURAL SECTOR

A. *Whether Climate Policies Are Adapted or Not, Food Insecurity Will Likely be Exacerbated in the Process*

Climate models may differ in the extent to which they forecast food insecurity in the coming years; however, the overwhelming message of these studies conveys that, whether climate goals are met or not, changes in temperature are likely to negatively impact vulnerable communities facing food insecurity.⁹ For instance, one agricultural model projects that adapting to climate change will cause a 17 percent decrease in major crop yields and a 20 percent increase in market prices by 2050, while other models show a 110 percent increase in the price of crops by the year 2100.¹⁰ Even if countries can effectively cooperate to impose stringent climate-mitigation policies, some conducted studies hypothesize that under such regimes, the global risk of hunger may still rise – not because of climate change, but rather from the implementation of policy.¹¹ More stringent (albeit, necessary) climate mitigation policies – in particular, the imposition of a carbon tax – will likely result in increased prices, decreased consumption of food, and a greater risk of the likelihood that vulnerable communities will face food insecurity.¹² While a comprehensive mitigation policy is necessary to combatting the climate crisis and capping rising temperatures, any such strategy must be balanced with equally as strong adaptation policies.

Climate change exacerbates agricultural problems in three main ways. First, increased carbon dioxide may directly impede the growth rate of crops and weeds.¹³ Second, rising temperatures may alter temperature, rainfall, and sunshine, and thereby negatively impact plant productivity.¹⁴ Last, rising sea levels resulting from climate change may cause a loss in farmland, or an increase in the groundwater salinity of coastal areas, thus leading to lower agricultural yield in impacted areas.¹⁵ Aside from lowering the abundance of a crop yield in a given area, rising levels of atmospheric carbon dioxide also has the capacity to negatively influence the dietary quality of the crops themselves. For instance, one study by Zhu et. Al. suggests that rising carbon dioxide levels will lead to ionic imbalances in many plant species, which include a disproportionate increase in carbon dioxide levels to levels of soil-based nutrients within the plants.¹⁶ This qualitative change in plant-based foods may have negative repercussions for human health in the future. Specifically, rice-

⁹ Hasegawa et. Al., *Risk of Increased Food Insecurity Under Stringent Global Climate Change Mitigation Policy*, 8 *Nature Climate Change* 699, 699 (Aug. 2018), <https://doi.org/10.1038/s41558-018-0230-x>.

¹⁰ *Id.*

¹¹ *Id.* at 700.

¹² *Id.* at 701.

¹³ Anupama Mahoto, *Climate Change and its Impact on Agriculture*, 4 *Int. Journal of Scientific and Research Publications* 1, 1 (Apr. 2014), <https://citeseerx.ist.psu.edu/document?repid=rep1&type=pdf&doi=2ca80dfb4d19709246e14e00ed2e308162f76c67>.

¹⁴ *Id.*

¹⁵ *Id.*

¹⁶ Chunwhu Zhu, *Carbon dioxide (CO2) levels this century will alter the protein, micronutrients, and vitamin content of rice grains with potential health consequences for the poorest rice depended countries*, 4 *SCI. ADV.* 1, 1 (2018), <https://www.science.org/doi/10.1126/sciadv.aaq1012>.

dependent communities with a less diverse range of harvested crops may experience disproportionate nutritional effects, for instance a substantial decrease in vitamin B, due to the projected increase in the carbon dioxide composition of the rice plants.¹⁷

These impacts likely will not be dispersed equally across geographic areas. Many developing countries already sit near or above crop tolerance levels and are projected to suffer an average ten to twenty-five percent decline in agricultural productivity by the 2080s, while richer countries comparatively are projected to face a much milder six to eight percent decline in crop productivity.¹⁸ Individualized projections, however, place some countries at a dire risk of decline in agricultural productivity, with certain countries facing a projected thirty to forty percent decline.¹⁹

India presents one such case study encapsulating how agricultural production within the developing world will suffer disproportionately due to the impacts of climate change. As India's agricultural economy is heavily dependent on its monsoon season, a higher incidence of drought within the country will negatively impact India's wheat crop yield, potentially resulting in a loss of four to five million tons in wheat, and in turn, a projected price increase of the wheat crop.²⁰ Aside from this, as roughly twenty-eight percent of India's population already sits below the poverty line, adequately mitigating the impacts of climate change on India's annual food production would currently require the country's agricultural farmers to produce another five million metric tons of food each year.²¹

By either adopting a mitigation strategy to combat climate change, or by just keeping with the status quo and choosing to let climate change run its course, there is a strong likelihood that food insecurity will pose a more a more turbulent threat to vulnerable communities, hurting their prospects of adequately adapting to climate change. This necessitates a refocusing of the conversation on climate change, particularly in LDCs, away from mitigation and towards adaptation. The use of GE seeds poses as one adaptation strategy with the potential to alleviate the burdens of food insecurity on individuals residing in LDCs.

B. Genetically modified seeds may pose a solution to climate woes despite public aversion to their use

A GMO, or "genetically modified organism," is a plant, animal, or microorganism whose genetic material has been technologically altered.²² Genetically Engineered (GE) foods are GMOs which have been genetically altered by scientists to have specific traits which might aid in the prevention of crop loss; by implanting one gene and removing another, scientists are able to speed up the development process of plants engineering years sooner than the normal timelines of research and development programs.²³ GE seeds may be used to grow crops, for example, that have greater protein or vitamin compositions, or are herbicide-tolerant (HT), insect-resistant (Bt), or drought resistant.²⁴ The use of GE seeds can have a two-fold impact on climate change as a tool for both

¹⁷ *Id.* at 2.

¹⁸ Mahoto, *supra* note 13, at 3.

¹⁹ *Id.*

²⁰ *Id.*

²¹ *Id.*

²² *How GMO Crops Impact our World*, FDA (2022), <https://www.fda.gov/food/agricultural-biotechnology/how-gmo-crops-impact-our-world>.

²³ Genetically engineered foods, MEDLINEPLUS, <https://medlineplus.gov/ency/article/002432.htm>.

²⁴ *Recent Trends in GE Adoption*, USDA (2022), <https://www.ers.usda.gov/data-products/adoption-of-genetically-engineered-crops-in-the-u-s/recent-trends-in-ge-adoption/>.

mitigation and adaptation. With regards to mitigation, crops grown using GE seeds can, for example, optimize photosynthesis, making them more productive and resulting in less carbon dioxide emitted into the atmosphere.²⁵ Additionally, crop roots can be engineered to be resistant to decomposition, thus increasing their potential for carbon capture.²⁶ While the capacity of GE seeds as both an adaptive and mitigative tool in the fight against climate change pose as extremely lucrative, this paper will focus on the adaptation side of GE seeds as LDCs are already feeling the negative impacts of the climate crisis and are incredibly vulnerable to changes in temperature.

The increase in crop yield resulting from adaptations of GE crop seed technology have allowed for increased wages for farmers in developing countries, and over a 25-year period spanning 1996-2020, one study suggests that for each additional dollar invested into biotech crop seeds, an average of \$5.22 was earned.²⁷ Despite many scientists' belief that using technological tools to alter plant genetics poses as a necessary step in surviving the climate crisis, many individuals nonetheless remain steadfast in their opposition to GE seeds and GMOs more broadly, categorizing such technologies as "Frankenfoods" capable of poisoning agricultural processes, causing irrevocable environmental damage, and imposing "food totalitarianism" on the world.²⁸ Critics propose that the long-term effects of genetically modified foods on human health and the environment are unknown and therefore, adaptation of such technology is hazardous; however, such fears often come uncoupled from scientific backing.²⁹ Although it is only natural to fear the unknown, those groups campaigning against the use of GE technology may need to reconsider their fears and redirect them towards the real enemy: climate-change. The restrictive political atmosphere built around GE technology has thwarted efforts aimed at increasing food-security and resulted in accrued foregone economic benefits predicted to total \$1.5 trillion in low and lower-middle income nations through 2050.³⁰

In a perfect world, it would not be necessary to rely on GE foods to ensure adequate food access. We do not live in a perfect world, and our reliance on GHG emitting processes has proven as such. Time is running out to respond to the climate crisis, and adaptation needs to happen fast. While the opposition's mission to preserve traditional agricultural processes is admirable, GE seed technology must be embraced as a critical tool in the fight to adapt to rising temperatures and increase the capacity of LDCs to combat food insecurity in the face of a global climate crisis.

²⁵ *Explained: How engineered crops can fight climate change*, WEF (Jul. 4, 2022), <https://www.weforum.org/agenda/2022/07/engineered-crops-can-fight-climate-change/>.

²⁶ *Id.*

²⁷ See Generally Graham Brookes, *Farm income and production impacts from the use of genetically modified (GM) crop technology 1996-2020*, 13(1) GM CROPS & FOOD 171 (2022), <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9397136/>.

²⁸ Michael Specter, *Seeds of Doubt: An activist's controversial crusade against genetically modified crops*, THE NEW YORKER, (Aug. 18, 2014), <https://www.newyorker.com/magazine/2014/08/25/seeds-of-doubt>; Raf Casert, *EU Study: GMO laws need overhaul; environmentalists protest*, AP NEWS (Apr. 29, 2021), <https://apnews.com/article/europe-laws-technology-environment-science-cb00423180728984240b7056335c110>.

²⁹ *Looking Behind the Curtain: The Growth of Trade Barriers that Ignore Sound Science*, NATIONAL FOREIGN TRADE COUNCIL INC. (May 2003) at 20, https://www.wto.org/english/forums_e/ngo_e/posp47_nftc_looking_behind_e.pdf.

³⁰ Val Giddings, Robert D. Atkinson & John Wu, *Suppressing Growth: How GMO Opposition Hurts Developing Nations*, (Feb. 8, 2016), INFORMATION TECHNOLOGY & INNOVATION FOUNDATION <https://itif.org/publications/2016/02/08/suppressing-growth-how-gmo-opposition-hurts-developing-nations/>.

II. THE ROLE OF INTERNATIONAL TRADE REGIMES IN AIDING THE TRANSFER OF AND ENCOURAGING USE OF GE SEEDS IN LDCs

A. *Current WTO Status on Food Security*

The WTO acknowledges the ability of trade tools to improve food availability and increase economic access to food. Historic decisions impacting food security undertaken by the WTO in the past include the WTO's decision to abolish agricultural export subsidies in December 2015, which, prior to their abolishment, had the impact of distorting market prices, leading to higher prices and surplus production in exporting countries, with lower prices and less production in importing countries.³¹ This decision represents one instance in which the WTO undermined exporters' (the U.S. and EU in particular) subsidy practices that allowed them to unfairly compete with local producers in developing countries.³² In another attempt to advance food security interests, the WTO has also agreed that public stockholding programs in developing countries will not be legally challenged even if such programs exceed these country's limits for trade-distorting domestic support.³³ The WTO could nonetheless be more lucratively utilized to further encourage the adaptation of GE seeds in LDCs.

One major WTO instrument applicable to the use of GE seeds is the Agreement on the Application of Sanitary and Phytosanitary Measures (herein referred to as the "SPS Agreement"), which provides rules governing food safety and animal and health standards.³⁴ The SPS Agreement provides that countries must independently maintain sanitary and phytosanitary measures to ensure food safety and prevent the spread of disease among plants and animals.³⁵ As applicable to the discussion on GE seeds, Article 5.7 of the SPS Agreement permits WTO members to temporarily impose precautionary measures when scientific evidence cannot adequately verify the safety of a product or process.³⁶

The EU, a proponent of the precautionary principle, has attempted to use Article 5.7 to keep GE seeds from attaining influence within its borders. In the noteworthy 2006 WTO decision *EC-Biotech*, WTO arbitrators found that the EU had established a de-facto moratorium on biotech products, and that such delays in approving biotech products were in violation of the SPS Agreement.³⁷ Significantly, the WTO panel found that there were limits to the EU's utilization of SPS Article 5.7; the SPS agreement did not embrace the precautionary principle as a principle of customary international law and the existence of scientific uncertainty was not viewed in the same light as having insufficient scientific evidence which might defend a decision not to regulate.³⁸ Opposite the EU's embrace of

³¹ Heinz Strubenhoff, *The WTO's decision to end agricultural export subsidies is good news for farmers and consumers*, BROOKINGS INST. (Feb. 8, 2016), <https://www.brookings.edu/blog/future-development/2016/02/08/the-wto-decision-to-end-agricultural-export-subsidies-is-good-news-for-farmers-and-consumers/>.

³² *Id.*

³³ *Id.*

³⁴ *Understanding the WTO Agreement on Sanitary and Phytosanitary Measures*, WTO (2023), https://www.wto.org/english/tratop_e/sps_e/spsund_e.htm.

³⁵ *Id.*

³⁶ Max Planck, *Application of the Precautionary Principle in the SPS Agreement*, 14 YEARBOOK OF UNITED NATIONS LAW 565, 569 (2010), https://www.mpil.de/files/pdf3/mpunyb_13_laowonsiri_14.pdf.

³⁷ *DS291: European Communities – Measures Affecting the Approval and Marketing of Biotech Products*, WTO (2023), https://www.wto.org/english/tratop_e/dispu_e/cases_e/ds291_e.htm.

³⁸ Lawrence A. Kogan, *WTO Ruling on Biotech Foods Addresses "Precautionary Principle"*, 21 LEGAL BACKGROUNDER 1, 2 (Dec. 8, 2006), <https://s3.us-east-2.amazonaws.com/washlegal-uploads/upload/120806kogan.pdf>.

the precautionary principle sit some advocates of GMOs who even argue that the precautionary principal undermines human health by delaying the time with which society embraces innovation.³⁹

B. The EU's Regulatory Scheme Discourages LDCs' Investment in GE Seeds, Potentially Giving Rise to a Claim by LDCs that the Scheme Violates WTO Standards

Countries differ widely in their regulatory approach to GE crops. The United States broadly embraces the use of GE crops within its borders, with utilization of GE seeds exponentially rising since their debut on U.S. markets in the mid-1990s.⁴⁰ As of 2022, genetically engineered crops made up 95 percent of the soybean acreage and 90 percent of the corn acreage within the United States.⁴¹ The EU, however, exhibits a hostile approach to the importation and cultivation of GE agricultural products, largely preceded on the EU's embrace of the precautionary principle.⁴² Within the EU, GE seeds are treated the same as other GMOs, and are subjected to the same approval process, including the requisite checks and labelling requirements that all GMOs must abide by.⁴³ Moreover, the timeline for the authorization of GM food and feed generally lasts a period of five years. With only one GE product (MON 810 maize) having been approved for cultivation purposes within the EU⁴⁴, and the incredibly slow speed of the importation approval process of GE products, widespread adoption of GM technology within the EU seems unlikely.

To cultivate or import a GE crop to the EU, developers must not only comply with the European Food Safety Authority's stringent screening process and show that the crop does not pose a danger to human or environmental health, but also must receive a majority MS (member state) approval vote to proceed with cultivation or import, shifting the approval process from one that is scientifically informed to one categorized by political divisiveness.⁴⁵ This strict approval process further disincentivizes any investment into the development of GM crop technologies within the EU.⁴⁶ Even if a GE seed variation were to be approved for use within the EU, EU members can nonetheless, under EU Directive 2015/412, adopt a national opt out measure either restricting or prohibiting the cultivation of GE crops within their borders, despite the EFSA's approval.⁴⁷ EFSA recently approved

³⁹ Adam Thierer, *How Many Lives are Lost Due to the Precautionary Principle?*, Mercatus Center: George Mason University (Oct. 31, 2019), <https://www.mercatus.org/economic-insights/expert-commentary/how-many-lives-are-lost-due-precautionary-principle>.

⁴⁰ *Recent Trends in GE Adoption*, USDA (2022), <https://www.ers.usda.gov/data-products/adoption-of-genetically-engineered-crops-in-the-u-s/recent-trends-in-ge-adoption/>.

⁴¹ *Id.*

⁴² *Fact Sheet: Questions and Answers on EU's policies on GMOs*, EUROPEAN COMMISSION (Apr. 22, 2015), https://ec.europa.eu/commission/presscorner/detail/en/MEMO_15_4778.

⁴³ Arthur Neslin, *Gene-edited plants and animals are GM foods, EU court rules*, THE GUARDIAN (Jul. 25, 2018), <https://www.theguardian.com/environment/2018/jul/25/gene-editing-is-gm-europes-highest-court-rules>.

⁴⁴ Veronika Chvatalova, *A critical evaluation of EFSA's environmental risk assessment of genetically modified maize MON810 for honeybees and earthworms*, 13(52) ENVIRONMENTAL SCIENCES EUROPE 1, 2 (2019), <https://enveurope.springeropen.com/articles/10.1186/s12302-019-0238-5>.

⁴⁵ Penny A. C. Hundleby & Wendy A. Harwood, *Impacts of the EU GMO regulatory framework for plant genome editing*, FOOD AND ENERGY SECUR (May 2019), <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6686985/>.

⁴⁶ See generally Tomasz Zimny et. Al., *Certain new plant breeding techniques and their marketability in the context of EU GMO legislation – recent developments*, 51 NEW BIOTECHNOLOGY 49 (Feb. 2019), <https://www.sciencedirect.com/science/article/pii/S187167841831940X?via%3Dihub>.

⁴⁷ *GMO Authorisations for cultivation*, EUROPEAN COMMISSION, <https://food.ec.europa.eu/plants/genetically-modified-organisms/gmo-authorisation/gmo-authorisations->

of the import and processing of food and feed products made using a certain variety of GE rapeseed (MON 94100) and renewed its approval of soybean (A5547-127) in late February 2023; these products were not approved for cultivation within the EU, and for the authorization to be fully complete, it must receive a qualified majority in favor of the GE crops by the Standing Committee on Plants, Animals, Food, and Feed (PAFF).⁴⁸

Farmers wishing to export crops to the EU experience an economic burden due to the EU's stringent GMO regulatory system, as these exporters must ensure that EU approved GM crops are strictly segregated from non-approved crops.⁴⁹ Moreover, as of 2015, 19 European countries banned the growing of GM crops, lowering farmers' productivity and raising the cost of food both in these countries and abroad in countries that wish to export crops to the EU.⁵⁰ The EU's stringent regulatory system affects LDCs' actions in other ways. Cambodia, for instance, has demonstrated a consistent reluctance to embrace GMO technology because it believes exporting organic products to the EU will allow for more financial gain than the export of genetically altered products to other countries.⁵¹ Hean Vanhan, the under-secretary of Cambodia's ministry of agriculture, attributes Cambodia's aversion to GMO technology towards fears of how it would impact Cambodia's exports, "as some countries do not trust them."⁵² Some countries, in this context, likely includes the EU, which is Cambodia's fifth biggest trade partner.⁵³

Africa poses as an example of a region that has been negatively impact by the overreach of the EU's stringent GMO policies. Because many African agricultural exports are eventually imported into the EU⁵⁴, the EU's anti-GMO attitude has trickled into and negatively impacted the African agricultural market, thereby impeding African countries' ability to adapt to climate change. As of 2021, the EU was Africa's largest trade partner; however, China is on course to overtake the EU as Africa's top trader by the year 2030.⁵⁵ Africa has for a very long time though, like Europe, remained averse to the use of GE crop technology and GMOs at large. Some suggest that this similar attitude is anything but coincidental, as European policy stances are "ventriloquized to governments in Africa through a number of channels" including trade connections and European assistance

cultivation_en#:~:text=After%20a%20GMO%20has%20been,use%2C%20coexistence%2C%20socio%2D economic.

⁴⁸Luigi Castaldi, *European Commission Authorizes two GE Crops for Import*, USDA FOREIGN AGRICULTURAL SERVICE (Mar. 1, 2023), https://apps.fas.usda.gov/newgainapi/api/Report/DownloadReportByFileName?fileName=European%20Commission%20Authorizes%20two%20GE%20Crops%20for%20Import_Brussels%20USEU_European%20Union_E42023-0009.

⁴⁹ Penny A. C. Hundleby & Wendy A. Harwood, *Impacts of the EU GMO regulatory framework for plant genome editing*, FOOD AND ENERGY SECUR. (May 2019), <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6686985/>.

⁵⁰ Val Giddings, Robert D. Atkinson, & John Wu, *Anti-GMO activists have erected barriers to agricultural biotech innovation that could cost the poorest nations on earth up to \$1.5 trillion through 2050*, INFORMATION TECHNOLOGY & INNOVATION FOUNDATION (Feb. 8, 2016), <https://itif.org/publications/2016/02/08/suppressing-growth-how-gmo-opposition-hurts-developing-nations/>.

⁵¹ Lisa Cornish, *What are the political drivers for GMOs in developing countries?*, DEVEX: INSIDE DEVELOPMENT (May 1, 2018), <https://www.devex.com/news/what-are-the-political-drivers-for-gmos-in-developing-countries-92091>.

⁵² *Id.*

⁵³ *Cambodia*, EUROPEAN COMMISSION, https://policy.trade.ec.europa.eu/eu-trade-relationships-country-and-region/countries-and-regions/cambodia_en.

⁵⁴ Mercer Martin, *A New Neocolonial Threat: The Harmful Impact of European GMO Policy on African Food Security*, 26 Drake J. Agric. L. 365, 385 (2021).

⁵⁵ Why African Countries Maintain Tight Restrictions on Genetically Modified Food, WORLD POLITICS REVIEW (May 28, 2019), <https://www.worldpoliticsreview.com/why-african-countries-maintain-tight-restrictions-on-genetically-modified-food/>.

channels which provide aid to African governments in their legislature processes.⁵⁶ Moreover, some contend that Europe has been able to exercise its influence on GMO policy through instruments such as the 2003 Cartagena Protocol, which embraces a highly precautionary approach towards GMO use, and urge that governments in Africa tend to be highly sensitive to these and other directives from multilateral institutions like the United Nations.⁵⁷

The use of GE technology could have positive effects within the continent, though. One study analyzing the life-saving impacts of GE crop adaptation in Africa with regards to malnourishment notes that “[i]f Kenya had adopted GE corn in 2006 . . . between 440 and 4,000 lives could theoretically have been saved”, and explaining that introducing the black sigatoka resistant banana in Uganda in 2007 could have “potentially sav[ed] between 500 and 5,500 lives over the past decade.”⁵⁸ Climate change has given Kenya (not a developing country, but generally categorized as a frontier market)⁵⁹ the impetus needed to revisit their longstanding ban against the cultivation of GMO products. The emergence of pests such as armyworms and maize stalk borer, coupled with the incidence of severe drought within the East African region has prompted the Kenyan government to overturn its ten-year ban on GMOs.⁶⁰ This development makes Kenya the eighth country within Africa to approve the use of GMOs, including GE seeds.⁶¹ With an estimated 1.5 million individuals having fled their houses across Kenya, Ethiopia, and Somalia, Kenyan President William Ruto described the ban as a widespread hunger throughout Kenya and other neighboring countries, which has stemmed from increased drought due to climate change.⁶²

In the *EC-Hormones* matter, the United States brought a complaint to the WTO's Appellate Body, alleging that the European Commission's ban on the imports of meat treated with artificial growth hormones was inconsistent with Articles 3.1, 5.1, and 5.5 of the SPS Agreement.⁶³ There, the Appellate Body ultimately concluded that the EC's import prohibition was inconsistent with Article 5.1, which provides that, “Members shall ensure that their sanitary or phytosanitary measures are based on an assessment, as appropriate to the circumstances, of the risks to human, animal, or plant life or health, taking into account risk assessment techniques developed by the relevant international organizations.”⁶⁴ One potential avenue for change might be for LDCs to collectively challenge the EU's policy on GE Seeds as being discriminatory through the WTO's

⁵⁶ *Id.*

⁵⁷ *Id.*

⁵⁸ See Generally Justus Wesseler, Richard D. Smart, Jennifer Thomson & David Zilberman, *Foregone benefits of important food crop improvement Sub-Saharan Africa*, PLOS ONE 12(7) (Jul. 27, 2017), <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0181353>.

⁵⁹ *Kenya Country Information*, EXPOGROUP (2023), https://www.expogroup.com/kenya_country_information.php#:~:text=Kenya%20is%20usually%20classified%20as,of%20the%20least%20developed%20countries.

⁶⁰ Richard Kagee, *Why Kenya is turning to genetically modified crops to help with drought*, BBC NEWS (Nov. 9, 2022), <https://www.bbc.com/news/world-africa-63487149>.

⁶¹ *Id.*

⁶² Chinedu Okafor, *President Ruto's plan to combat starvation in Kenya is being met with rejection*, BUSINESS INSIDER AFRICA (Oct. 9, 2022), <https://africa.businessinsider.com/local/markets/president-rutos-plan-to-combat-starvation-in-kenya-is-being-met-with-rejection/76wsrmt>.

⁶³ *DS26: European Communities – Measures Concerning Meat and Meat Products (Hormones)*, WTO (2023), https://www.wto.org/english/tratop_e/dispu_e/cases_e/ds26_e.htm.

⁶⁴ *Id.*; *The WTO Agreement on the Application of Sanitary and Phytosanitary Measures (SPS Agreement)*, WTO, https://www.wto.org/english/tratop_e/sps_e/spsagr_e.htm.

dispute settlement mechanism.⁶⁵ Similar to the United States' challenge to the EU's trade policy in *EC Hormones*, LDCs facing adaptation difficulties in the face of climate change might argue that the EU's comprehensive policy is not compliant with WTO obligations under the SPS agreement. Specifically, they might argue that the "as appropriate to the circumstances" language contemplated in SPS Article 5.1⁶⁶ should be interpreted more broadly to consider the heightened risks which climate change poses to LDCs facing food insecurity, and that the drawn out authorization process combined with the EU's strong influence on its trade partners, such as Cambodia and Kenya, does not appropriately balance the risks of GMOs with the risks of climate change. While the EU might claim that its approval system is compliant in that it does not constitute a ban, that WTO agreements do not require harmonization amongst EU members' policies towards GMO and non-GMO seeds, and that such regulations do not constitute discrimination between imported and domestic "like products"⁶⁷, countries challenging the policy might be able to leverage the immediacy of the climate crisis as needing to be more fully considered.

In the face of a changing climate, some countries are beginning to move away from such strict regulatory schemes. After exiting the EU, the UK, in recognition of the necessity to increase resiliency to climate change within its borders, has since adopted a new regulatory approach to GE technology (and not genetic modification) which would allow for the modification of plant genomes and speed up processes otherwise accessible through natural selection.⁶⁸ Any negotiations by LDCs might urge for the adaptation of a relaxed regulatory approach to GE seeds and crops, potentially noting such crops as "climate friendly" and taking a similar approach to the UK's regulatory policy following the country's exit from the EU.⁶⁹

C. Problem 2: Patent Waiver Challenges

Biotech leaders such as Bayer and Corteva currently control around forty percent of the global seed market, which controversially restricts farmer' access to seeds, and further impedes the development of climate-adaptive crops in areas experiencing extreme weather conditions.⁷⁰ In developing countries, when farmers do wish to use GE seeds to improve crop yields, they must sign contracts with such transnational corporations that forbid them from saving seeds or swapping seeds with other farmers.⁷¹ They therefore need to buy new seeds every season, which can be costly; moreover, many farmers fear being at risk

⁶⁵ While the appointment of WTO Appellate Body members has come to an impasse and made resolving disputes between members difficult, under the MC12 Declaration, WTO members have agreed that a fully functioning AB system will be in place by 2024. Members welcome MC12 commitment to address dispute settlement, WTO (June 30, 2022), https://www.wto.org/english/news_e/news22_e/dsb_30jun22_e.htm.

⁶⁶ *The WTO Agreement on the Application of Sanitary and Phytosanitary Measures (SPS Agreement)*, WTO, https://www.wto.org/english/tratop_e/sps_e/spsagr_e.htm.

⁶⁷ *EU Statement at the Regular Dispute Settlement Body Meeting*, PERMANENT MISSION OF THE EUROPEAN UNION TO THE WTO, (Jul. 29, 2020), https://www.ceas.europa.eu/delegations/world-trade-organization-wto/eu-statement-regular-dispute-settlement-body-meeting-29_en.

⁶⁸ Fiona Harvey, *UK moves closer to allow gene editing of crops by allowing more research*, THE GUARDIAN (Jan. 20, 2022), <https://www.theguardian.com/science/2022/jan/20/uk-moves-closer-to-allowing-gene-editing-of-crops-by-allowing-more-research>.

⁶⁹ *Id.*

⁷⁰ *How biotech giants use patents & new GMOs to control future of food*, FRIENDS OF THE EARTH EUROPE, <https://friendsoftheearth.eu/press-release/how-biotech-giants-use-patents-new-gmos-to-control-future-of-food/>.

⁷¹ Peter Straub, *Farmers in the IP Wrench – How Patents on Gene-modified Crops Violate the Right to Food in Developing Countries*, 29 HASTINGS INT'L & COMP. L. REV. 187, 196 (2006).

of lawsuit from continuing to use seeds after a patent expires, or not partaking in GE Crop raising, but being at risk of having their crops cross-contaminate with GE seeds, and being at fault for using seeds contaminated by means of “genetic drift.”⁷²

Between stringent regulatory schemes and an excessive concentration of IP control in the hands of a limited number of powerful corporations, it becomes increasingly difficult to decipher who bears the blame in the food security crisis. Large corporations involved in the production and patenting of GMO seeds would argue that while they see profits arising from their work in developing countries as highly important, they equally value social causes like attaining food security.⁷³ For instance, a representative from the bio-technology company Bayer has opined that the company’s task is to provide aid to farmers in developing countries and allow them to increase their crop yield.⁷⁴ The question arises, if patents and big biotech companies are in fact not promoting, but impeding access to GE seeds within LDCs, how can WTO tools be harnessed to alleviate such a burden? The TRIPS (Trade-Related Aspects of Intellectual Property Rights) agreement may provide policy space allowing LDCs to work around barriers posed by over-burdensome patents on seeds.

The TRIPS Agreement, effective since January 1st, 1995, is a minimum-standards agreement which seeks to reduce trade distortion and impediments to international trade, promote the effective and adequate protection of intellectual property rights, and ensure that enacted IP protections do not, through the enforcement of the act, function as barriers to trade.⁷⁵ In theory, patent protections should safeguard research and innovation; in practice, awarding seed patents to big biotech companies may potentially harm societal interests in the context of food security as such patents restrict the ability of farmers to plant desirable crops and develop future generations of seeds in the face of a changing climate.⁷⁶ Under Article 27.3(b) of the TRIPS agreement, genetic seeds plant processes may be patented and, once patented, the holder of the patent has exclusive rights over all plants produced using the patent.⁷⁷

The ability to patent and possess plant technology can have deleterious effects for small farmers in the long run. Today, ten multinational corporations possess sixty-five percent of global commercial seeds, and the rising concentration of seed ownership within the hands of a limited number of powerful corporations has caused a substantial increase in the costs of seeds.⁷⁸ Despite the TRIPS agreement’s trade-liberalizing goals, strong freedoms to patent GE seed technologies has given companies a means to monopolize

⁷² *Id.* at 191, 193.

⁷³ Lisa Cornish, *How do corporations perceive their role in the GMO debate?*, DEVEX: INSIDE DEVELOPMENT (May 11, 2018), <https://www.devex.com/news/how-do-corporations-perceive-their-role-in-the-gmo-debate-92507>.

⁷⁴ *Id.*

⁷⁵ *Overview: the TRIPS Agreement*, WTO (2023), https://www.wto.org/english/tratop_e/trips_e/intel2_e.htm.

⁷⁶ Francesca Ractliffe, *Seed Patenting and the Threat to Good Security: The losers of the global Seed Market Consolidation*, THE GOVERNANCE POST (Dec. 14, 2020), <https://www.thegovernancepost.org/2020/12/seed-patenting-threat-to-food-security/>; Debra M. Strauss, *The Application of TRIPS to GMOs: International Intellectual Property Rights and Biotechnology*, 45 STAN. J. OF INT’L LAW 287, 302 https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1523514.

⁷⁷ Sara Ellen Mahoney, *Onning the World’s Seed Supply: How Seed Industry Mergers Threaten Global Food Security*, 31 GEORGETOWN ENVTL. L. REV. 563, 572 (2019).

⁷⁸ *The Role of GE Seeds and Patent Systems*, CENTER FOR FOOD SAFETY (2023), <https://www.centerforfoodsafety.org/issues/303/seeds/the-role-of-ge-seeds-and-the-patent-system>.

the market, creating harsher barriers to entry for those wishing to enter the market, and higher prices for seeds due to reduced competition in the seed industry.⁷⁹

The WTO is cognizant that LDCs need flexibility in implementing IP laws and regulations within their own borders and has therefore obligated developed countries to aid in the transfer of technology to LDCs and has further allowed LDCs an extended period to implement the TRIPS agreement.⁸⁰ LDCs have made attempts in the past to change the TRIPS agreement to become more amenable to their economic circumstances. For instance, the African Group has called for amending Article 27.3(b) to prohibit the patenting of plants, and to instead classify such information within a “traditional knowledge” category of IP rights.⁸¹ WTO developments pertaining to the pharmaceutical industry may offer another path forward, making the utilization of GE seeds more enticing to LDCs on the whole. Amidst the COVID-19 Pandemic, the WTO adopted a partial waiver of intellectual property rights with regards to COVID-19 vaccines under the TRIPS agreement.⁸² In the wake of a global emergency, parties to the TRIPS agreement were able to come together and allow for states to authorize manufacturers to produce COVID-19 vaccines without the permission of the patent rights holder, and then export these vaccines to other countries.⁸³ Despite the well-intentioned nature of the agreement to waive COVID-19 vaccine patents, the measure was limited in its actual effect, potentially for two main reasons. First, the demand for vaccines had dropped widely by June 2022 when the agreement was finally approved.⁸⁴ Second, it was likely not a lack of supply, but a lack of distribution capacity which impeded vaccination rates, as many countries lacked the refrigeration systems and well-trained workforces necessary to effectively vaccinate the population.⁸⁵

Despite the inefficiencies of the COVID-19 TRIPS Patent Waiver, it signals the ability of WTO members to mobilize in the face of imminent emergency. Increasing rates of food insecurity due to the impacts of climate poses as such an action inducing event. If WTO members could similarly maneuver around TRIPS Agreement flexibilities in order to facilitate access to GE Seeds, akin to how members shared IP to develop COVID-19 treatments and made the exchange of clinical trial data available, developing countries might experience a greater capacity to combat food security.⁸⁶ Rather than completely waiving plant seed patents under the TRIPS agreement, one possible means of increasing the production of GE crops in developing countries would be to invoke the TRIPS

⁷⁹ Mahoney, *supra* note 77 at 574.

⁸⁰ *Responding to least developed countries' special needs in intellectual property*, WTO (2023), https://www.wto.org/english/tratop_e/trips_e/ldc_e.htm.

⁸¹ *Policy Issues in International Trade and Commodities Study Series No. 29: International Trade in GMOs and GM Products: National and Multilateral Legal Frameworks*, UNITED NATIONS CONFERENCE ON TRADE AND DEVELOPMENT at 35, https://unctad.org/system/files/official-document/itcdtab30_en.pdf.

⁸² Ministerial Decision on the Trips Agreement; *TRIPS, the intellectual property system and Covid 19*, WORLD TRADE ORGANIZATION, https://www.wto.org/english/tratop_e/trips_e/trips_and_covid19_e.htm.

⁸³ Christopher Borges, *TRIPS Waivers and Pharmaceutical Innovation*, *Center for Strategic & International Studies* (Mar. 15, 2023), <https://www.csis.org/blogs/perspectives-innovation/trips-waivers-and-pharmaceutical-innovation>.

⁸⁴ *Id.*

⁸⁵ *Id.*

⁸⁶ *How WTO Members Have Used Trade Measures to Expedite Access to COVID-19 Critical Medical Goods and Services*, WTO (Sep. 18, 2020), https://www.wto.org/english/tratop_e/covid19_e/services_report_16092020_e.pdf.

Agreement's compulsory licensing flexibilities as articulated in Article 31 of the TRIPS Agreement.⁸⁷

The 2001 Doha Declaration to the TRIPS Agreement was instrumental in stressing the need for the TRIPS Agreement to address public health crises which affected LDCs.⁸⁸ Paragraph 5 of the Doha Declaration notes that members have the right to grant compulsory licenses.⁸⁹ Paragraph 6 further contextualizes what constitutes a national emergency within the country, noting that public health crises such as AIDs, tuberculosis, malaria and other epidemics might constitute national emergencies within an area.⁹⁰ Although compulsory licensing has only been understood and utilized with regards to the pharmaceutical industry, the heightened threat of food insecurity which LDCs face coupled with the devastating effects of the climate crisis may very well constitute the emergency circumstances necessary to provoke compulsory licensing of GE Seed Patents. Notably, Article 31b of the TRIPS Agreement provides that, in "national emergencies" there is no need to try for a voluntary license from the patent holder, potentially making it so that countries could share patent technology without the permission of more powerful patent holders which currently monopolize the industry.⁹¹

Invoking the compulsory licensing provisions for GE seed technology as opposed to pharmaceutical technology might require that WTO members come together to re-imagine a new Doha-like Declaration for technologies pertaining to the food security crisis considering the changing climate. This might combat the monopolization and high prices which categorize the seed industry by lowering barriers to entry. The utilizations of compulsory licensing might further keep LDCs from worrying about the legal repercussions of GE seed use within their borders as well. Even if a compulsory licensing system only lasted for a specified period of years, it would allow for further investigation into whether harnessing trade patent tools could alleviate burdens from food security.

CONCLUSION

Predictions of rising levels of food insecurity within LDCs as resulting from climate change gives the global community strong incentives to revisit international agreements and national policy schemes relating to the use of GE crops, especially as pertaining to LDCs. With time not on our side, the WTO must incentivize 1.) acting to alleviate the strict regulatory approach some countries take toward GE seeds through WTO negotiation and dispute mechanisms and 2.) creating greater incentivization for LDCs to embrace GE seed technology under the TRIPS Agreement's compulsory licensing scheme. By utilizing both proposed courses of action, GE seeds might be viewed less as divisive, but instead evaluated as a climate adaptation tool with great capacity to combat food insecurity in the developing world.

⁸⁷ *Fact Sheet: Trips and Pharmaceutical Patents – Obligations and Exceptions*, WTO (2023), https://www.wto.org/english/tratop_e/trips_e/factsheet_pharm02_e.htm#dohadecl5b.

⁸⁸ *TRIPS and public health*, WTO (2023), https://www.wto.org/english/tratop_e/trips_e/pharmpatent_e.htm.

⁸⁹ *Fact Sheet: Trips and Pharmaceutical Patents – Obligations and Exceptions*, WTO (2023), https://www.wto.org/english/tratop_e/trips_e/factsheet_pharm02_e.htm#dohadecl5b.

⁹⁰ *Id.*

⁹¹ *Id.*

CHAPTER 18: HOW THE TRADING SYSTEM CAN DEAL WITH FOOD SECURITY CONCERNS ASSOCIATED WITH CLIMATE CHANGE

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INTRODUCTION

Food security is recognized as one of the essential global interests because of its substantial contribution to sustaining human life. The Food and Agriculture Organization (FAO) adopted the Rome Declaration on Global Food Security during the World Food Summit in 1996.¹ In addition, the Sustainable Development Goals (SDGs) reflect the significant value in Goal 2, which is the achievement of sustainable food production systems to eliminate hunger.² Also, in the context of trade, current WTO law explicitly recognizes food security concerns in the preamble of the Agreement on Agriculture (AoA) given its primary necessity for human life and close relationship with agricultural trade.³

In recent years, the COVID-19 pandemic and the war in Ukraine turned our attention to the relationship between trade and food security. In response to these events, almost 30 food exporting countries resorted to taking measures to restrict or prohibit exporting foodstuffs to ensure domestic food availability.⁴ These measures triggered the reduced supply of food, followed by a sharp rise of global food prices, undermining global food trade stability.⁵ This created food shortages in countries that could not shift supply quickly, putting additional pressure on food prices.⁶ Many countries in the world, particularly those that depend highly on food and fertilizer imports from Ukraine and Russia, mostly developing countries, have been affected by these measures.⁷ This food crisis occurred despite food export restrictions under WTO law. This revealed the inefficiency of the present trading system in solving the conflict between free flow of foodstuffs and national food security concerns.

In addition to war or pandemic, climate change is emerging as a threat to food security, making the situation even worse. Climate change irreversibly impacts plant productivity, due to rising temperatures, followed by the change of rainfall patterns. This challenge may lead to even longer or permanent export restrictions on foodstuffs by food exporting countries. The permanent export restrictions would likely run afoul of the General Agreement on Tariffs and Trade (GATT) because GATT exempts export prohibitions or restrictions only when applied “temporarily.” GATT Art. XI (2) (a) provides that the

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¹ Rome Declaration on World Food Security, World Food Summit, 13 November 1996, <https://www.fao.org/3/w3613e/w3613e00.htm>

² UNGA ‘Transforming Our World: The 2030 Agenda for Sustainable Development’ UN Doc A/RES/70/1 (21 October 2015) (SDGs) Goal 2.

³ Agreement on Agriculture (AoA), Apr. 15, 1994, Marrakesh Agreement Establishing the World Trade Organization, Annex 1A, 1867 U.N.T.S. 410, Preamble.

⁴ Björn Rother, Sebastian Sosa, Lukas Kohler, Gaëlle Pierre, et al., *Tackling the Global Food Crisis: Impact, Policy Response, and the Role of the IMF?*, IMF Note 2022/004, International Monetary Fund, Washington, DC, 3(2022)

⁵ *Id.*

⁶ *Id.* at 18.

⁷ *Id.*

general prohibition on quantitative restrictions stipulated under GATT Art. XI (1) shall not extend to “export prohibitions or restrictions *temporarily* [emphasis added] applied to prevent or relieve critical shortages of foodstuffs or other products essential to the exporting contracting party.” This sheds light on some gaps in the institutional mechanisms of the WTO.

Given the permanent effects of climate change on food production conditions and the potential to affect trade practices for ensuring domestic food availability, this paper addresses how the trading system can deal with the food security concerns associated with climate change. As an important step toward combatting this emerging food security threat, this paper argues that WTO members should address the emerging food security threat caused by climate change, given its permanent nature, by adopting a capacity building scheme with coordination mechanisms, while maintaining the “temporarily” requirement of GATT Art. XI (2).

Part I addresses why food export restrictions are problematic for food security. Part II explains how the WTO regulates food export restrictions in both substantive and procedural aspects and claims that, to maintain international food market stability and global food security, WTO law strictly regulates export restrictions on foodstuffs by narrowing the scope of the exemption and imposing various procedural requirements. Part III introduces climate change as an emerging cause of food export restrictions with severe and longer effects on global food production conditions. Part IV points out problems with the WTO on food export restrictions with respect to the lack of capacity building mechanisms for food exporters. Part V suggests that WTO members should set up a capacity building scheme tailored for assisting developing food exporters address the emerging threat, along with coordination mechanisms for collaboration with relevant competent institutions such as the FAO, while the substantive requirement for invoking food export restrictions under GATT Art. XI (2) (a) should not be loosened. Part VI concludes that, throughout these arrangements, the WTO is expected not only to defensively carve out policy space to temporarily invoke food export restrictions, but also to work as a forum for progressively promoting social common good in the context of food security and climate adaptation.

I. WHY FOOD EXPORT RESTRICTIONS ARE PROBLEMATIC FOR FOOD SECURITY

A. *Conventional Justifications for Restricting Food Exports*

In the agricultural and food sectors, the primary objective of export restrictions is often to maintain domestic food supplies and thereby achieve short-term food security.⁸ In the face of global food shortages and rising prices, some food exporting countries try to prevent domestic food prices from rising by limiting the transmission of extraordinary inflationary pressure from international markets to domestic prices.⁹ Other frequently pursued goal behind the use of export restrictions is to reserve food for themselves out of the concern that food might run out.¹⁰ From the perspective of short-term domestic food security, export restrictions may make perfect sense because they are cheap and easy

⁸ Gabrielle Marceau, *WTO and Export Restrictions*, 50 J. World Trade 563, 564 (2016).

⁹ Giovanni Anania, *Agricultural Export Restrictions and the WTO: What Options do Policy-Makers Have for Promoting Food Security?*, ICTSD Programme on Agricultural Trade and Sustainable Development, Issue Paper No. 50, International Centre for Trade and Sustainable Development, Geneva, Switzerland, 5 (2013).

¹⁰ Sonia Akter, *The effects of food export restrictions on the domestic economy of exporting countries: A review*, *Global Food Security*, Vol. 35, 2 (2022).

to implement, and generally help achieve the stated objective of stabilizing the domestic food situation.¹¹

B. Food Export Restrictions Doing More Harm than Good

However, food export restrictions are highly counterproductive in relation to global food security. Economic studies by Paolo E. Giordani, Nadia Rocha & Michele Ruta show that export restrictions on food do more harm than good in the long run, due to the detrimental effects on both national and global food security by undermining stability and predictability of the global food market.¹² From an international perspective, restricting food export deteriorates international supply shortages, makes markets more volatile and pushes up prices even further.¹³ The export restrictions shift the burden of the problem onto those countries which heavily depend on imports and cannot afford the higher food prices.¹⁴ Simulations show that an export ban on rice and wheat during 2020 would have raised the average world price of these cereals by over 10 per cent, putting 5 million more people at risk of hunger in Sub-Saharan Africa.¹⁵ Since these restrictions constitute a form of market distortion, they can affect the distribution of welfare.¹⁶ The costs of imposing such measures are steep. While these curbs may control domestic prices in the short run, farmers are less incentivized to invest in agriculture, which, in turn, affects national food security and lifts the cost of food.¹⁷

They can also lead to global trade diversion or retaliation where other countries impose their own export restrictions on products in response to the export restrictions originally imposed, which, in turn, can impede the effectiveness of the original measure in achieving the intended objective.¹⁸ During the food crisis in 2007-2008, many countries, including China, India, and Vietnam, imposed restrictions on grain exports in 2007 and 2008, claiming that conservation of local food production would reduce food prices.¹⁹ Other countries reacted by introducing their own export restrictions on food products, arguing that such action was necessary because the originally imposed export restrictions would reduce their access to imports of food.²⁰ These restrictions exacerbated existing supply constraints by globally driving up prices even more.²¹ This domino effect characterizes a prisoner's dilemma situation, where food exporting countries are incentivized to resort to individual export restrictions for prioritizing instant food security domestically instead of jointly deciding to restrain themselves from taking these measures for maintaining long-term food security globally.²² Because of this, most countries

¹¹ Baris Karapinar & Christian Haberil, *Food Crisis and the WTO*, 142 (2010, Cambridge: Cambridge University Press).

¹² Alvaro Espitia, Nadia Rocha & Michele Ruta, *How export restrictions are impacting global food prices*, July 06, 2022, World Bank Blogs, <https://blogs.worldbank.org/psd/how-export-restrictions-are-impacting-global-food-prices> (citing Giordani, Rocha and Ruta, 2016).

¹³ *Id.*

¹⁴ Karapinar & Haberil, *supra* note 11, at 142.

¹⁵ WTO, *Trade and Climate Change*, Information brief no 5, 7 (2022).

¹⁶ Marceau, *supra* note 8, at 563.

¹⁷ TIME, JULY 12, 2022, *Climate Crisis Is Driving Food Nationalism and Changing Global Trade*, <https://time.com/6195984/climate-change-food-security-trade/>

¹⁸ Marceau, *supra* note 8, at 563.

¹⁹ *Id.*

²⁰ *Id.*

²¹ *Id.*

²² Anania, *supra* note 9, at 8.

eventually find themselves far from where they were trying to get in terms of protecting domestic consumers.²³

What is worse, food export restrictions, followed by the price spikes and food insecurity, have negative implications for the trading system itself.²⁴ Countries are not likely to bring a challenge at the WTO in the context of food export restrictions. For exporting countries, there are strong economic and political incentives to act immediately to protect their domestic food availability before being challenged at the WTO dispute settlement mechanism.²⁵ For importing countries affected by export restrictions, the WTO dispute settlement mechanism would not be of much help during a price spike due to the lengthy procedure²⁶ and the recent non-functioning of the WTO Appellate Body.²⁷ These situations end up undermining confidence in the rule-based world trading system to deliver food security.²⁸

II. SUBSTANTIVE AND PROCEDURAL REGULATIONS ON FOOD EXPORT RESTRICTIONS UNDER WTO LAW

A. *WTO Law Allowing for Food Export Restrictions Only on a Temporary Basis*

Based on the economic rationale described above, WTO law generally prohibits export bans or restrictions of goods including foodstuffs. GATT Art. XI (1) provides that “no prohibitions or restrictions ... shall be instituted or maintained by any contracting party ... on the exportation or sale for export of any product destined for the territory of any other contracting party.”²⁹ On the other hand, GATT Art. XI (2) lists some situations where the parties can deviate from the obligation under GATT Art. XI (1).³⁰ Among them, GATT Art. XI (2) (a) deals with the exception of food export restrictions.³¹ The provision exempts “export prohibitions or restrictions temporarily applied to prevent or relieve critical shortages of foodstuffs or other products essential to the exporting contracting party” from the general prohibition on quantitative restrictions.³²

Nevertheless, given the serious harm export restrictions pose to the global food market, the scope of this exception is interpreted quite narrowly. In *China – Raw Materials*, the WTO dealt with the interpretation of GATT Art. XI (2) (a) in a context where China defended its restraints on the export of various forms of raw materials under GATT Art. XI (2) (a) in response to the United States’ challenge against the measures under GATT

²³ *Id.*

²⁴ International Food Policy Research Institute, *Global Food Policy Report: Climate Change and Food Systems*, Washington, DC: International Food Policy Research Institute, 37 (2022); *Id.* at 26.

²⁵ Eugenio Diaz-Bonilla, *Agricultural Trade and Food Security: Some Thoughts about a Continuous Debate*, E15 Initiative, Geneva: International Centre for Trade and Sustainable Development (ICTSD) and World Economic Forum, 19 (2014).

²⁶ *Id.*

²⁷ Center for Strategic & International Studies, *The World Trade Organization: The Appellate Body Crisis*, <https://www.csis.org/programs/scholl-chair-international-business/world-trade-organization-appellate-body-crisis>

²⁸ International Food Policy Research Institute, *supra* note 24, at 37; Anania, *supra* note 9, at 26.

²⁹ General Agreement on Tariffs and Trade (GATT), Oct. 30, 1947, 61 Stat. A-11, 55 U.N.T.S. 194, Art. XI (1).

³⁰ GATT Art. XI (2).

³¹ GATT Art. XI (2) (a).

³² GATT Art. XI (2) (a).

Art. XI (1).³³ The Panel interpreted the term “temporarily” narrowly, implying that members’ export restriction measures under GATT Art. XI (2) (a) shall specify the duration of the measure, precluding indefinite and long-term export restriction measures.³⁴

The Panel found that China had not met the conditions of GATT Art. XI (2) (a) to avail itself of this defense.³⁵ This is because China’s export quotas on refractory-grade bauxite were not considered to be temporarily applied or designed to prevent a critical shortage.³⁶ At the time of the dispute, for example, the export quotas in question had already been in place for around ten years and were seemingly intended to stay in place until such times as China’s reserves had been depleted.³⁷ Therefore, the panel found that the imposition of export quotas on this basis could not be considered as “temporarily applied.”³⁸

On the other hand, the Appellate Body modified the Panel’s interpretation of the term “temporarily” as “limited time frame,” implying that even long-term export restriction measures could be justified under the article.³⁹ The Appellate Body clarified that a measure may be characterized as “temporarily applied” even if its duration is not definitively known in advance.⁴⁰ Thus, the Appellate Body found that the term “temporarily” need not always “connote a time limit fixed in advance.”⁴¹ Given the Appellate Body’s broader interpretation of the term “temporarily,” it is conceivable that even long-term export restriction measures taken in response to the type of incessant food shortages could be justified under the article.⁴² However, it still requires a measure to be applied for a limited time to bridge a “passing need,” leaving permanent measures out of the scope of the exception.⁴³

B. WTO Law Imposing Various Procedural Requirements on Food Export Restrictions

In terms of food export restrictions, while GATT addresses substantive matters, the AoA deals with procedural aspects. If members move to restrict exports of foodstuffs temporarily under GATT Art. XI (2) (a), the AoA Art. 12 applies and imposes some procedural requirements.⁴⁴ The article obligates the parties to “give due consideration to the effects of such prohibition or restriction on importing members’ food security,”⁴⁵ to

³³ Appellate Body Report, *China – Measures Related to the Exportation of Various Raw Materials*, adopted 22 Feb. 2012 (WT/DS394/AB/R).

³⁴ Sharmin Tania & Jackbeth K. Mapulanga-Hulston, *Examining the Synergy between the Right to Food and Agricultural Trade Policies*, 24 AFR. J. INT’L & COMP. L. 293, 317 (2016).

³⁵ Panel Report, *China – Measures Related to the Exportation of Various Raw Materials*, adopted 5 July 2011 (WT/DS394/R).

³⁶ *Id.*

³⁷ *Id.*

³⁸ Stephanie Switzer, Leonardus Gerber & Francesco Sindico, *Access to Minerals: WTO Export Restrictions and Climate Change Considerations*, 4 LAWS 617, 623 (2015).

³⁹ Appellate Body Report, *China – Measures Related to the Exportation of Various Raw Materials*, adopted 22 Feb. 2012 (WT/DS394/AB/R).

⁴⁰ *Id.*

⁴¹ Marceau, *supra* note 8, at 569.

⁴² Gashahun L. Fura, *Transnational Agricultural Investments and Host State’s Export Restriction Flexibilities under International Economic Law*, 43 DENV. J. INT’L L. & POL’Y 589, 599 (2015).

⁴³ Fujio Kawashima, *RIETI Policy Discussion Paper*, 13-P-015, 26 (2013).

⁴⁴ AoA Art. 12.

⁴⁵ AoA Art. 12 (1) (a).

“give notice in writing, as far in advance as practicable, to the Committee on Agriculture comprising such information as the nature and the duration of such measure,”⁴⁶ to “consult, upon request, with any other Member having a substantial interest as an importer with respect to any matter related to the measure in question,”⁴⁷ and to “provide, upon request, such a Member with necessary information such as giving due consideration to the food security needs of importing Members.”⁴⁸

This section argued that, to maintain international food market stability and global food security, WTO law strictly regulates export restrictions on foodstuffs by narrowing the scope of the exemption and imposing various procedural requirements. In the next section, I will argue that climate change causes long lasting challenges for food exporters compared with the conventional threats triggered by war or pandemic.

III. CLIMATE CHANGE AS AN EMERGING CAUSE OF FOOD EXPORT RESTRICTIONS

A. Food Security Concerns Associated with Climate Change are Becoming Permanent

Climate change is becoming one of the major causes undermining food security. Climate change exacerbates poor food production conditions,⁴⁹ making extreme weather events more intense and frequent.⁵⁰ Rising temperatures, changing precipitation patterns, and extreme weather events, among other effects, are already reducing agricultural yields and disrupting food supply chains.⁵¹ By 2050, climate change is expected to put millions of people at risk of hunger, malnutrition, and poverty.⁵²

Climate change is different from traditional causes of food insecurity, such as war or pandemic, in that it can alter food producing conditions permanently and irreversibly. There is growing evidence that climate change involves a change in the average long-term conditions of growing crops.⁵³ Climate change will lead to more frequent and severe fluctuations in food supply and prices.⁵⁴ Changes in temperature and atmospheric CO₂ concentration as well as the amounts and the distribution of precipitation will fundamentally affect production and productivity in agriculture and the availability of food.⁵⁵ Over the long term, further gradual climate changes and more frequent and intense extreme weather events will alter production specialization patterns of each affected region.⁵⁶

⁴⁶ AoA Art. 12 (1) (b).

⁴⁷ *Id.*

⁴⁸ *Id.*

⁴⁹ Food and Agriculture Organization of the United Nations, *FAO Strategy on Climate Change 2022–2031*, 5 & 7 (2022).

⁵⁰ Carmen G. Gonzalez, *World Poverty and Food Insecurity*, 3 PENN St. J.L. & INT’L AFF., 56, 66-67 (2015); WTO, *supra* note 15, at 4.

⁵¹ International Food Policy Research Institute, *supra* note 24, at 6.

⁵² *Id.*

⁵³ Karapinar & Haberil, *supra* note 11, at 148.

⁵⁴ *Id.*

⁵⁵ Karapinar & Haberil, *supra* note 11, at 150.

⁵⁶ WTO, *World Trade Report 2022: Climate change and International Trade*, 47 (2022).

B. Food Export Restrictions Associated with Climate Change Effects Be Longer-Lasting and Permanent

With production volatility apt to increase because of climate change, countries will be more likely to impose export restrictions.⁵⁷ Frequent heatwaves and droughts caused by climate change can affect food production conditions and tempt countries to restrict exports.⁵⁸ For example, in May 2022, Malaysia placed restrictions on exports of its chicken products, in the face of extremely hot weather triggering a grain feed shortage followed by fewer eggs produced.⁵⁹ In addition, the recent wheat export ban by India, the world's second largest producer, after a heatwave in March and April 2022, decreased its yield.⁶⁰ Experts believe that as climate change worsens, export bans will happen more frequently.⁶¹ As countries rely more on trade under the impact of climate change, export restrictions constitute a major systemic threat to the reliability of the world trading system.⁶²

Therefore, in response to irreversible water scarcity or draught caused by climate change, governments are potentially tempted to impose restrictions on food exportation permanently in violation of WTO law. In fact, despite the strict substantive and procedural requirements under WTO law, relevant state practices demonstrate that some food restrictive measures have extended for longer than initially declared and the climate change effects had exacerbated this situation. For example, in 2011, the FAO surveyed export restrictions on foodstuffs invoked since 2007, by large exporters such as Argentina, China, India, Egypt, Pakistan, Russia, Ukraine, and Vietnam.⁶³

According to the survey, these measures were in most cases of a temporary nature, but they were frequently extended for longer than initially declared or reactivated after being lifted.⁶⁴ Similarly, during the recent food crisis after 2020, most of those measures that governments had indicated as temporary lasted much longer than necessary, falling short of the “temporarily applied” requirement under GATT Art. XX (2) (a).⁶⁵ As climate change exacerbates worsening food production conditions globally, this non-compliance of the “temporarily applied” requirement will likely occur more frequently in the near future.

IV. PROBLEMS WITH THE LACK OF CAPACITY BUILDING SCHEMES IN RESPECT TO FOOD SECURITY THREATS ASSOCIATED WITH CLIMATE CHANGE

The previous sections explained how WTO law regulates the conventional export restrictions on foodstuffs and how climate change is different from the traditional causes

⁵⁷ International Food Policy Research Institute, *supra* note 24, at 36.

⁵⁸ WTO, *supra* note 56, at 30.

⁵⁹ TIME, *supra* note 17.

⁶⁰ *Id.*

⁶¹ *Id.*

⁶² Baris Karapinar & Tetsuji Tanaka, *How to Improve World Food Supply Stability under Future Uncertainty: Potential Role of WTO Regulation on Export Restriction in Rice*, Research in Agricultural & Applied Economics, 205, 207 (2013).

⁶³ Espa, I., & Sacerdoti, G, *Export Restrictions on Critical Minerals and Metals: Testing the Adequacy of WTO Disciplines*, Cambridge International Trade and Economic Law, (2015, Cambridge: Cambridge University Press).

⁶⁴ *Id.*

⁶⁵ Ilaria Espa, *Export Restrictions on Food Commodities During the COVID-19 Pandemic: Implications for Food Security and the Role of the WTO*, pp. 49 in *Rethinking, Repackaging, and Rescuing World Trade Law in the Post-Pandemic Era* (Hart Publishing 2021, Amrita Bahri, Weihuan Zhou, and Daria Boklan, eds.).

of food export restrictions. Now we turn to how WTO members could or should deal with the potentially long-term or permanent restrictions of food exports associated with climate change effects. In this section, I argue that the WTO does not adequately address the emerging food export restrictions associated with climate change due to the lack of capacity building mechanisms for food exporters.

The WTO lacks capacity building schemes for helping developing countries address food security threats, even though the world's top 10 food exporters include several large developing countries.⁶⁶ Developing countries need capacity to adjust to various challenges to their food security, including the emerging threat of climate change due to their vulnerability to food insecurity. Developing countries are susceptible to the rapidly changing circumstances for food production, especially the ones caused by climate change⁶⁷ because of their geographic locations and agriculture-based economies.⁶⁸ Adverse weather and market volatility creates chronic food shortages or famine in these countries.⁶⁹

As a result, food insecurity is concentrated in developing countries without enough food production capacity to meet food demands in the face of threats.⁷⁰ Developing countries also have limited resources for adaptation and disaster response.⁷¹ They often lack sufficient capacity to mitigate the effects of climate change and meet food needs.⁷² Nevertheless, while the AoA has the procedural requirements focused on mitigating the potential unfavorable effects of export restrictions on the importing countries, the WTO insufficiently address the harm which exporting countries are facing.⁷³

V. RECOMMENDATIONS FOR BETTER ADDRESSING FOOD SECURITY CONCERNS CAUSED BY CLIMATE CHANGE

In this section, I will first argue that the “temporarily” requirement of GATT Art. XI (2) (a) should not be amended even in the face of the growing possibility of permanent export restrictions. Then, in response to the problem presented in the previous section, I will turn to recommending that WTO members should adopt a capacity building scheme specifically supporting developing countries with less capacity to address food security concerns caused by climate change.

A. *Maintaining the Substantive Requirement on Food Export Restrictions under GATT Art. XI (2) (a)*

Despite the growing threat of climate change to global food security, the “temporarily” requirement of GATT Art. XI (2) (a) should remain strict because the role of international trade to help countries sustain food security and adapt to climate change will stay the same. As the impacts of climate change on productivity will be highly variable and uneven across

⁶⁶ World Economic Forum, *Delivering a Climate Trade Agenda: Industry Insights*, White Paper, September 2021, 19 (2021).

⁶⁷ Gonzalez, *supra* note 50, at 67.

⁶⁸ *Id.*

⁶⁹ Carmen G. Gonzalez, *Climate Change, Food Security, and Agrobiodiversity: Toward a Just, Resilient, and Sustainable Food System*, 22 FORDHAM ENVTL. L. REV. 493, 503 (2011).

⁷⁰ *Id.*

⁷¹ Gonzalez, *supra* note 50, at 67.

⁷² *Id.*

⁷³ See AoA Art. 12.

regions, free trade is expected to continue expanding and become more important for ensuring a supply of nutritious food, particularly for low-income countries.⁷⁴

Despite the significant role of world trade in addressing climate change and food security issues, developing countries may argue that they should be allowed more policy space in managing food exports to deal with food insecurity caused by climate change due to their vulnerability to the food crisis.⁷⁵ However, allowing more leeway for invoking export restrictions is a poor strategy for global climate adaptation and food security.⁷⁶ In times of high prices and crop shortfalls, which may be caused by climate conditions, export restrictions can significantly exacerbate food price volatility and undermine confidence in the world trading system.⁷⁷ Instead, in order to prevent the domino effects according to which countries affected by export restrictions may retaliate by imposing similar restrictions,⁷⁸ food security, especially when involving climate change, should be addressed collectively rather than unilaterally.⁷⁹

Thus, the viable solution to this challenge is for countries not to resort to individual decisions, but to look instead for multilaterally agreed joint strategic action.⁸⁰ Therefore, given the devastating effects of export restrictions on trade stability and global food security, the current text and interpretation of GATT Art. XI (2) (a) should be maintained in spite of the emerging threat of climate change.

B. Adopting a Capacity Building Scheme in Respect to Addressing Food Security Concerns Associated with Climate Change

Food exporting countries, especially developing countries, will likely face sever challenges due to the climate change effects on food security. Thus, if the substantive requirements on food export restrictions remain strict as argued in the previous section, WTO members, in exchange, need to establish mechanisms to help developing countries address food security challenges without their resorting to export restrictions. By adopting a scheme to assist developing countries with less capacity address food security concerns and mitigate the effects of climate change, the WTO would work to keep low-income food exporters from taking further export restrictions in the face of deteriorating global food insecurity. In the following, I suggest a new capacity building scheme should (i) be accompanied by coordination mechanisms with relevant competent institutions and (ii) be modeled on the provision of the Agreement on Fisheries Subsidies (AFS).

1. Coordination Mechanisms with Relevant Competent Institutions

Addressing the food insecurity associated with climate change requires expertise in non-trade issues, including food security and environmental protection. However, the problem is that the WTO lacks the expertise to deal with the non-trade issues, even though these issues are reflected in the preamble of the AoA.⁸¹ The insufficient expertise to deal with export restrictions associated with climate change effects on food security implies the need for appropriate arrangements to be made with specialized institutions, like the FAO. Moreover, in order to mobilize additional funding for assisting developing countries

⁷⁴ International Food Policy Research Institute, *supra* note 24, at 37.

⁷⁵ Tania & Mapulanga-Hulston, *supra* note 34, at 316.

⁷⁶ International Food Policy Research Institute, *supra* note 24, at 37.

⁷⁷ *Id.*

⁷⁸ Espa, *supra* note 65, at 47.

⁷⁹ *Id.*

⁸⁰ Anania, *supra* note 9, at 8.

⁸¹ AoA, Preamble.

in climate change adaptation efforts, the WTO requires collaboration with climate finance.⁸² Close cooperation and institutional links to support regular interaction between the WTO and other pertinent institutions will be important in effective implementation of the capacity building scheme.⁸³ Thus, for effectively addressing the food insecurity associated with climate change, the new capacity building scheme should be accompanied by coordination mechanisms with relevant competent institutions.

2. The AFS as a Model of a New Scheme

Despite the significance of coordination mechanisms, the collaboration between the WTO and other relevant institutions, such as the FAO, is limited in the intersection of food security and climate change. Although, for example, the WTO and the FAO announced enhanced cooperation on trade and food security in 2015⁸⁴ and the FAO has an observer status in the Committee on Agriculture⁸⁵, there is no formal collaboration under the AoA.

It is true that the WTO has the Aid for Trade programs to help developing countries address obstacles constraining their ability to engage in international trade.⁸⁶ However, although some of the programs are involved in trade and food security issues⁸⁷, there are no formal mechanisms for collaboration with the FAO or climate funds.

Thus, for effective implementation of the capacity building scheme by engaging competent institutions with relevant expertise, I suggest that the technical assistance and capacity building scheme under the AFS could provide an adequate model for a formal provision of capacity building with coordination mechanism. Given the necessity of expertise in food security and fisheries management for regulating harmful fisheries subsidies, the AFS provides for cooperation with the FAO and the International Fund for Agricultural Development (IFAD) in the establishment of a voluntary funding mechanism for building capacity of developing countries with limited expertise to fulfill the obligation under the AFS.⁸⁸ Because addressing food insecurity caused by climate change similarly requires multidisciplinary expertise across trade, food security and environment as well as inter-agency coordination, the analogous provision with the voluntary funding scheme, accompanied by coordination mechanisms with the FAO and relevant climate funds will likely work in the context of combating export restrictions. This arrangement will flexibly help developing countries mitigate the effects of climate change and refrain from invoking export restrictions.

VI. CONCLUSION

In conclusion, WTO members should address the emerging food security threat caused by climate change, given its permanent nature, by adopting a capacity building scheme with coordination mechanisms, while maintaining the “temporarily” requirement of GATT Art. XI (2) (a).

⁸² WTO, *supra* note 56, at 46-47.

⁸³ Tania & Mapulanga-Hulston, *supra* note 34, at 319.

⁸⁴ FAO, *WTO and FAO announce enhanced cooperation on trade and food security*, <https://www.fao.org/news/story/en/item/283967/icode/>

⁸⁵ WTO, *The Agriculture Committee*, https://www.wto.org/english/tratop_e/agric_e/ag_work_e.htm

⁸⁶ WTO, *Aid for Trade*, https://www.wto.org/english/tratop_e/devel_e/a4t_e/aid4trade_e.htm

⁸⁷ WTO, *Aid for Trade in Support of Boosting Agricultural Production and Agribusiness, Food Security, Livelihoods and Trade*, https://www.wto.org/english/tratop_e/devel_e/a4t_e/aid_1105202310_e/aid_1105202310_e.htm

⁸⁸ WTO, Agreement on Fisheries Subsidies, WT/MIN (22)/33, WT/L/1144 (22 June 2022) Art. 7.

WTO law currently regulates export restrictions on foodstuffs by limiting the scope of the exemption and imposing some procedural requirements to prevent the disruptive effects of the measures on international trade stability and global food security. On the other hand, climate change is becoming an emerging challenge to food security, with severe and more permanent effects than the conventional causes. As a consequence, food export restrictions associated with climate change will potentially be invoked for the longer-term and even permanently while GATT Art. XI (2) (a) allows for deviating from the general prohibition on quantitative restrictions only if the measures are taken “temporarily.”

In this respect, it might seem that WTO law adequately governs the potential permanent export restrictions because permanent export restrictions on foodstuffs in response to climate-induced food crisis would not likely pass muster the “temporarily” requirement under GATT Art. XI (2) (a). However, the WTO cannot sufficiently help developing country exporters address food security threats associated with climate change because of the lack of tailored capacity building schemes. Given the serious harm food export restrictions can pose and the significance of global cooperation for ensuring free trade and food security, WTO members should address the weakness by adopting a new capacity building scheme with coordination mechanisms specifically targeting climate change’s effects on food security and the threats food exporting countries are confronting, while the substantive requirement under GATT Art. XI (2) (a) should be remain unchanged.

Throughout these arrangements, the WTO is expected not only to defensively carve out policy space to temporarily invoke food export restrictions, but also to work as a forum for progressively promoting social common good in the context of food security and climate adaptation.

CHAPTER 19: A TRADE TOOL TO TACKLE THE “NEW” EV TAX CREDIT’S WTO-INCONSISTENCY

Ji Hoon “PAUL” Suk*

INTRODUCTION

The Inflation Reduction Act of 2022 (IRA) launched a new electric vehicle (EV) tax credit by amending the pre-existing tax credit that had been in effect since 2008.¹ The amendments provide more accessible and longer-lasting incentives to purchase EVs. The income limit provision sets aside this tax credit for consumers with income levels that are arguably lower than the traditional purchasers of EVs. They also ensure the affordability of EVs by capping the maximum price of a vehicle to be eligible for the tax credit.² The amendments also express a longer commitment to encouraging EV purchases by extending its availability to 2032 and removed the pre-existing phase-out period that limited the number of eligible vehicles.³ However, the amendments’ new restrictions on eligible vehicles almost immediately drew criticism from EU, Japan, and South Korea that these changes may breach WTO rules.⁴ Despite such backlashes, the proposed guidance released by the Treasury Department on March 31, 2023 indicates no subsequent remedial changes to the new EV tax credit. Rather, it announced that the amendments will begin to apply to vehicles placed in service after April 17, 2023.⁵

The state of the global EV market and supply chain may explain the emergence of this post-IRA EV Tax Credit (heretofore, “New EV Tax Credit”). While EV sales are increasing globally, EV sales in the United States lag far behind those of China and Europe. In 2021, 3.3 million EVs were sold in China and 2.3 million EVs were sold in Europe whereas only 630,000 EVs were sold in the United States.⁶ Similarly, China claimed 50% of new global EV registrations in 2021 with Europe responsible for 35% and the U.S. less than 10%.⁷ The IRA’s amendments were designed to make the EV tax credit easier to use, more widely available and more long-lasting. It did so by ending the original tax credit’s “Phaseout Period” which limited the full amount of the tax credit to the first 200,000 EVs sold and adding a “Transfer of Credit” provision that allows consumers to receive cash

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¹ (Pre-IRA) New qualified plug-in electric drive motor vehicles, 26 U.S.C. § 30D (2020).

² Inflation Reduction Act, Pub. L. No. 117-169, §§ 13401(f)(10)-(11), 136 Stat. 1818, 1957-58 (2022).

³ Inflation Reduction Act § 13401(d), (h); *See also* Daniel T. Kiely, *Tax Credits for Electric Vehicles: What’s Changed with the US IRA?*, MAYER BROWN (Sept. 9, 2022), <https://www.mayerbrown.com/en/perspectives-events/publications/2022/09/tax-credits-for-electric-vehicles-whats-changed-with-the-us-ira>.

⁴ *See* Bryce Baschuk, *US Electric-Vehicle Tax Breaks Draw Ire From Allies EU, Korea*, BLOOMBERG (Sept. 15, 2022), <https://www.bloomberg.com/news/newsletters/2022-09-15/supply-chain-latest-us-ev-tax-breaks-draw-ire-from-allies-eu-korea>; Peter Johnson, *Japan, South Korean leaders push for US EV tax credit rule changes*, ELECTREK (Nov. 4, 2022), <https://electrek.co/2022/11/04/japan-south-korean-leaders-push-ev-tax-credit-rule-changes/>.

⁵ Section 30D New Clean Vehicle Credit, 88 Fed. Reg. 23,370, 23,373 (Apr. 17, 2023) (to be codified at 26 C.F.R. pt. 1).

⁶ IEA 2022; *Global Electric Vehicle Outlook 2022*, <https://iea.blob.core.windows.net/assets/ad8fb04c-4f75-42fc-973a-6e54c8a4449a/GlobalElectricVehicleOutlook2022.pdf>, License: CC BY 4.0.

⁷ Brandon S. Tracy, *Critical Minerals in Electric Vehicle Batteries*, CONGRESSIONAL RESEARCH SERVICE (Aug. 29, 2022), <https://crsreports.congress.gov/product/pdf/R/R47227>.

up front by transferring the tax credit to car dealerships reflect a stronger initiative by the U.S. to move the needle on transition to EVs.⁸

The U.S.’s main concern, however, may actually be the lack of a reliable domestic EV supply chain consisting of “critical minerals” extraction and processing, EV battery production, and EV manufacturing. According to the International Energy Agency’s (IEA) “Global EV Outlook 2022,” China “produces three-quarters of all lithium-ion batteries” and “[o]ver half of lithium, cobalt, and graphite processing and refining capacity is located in China.”⁹ Moreover, China, Japan, and South Korea dominate the production of key battery components, accounting “for 97% of current cathode and 99% of anode production.”¹⁰ The United States, on the other hand, plays a small role in the global EV battery supply chain, with “only 10% of EV production and 7% of production capacity.”¹¹ This context may explain the new local content requirements (LCRs) on “Critical Minerals” and “Battery Components” introduced by the IRA. The New EV Tax Credit therefore tries to encourage both the consumption and domestic production of EVs and their essential components. Yet, this ‘omnibus’ approach is likely to cause more harm than good for the United States in its fight against climate change and in its responsibilities as a member of the World Trade Organization (WTO).

The pre-IRA EV Tax Credit (heretofore, “Old EV Tax Credit”) did not violate WTO rules and arguably represented an effective and WTO-consistent “green subsidy.”¹² It incentivized consumers to purchase EVs with higher battery capacity regardless of its origin. The New EV Tax Credit, however, most likely violates several WTO rules, including those under the General Agreement on Tariffs and Trade (GATT) and the Agreement on Subsidies and Countervailing Measures (ASCM). Ever since the IRA became law in August of 2022, the newly added LCRs, the “Final Assembly” requirement, and the “Excluded Entities” provisions have been criticized by the EU, Japan, and South Korea as discriminatory against their EV, EV components, and critical minerals producers.¹³

Yet, WTO rules have not been utilized as affected countries have so far chosen not to challenge the New EV Tax Credit under the WTO’s dispute settlement mechanism. Meanwhile, the United States is negotiating with the above-mentioned nations to somehow fit them under the new LCR requirements, ignoring the possibility that the U.S. is violating its WTO commitments. As of early April 2023, Japan and the United States reached an “FTA-like” critical minerals agreement that allows critical minerals extracted or processed in Japan to count toward the tax credit’s requirement by fitting them under

⁸ Inflation Reduction Act § 13401(d), (g).

⁹ IEA 2022, *supra* note 6, at 7.

¹⁰ *Id.* at 174.

¹¹ *Id.* at 7.

¹² This paper adopts the following definition for a green subsidy. A “green subsidy” refers to a subsidy that allocates public resources “for the purpose of improving sustainability over what would otherwise occur via the market.” See Steve Charnovitz, *Green Subsidies and the WTO 2* (World Bank Group, Policy Research Working Paper No. 7060, 2014); See also (Pre-IRA) 26 U.S.C. § 30D (2020).

¹³ See John Chalmers & Hyunjoo Jin, *EU, South Korea say U.S. plan for EV tax breaks may breach WTO rules*, REUTERS (Aug. 11, 2022, 8:39 PM), <https://www.reuters.com/business/autos-transportation/eu-says-us-plan-ev-tax-breaks-discriminatory-may-breach-wto-rules-2022-08-11/>; See also So Jung Ha, *IRA and the EV Tax Credits: Disruption or Expansion of Trade Alliance?*, CSIS (Dec. 16, 2022), <https://www.csis.org/blogs/new-perspectives-asia/ira-and-ev-tax-credits-disruption-or-expansion-trade-alliance>.

the statutory language: “country with which the U.S. has a free trade agreement.”¹⁴ The EU is expected to reach a similar agreement soon with the United States.¹⁵ South Korean battery makers, mainly concerned about the LCR on battery components, recently heaved a “sigh of relief” as the Treasury Department’s guidance on battery sourcing did not require them to change their production process.¹⁶ These workarounds by the U.S. and its trade partners do not mean that WTO rules have become irrelevant. They do, however, raise questions of how current trade rules would treat the New EV Tax Credit and whether new trade tools are necessary to mitigate its negative effects on international trade.

This paper compares the old and new texts of the Internal Revenue Code (Title 26 of the United States Code) section 30D to identify the major changes. The paper then analyzes the New EV Tax Credit under WTO trade rules in the GATT and ASCM to identify potential violations. The final third of this paper suggests a potential trade tool that enables the WTO to control LCRs in green subsidies. While the United States should be lauded for implementing regulations that address climate change, the New EV Tax Credit is most likely a subsidy that trade rules prohibit. If the United States is unlikely to repeal this subsidy, the WTO should consider a new trade tool to control LCRs in green subsidies. This paper suggests a trade tool that temporarily waives the withdrawal of an LCR until its expiration in exchange for policies and contributions that benefit international trade and the fight against climate change.

I. UNDERSTANDING THE IRA EV TAX CREDIT

A. THE OLD EV TAX CREDIT

The Old EV Tax Credit has been in effect since 2008 and faced periodic amendments, most of which extended the timeline of the tax credit’s applicability. Until the IRA amendments, the Old EV Tax Credit was titled “New Qualified plug-in electric drive motor vehicles” and, despite the complicated title, was a simple tax credit that incentivized consumers to buy EVs with greater battery capacity. Under the Old EV Tax Credit, EV purchasers could apply for a tax credit of up to \$7,500 under a formula consisting of a “Base Amount” of \$2,500¹⁷ and a variable amount depending on “Battery Capacity.” For an EV battery with “not less than 5 kilowatt hours of capacity,” the purchaser was entitled to \$417 plus an additional \$417 for each kilowatt hour exceeding 5 kilowatt hours until the total amount reaches \$5,000.¹⁸ For most EVs, this meant a total of \$7,500 available as a tax credit so long as the electric vehicle had a battery with at least 16 kilowatt hours of capacity.

Section 30D(d) defines a “New Qualified Plug-In Electric Drive Motor Vehicle.” The following qualifications are noteworthy for comparison with the New EV Tax Credit.

The EV must be a motor vehicle –

(d)(1)(A): the original use of which commences with the taxpayer,

¹⁴ Ana Swanson, *U.S. and Japan Reach Deal on Battery Minerals*, THE NEW YORK TIMES (Mar. 27, 2023), <https://www.nytimes.com/2023/03/27/business/economy/us-japan-battery-minerals-deal.html>; (Post-IRA) 26 U.S.C. §§ 30D(e)(1)(A)(i)-(ii).

¹⁵ Victoria Walderssee, *U.S. lays out possible critical raw materials agreement with EU – Handelsblatt*, REUTERS (Mar. 23, 2023), <https://www.reuters.com/business/us-lays-out-possible-critical-raw-materials-agreement-with-eu-handelsblatt-2023-03-23/>.

¹⁶ Kan Hyeong-woo, *Korean battery makers relieved by latest US subsidy guidance*, The Korea Herald (Apr. 2, 2023 3:27 PM), https://www.koreaherald.com/view.php?ud=20230402000129&ACE_SEARCH=1.

¹⁷ (Pre-IRA) 26 U.S.C. § 30D(b)(2).

¹⁸ *Id.* § 30D(b)(3).

(d)(1)(C): which is made by a manufacturer,

(d)(1)(F)(i): (battery that) has a capacity of not less than 4 kilowatt hours.¹⁹

The ‘Old’ EV Tax Credit provisions incentivized purchasers to buy new EVs with a high battery capacity of at least 16 kilowatt hours. In the next subsection, note the disappearance of this incentive and its replacement with local content requirements.

B. THE ‘NEW’ EV TAX CREDIT

Under the New EV Credit, U.S. purchasers of a “New Clean Vehicle” can still apply for a tax credit of up to \$7,500 but under several new conditions. This subsection prioritizes the changes that are relevant for the legality analysis under WTO rules in Section 2.

The first major change is the addition of an “Assembly Requirement” hidden inside the definition of a “New Clean Vehicle.” For EVs sold after August 16, 2022, the EV’s final assembly must occur within North America.²⁰ “Final assembly,” added by the IRA amendments, means the “process by which a manufacturer produces a new clean vehicle at, or through the use of, a plant, factory, other place... with all component parts necessary... included with the vehicle, whether or not the component parts are permanently installed in or on the vehicle.”²¹ For consumers who want this tax credit, the “Assembly Requirement” clearly leads them to exclude foreign manufactured or, in other words, imported electric vehicles. For foreign car manufacturers like Hyundai, Toyota, and Volkswagen, the number of tax credit qualifying EVs decreases as only those assembled in their North American factories can now qualify in contrast to the past when all EVs qualified.

The second major change concerns a new formula for calculating the applicable tax credit amount. Instead of the “Base Amount” of \$2,500 and the “Battery Capacity” provision that can accrue up to \$5,000, the IRA imposes the “Critical Minerals” and the “Battery Component” requirements in § 30D(e)(1)-(2). Now our consumer who had to make sure the new electric vehicle was manufactured or assembled in North America must pass two more hurdles to earn \$3,750 under “Critical Minerals” and \$3,750 under “Battery Component.”

The “Critical Minerals” requirement states that the electric vehicle’s battery must contain critical minerals that were “extracted or processed in the United States, or in any country with which the United States has a free trade agreement in effect, or recycled in North America.”²² While the regulation does not explicitly provide a list of minerals considered “critical,” the following minerals will likely be included in the EV battery context: lithium, cobalt, manganese, nickel, and graphite.²³ Moreover, the percentage of such critical minerals in the EV’s battery, for vehicles placed in service before January 1, 2024, must be 40 percent.²⁴ The required percentage is scheduled to increase by 10 percent each year until it reaches 80%, meaning that vehicles placed in service after

¹⁹ *Id.* §§ 30(D)(d)(1)(A), (C), (F)(i).

²⁰ (Post-IRA) 26 U.S.C. § 30D(d)(1)(G).

²¹ *Id.* § 30D(d)(5).

²² *Id.* §§ 30D(e)(1)(A)(i)-(ii).

²³ Tracy, *supra* note 7, at 4. Another helpful reference to “Critical Minerals” is in IRA § 13502(c)(6) (“Applicable Critical Minerals” which lists critical minerals and their chemical properties. While this list is for the purposes of the Advanced Manufacturing Production Credit (26 U.S.C. § 45X), it provides guidance for the definition of critical minerals in the Clean Vehicle Credit (26 U.S.C. § 30D).

²⁴ (Post-IRA) 26 U.S.C. § 30D(e)(1)(B)(i).

December 31, 2026 must have 80 percent of its critical minerals that pass this requirement.²⁵

The “Battery Component” requirement states that the electric vehicle’s battery must contain components “that were manufactured or assembled in North America”²⁶ and their percentage in the EV’s battery must be 50 percent for vehicles placed in service before January 1, 2024.²⁷ The required percentage of these “North American” battery components is scheduled to increase to 60 percent for 2024 and 2025. The percentage then annually increases by 10 percent until 2028, when it would reach 100 percent.²⁸

The third major change is the addition of an “Excluded Entities” provision. The provision adds two more requirements that EVs must pass to qualify as a “New Clean Vehicle.” Section 30D(d)(7)(A) states that new clean vehicles placed in service after December 31, 2024 shall not include critical minerals in their batteries that “were extracted, processed, or recycled by a foreign entity of concern.”²⁹ The other requirement, in section 30D(d)(7)(B), states that new clean vehicles placed in service after December 31, 2023 shall not include battery components that “were manufactured or assembled by a foreign entity of concern.”³⁰ Instead of explicitly stating which nations are a foreign entity of concern, the statute cites 42 U.S.C. § 18741(a)(5) which defines the term. Section 18741(a)(5)(C) defines a foreign entity of concern as a foreign entity “owned by, controlled by, or subject to the jurisdiction or direction of a government of foreign country that is a covered nation (as defined in section 2533c(d) of Title 10).”³¹ Excluded Entities will therefore most likely include Chinese and Russian companies that partake in the EV supply chain as both China and Russia are “covered nations.”³² Further details are to be addressed in the future according to the Treasury Department’s latest ‘proposed guidance,’ released on March 31, 2023.³³

The fourth change involves the addition of the “Transfer of Credit” clause in section 30D(g). The EV purchaser can elect to transfer the applicable EV tax credit amount to an “eligible entity,” essentially the dealer that sold the EV, in return for a payment to such purchaser “in cash or in the form of a partial payment or down payment.”³⁴

These changes, along with a limitation on receiving the tax credit based on modified adjusted gross income,³⁵ a similar limitation based on suggested retail prices for different types of electric vehicles,³⁶ and a termination date of December 31, 2032,³⁷ describe the New EV Tax Credit. The table below summarizes the major requirements future EVs must pass in order for the purchaser to qualify for the New EV Tax Credit. These changes clearly indicate prioritization of a national security goal of creating a domestic and “friendly” EV supply chain via discrimination against foreign producers, manufacturers, and supply chains.

²⁵ *Id.* §§ 30D(e)(1)(B)(ii)-(v).

²⁶ *Id.* § 30(D)(e)(2)(A).

²⁷ *Id.* § 30(D)(e)(2)(B)(i).

²⁸ *Id.* §§ 30(D)(e)(2)(B)(ii)-(vi).

²⁹ *Id.* § 30D(d)(7)(A).

³⁰ *Id.* § 30D(d)(7)(B).

³¹ 42 U.S.C. § 18741(a)(5).

³² 10 U.S.C. § 2533c(d)(2).

³³ *See* 30D New Clean Vehicle Credit, 88 Fed. Reg. 23,370 (Apr. 17, 2023).

³⁴ (Post-IRA) 26 U.S.C. §§ 30D(g)(1)-(2)(C).

³⁵ *Id.* § 30D(f)(10).

³⁶ *Id.* § 30D(f)(11).

³⁷ *Id.* § 30D(h).

Table 1: Changes over time in the conditions to qualify for the New EV Tax Credit

	2023	2024	2025	2026	2027	2028	2029	2030
Final Assembly Requirement	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Critical Minerals	40%	50%	60%	70%	80%	80%	80%	80%
Battery Components	50%	60%	60%	70%	80%	90%	100%	100%
Excluded Entities: Critical Minerals	N/A	N/A	Yes	Yes	Yes	Yes	Yes	Yes
Excluded Entities: Battery Components	N/A	Yes	Yes	Yes	Yes	Yes	Yes	Yes

II. ANALYSIS OF THE NEW EV TAX CREDIT UNDER WTO RULES

The New EV Tax Credit most likely violates several trade rules under the GATT³⁸ and ASCM.³⁹ If challenged, a WTO Panel will most likely classify this tax credit as a prohibited import substitution subsidy and order the United States to withdraw it. Current trade rules indicate that countries may grant certain subsidies. If goods made in reliance on those subsidies are traded, other countries have a right to impose countervailing duties on them or to challenge them at the WTO for causing adverse effects. But the type of subsidy provided in the IRA is in a different category – it is a prohibited subsidy that the United States committed not to grant or maintain. Here, the New EV Tax Credit is a prohibited subsidy under ASCM as a subsidy that is contingent upon the use of domestic over imported goods. Unsurprisingly, the main culprits of illegality are the LCRs and the “Excluded Entities” provision.

A. ASCM ARTICLE 1 DEFINITION OF A SUBSIDY

Article 1.1: For the purpose of this Agreement, a subsidy shall be deemed to exist if:

- (a)(1) there is a financial contribution by a government or any public body within the territory of a Member (referred to in this Agreement as “government”), i.e. where:

³⁸ GATT 1994: General Agreement on Tariffs and Trade 1994, Apr. 15, 1994, Marrakesh Agreement Establishing the World Trade Organization, Annex 1A, 1867 U.N.T.S. 187, 33 I.L.M. 1153 (1994) [hereinafter GATT]

³⁹ Agreement on Subsidies and Countervailing Measures, Apr. 15, 1994, Marrakesh Agreement Establishing the World Trade Organization, Annex 1A, 1869 U.N.T.S. 14.

- (ii) government revenue that is otherwise due is foregone or not collected (e.g. fiscal incentives such as tax credits);
- (iv) a government makes payments to a funding mechanism, or entrusts or directs a private body to carry out one or more types of the functions illustrated in (i) to (iii) above which would normally be vested in the government and the practice, in no real sense, differs from practices normally followed by governments;

And

- (b) a benefit is thereby conferred.

Article 1.2: A subsidy as defined in paragraph 1 shall be subject to the provisions of Part II or shall be subject to the provisions of Part III or V only if such a subsidy is specific in accordance with the provisions of Article 2.

The New EV Tax Credit should be considered a subsidy under ASCM Article 1. It is a financial contribution by the U.S. federal government within United States territory where the tax credit corresponds to foregone government revenue that is otherwise due. Furthermore, the New EV Tax Credit’s “Transfer of Credit” provisions indicates a financial contribution by the U.S. government where it directs qualifying electric vehicle “dealers” to carry out this tax credit, an action which would normally be vested in the U.S. government and in no real sense differs from practices normally followed by governments. Finally, a benefit is thereby conferred to purchasers of new EVs, a benefit that otherwise would not be available in the market absent this tax credit.

Art. 1.1(a)(1)(ii) “*government revenue otherwise due is foregone or not collected.*”

The New EV Tax Credit will be considered “government revenue otherwise due” that is “foregone or not collected” under this article by the plain meaning of the text. Article 1.1(a)(1)(ii) specifically states, in parentheses, “(e.g., fiscal incentives such as tax credits).” The New EV Tax Credit therefore falls under Art. 1.1(a)(1)(ii).

Art. 1.1(b) “*benefit is thereby conferred.*”

Benefit is conferred by the New EV Tax Credit because the financial contribution of a tax credit by the U.S. government or a cash payment by the “eligible entity” (i.e., car dealership) acting as a proxy to said government places this subsidy’s recipients, purchasers of new EVs, in a more advantageous position via the market than they otherwise would be.

“Benefit” under Art. 1.1(b) is determined by identifying “whether the financial contribution has made “the recipient better off” than it would otherwise have been, absent that contribution.”⁴⁰ See *US – Large Civil Aircraft (2nd complaint)*. Several WTO panels support the use of a market-based comparison test. The panel in *India – Sugar and Sugarcane* noted that “[t]he marketplace provides an appropriate basis for comparison in determining whether a ‘benefit’ has been ‘conferred,’ because the trade-distorting potential of a ‘financial contribution’ can be identified by determining whether the recipient has received a ‘financial contribution’ on terms more favorable than those

⁴⁰ Appellate Body Report, *United States – Measures Affecting Trade in Large Civil Aircraft – Second Complaint*, ¶¶ 635-636, 662, 690, WTO Doc. WT/DS353/AB/R (adopted Mar. 12, 2012).

available to the recipient in the market.”⁴¹ See also *Canada – Aircraft* paras. 5.163-164.⁴² For example, the panel in *India – Export Related Measures* held that the tax exemptions under the SEZ Scheme conferred a benefit upon their recipients because such “relief from taxation otherwise due is not generally available to market participants” and is not a general condition in the marketplace. The panel reasoned that the contrast shown between SEZ entrepreneurs inside the SEZ Scheme that may deduct profits and gains from taxable export income and businesses outside the Scheme that cannot enjoy such deductions indicate that the former is conferred a benefit that it would not have enjoyed, absent that Scheme.

Here, the New EV Tax Credit confers a benefit like the SEZ Scheme tax deduction. Consumers of a new EV that passes the qualifications of the New EV Tax Credit can gain up to \$7,500 as a tax credit, a benefit that otherwise would not have been granted absent this policy. While subsidies to encourage purchases of electric vehicles exist in many U.S. states, a subsidy like the New EV Tax Credit that conditions its grant based on the origins of an electric vehicle has not been a general condition in the EV market, nor were they included in the Old EV Tax Credit. Thus, the comparison between an EV market with this tax credit and one without this tax credit will show a conferral of benefit to a specific subset of EV consumers that would otherwise not exist absent this subsidy. In other words, consumers buying new EVs manufactured in North America will be “better off” than those buying new EVs manufactured somewhere else. The New EV Tax Credit therefore confers a benefit under Article 1.

That the recipients of this subsidy are purchasers of EVs rather than producers should not influence the determination of the New EV Tax Credit as a subsidy. In *Brazil – Aircraft (Article 21.5 – Canada II)*, the WTO panel ruled that a complainant challenging a subsidy whose recipients are financial services providers rather than the producers or purchasers of Brazilian regional aircrafts must show that the subsidy’s benefit is somehow passed in some way to producers of regional aircraft.⁴³ In other words, the panel required a showing that the subsidy impacts the trade in goods. It further noted that, as long as a benefit is conferred, “there would be no need for complex benefit analysis” if the subsidy payments are made directly to producers or *to purchasers* of Brazilian regional aircraft.⁴⁴ (Italics added) Here, *Brazil – Aircraft*, which the panel in *Canada – Aircraft Credits and Guarantees* endorsed,⁴⁵ shows that no additional benefit analysis is required when a subsidy’s recipient is connected to a trade in goods as producers or purchasers. The New EV Tax Credit’s recipients are not lenders but purchasers in the trade of EVs. Therefore, the connection between the tax credit’s benefit to a trade in goods is satisfied for Article 1.1(b). As long as the New EV Tax Credit fits the definition under Article 1, the fact that its recipients are purchasers will not necessitate additional analysis to be considered a subsidy.

⁴¹ Panel Report, *India – Measures Concerning Sugar and Sugarcane*, ¶ 7.257, WTO Doc. WT/DS581/R (adopted Dec. 14, 2021).

⁴² Appellate Body Report, *Canada – Renewable Energy*, ¶¶ 5.163-164, WTO Doc. WT/DS426/AB/R (adopted May 6, 2013).

⁴³ Panel Report, *Brazil – Export Financing Programme for Aircraft (Article 21.5 – Canada II)*, footnote 41, WTO Doc. WT/DS46/RW2-00 (adopted July 26, 2001).

⁴⁴ *Id.* at ¶¶ 5.27-5.28.

⁴⁵ Panel Report, *Canada – Export Credits and Loan Guarantees for Regional Aircraft*, ¶ 7.229, WTO Doc. WT/DS222/R-00 (adopted Jan. 28, 2002).

B. ASCM ARTICLE 3 PROHIBITION

Article 2.3 Specificity: Any subsidy falling under the provisions of Article 3 shall be deemed to be specific.

Article 3.1: Except as provided in the Agreement on Agriculture, the following subsidies, within the meaning of Article 1, shall be prohibited:

(b) subsidies contingent, whether solely or as one of several other conditions, upon the use of domestic over imported goods.

Article 3.2: A Member shall neither grant nor maintain subsidies referred to in paragraph 1.

The New EV Tax Credit should be considered a prohibited subsidy under ASCM Article 3.1(b) because the tax credit is a subsidy contingent upon the use of domestic over imported goods (“import substitution subsidy”). The import substitution here is caused by the LCRs that require the use of domestic over imported goods. Given the New EV Tax Credit’s status as a 3.1(b) prohibited subsidy with a showing of specificity waived under Article 2.3, the United States therefore has a duty to neither grant nor maintain this subsidy under Article 3.2.

Art. 3.1(b) “*subsidies contingent, whether solely or as one of several other conditions, upon the use of domestic over imported goods*”

The WTO Appellate Body’s interpretations of Article 3.1(b) in *US – Tax Incentives* provides a legal standard that is applicable to the New EV Tax Credit. Regarding ‘contingent,’ the Appellate Body noted that the relevant inquiry is not “whether the eligibility requirements under a subsidy *may* result in the use of more domestic and fewer imported goods” but “whether a *condition requiring* the use of domestic over imported goods can be discerned from the terms of the measure itself”⁴⁶ (*de jure* contingent), or “inferred from its design, structure, modalities of operation” and relevant facts surrounding this subsidy”⁴⁷ (*de facto* contingent). Moreover, no “particular quantity or level of displacement of imported goods by domestic goods” is necessary under Article 3.1(b), meaning that a subsidy prohibited by this section need not require the use of domestic goods to the “complete exclusion” of imported goods.⁴⁸ Regarding ‘use,’ the Appellate Body noted that ‘use’ may, depending on the circumstances, refer to the consumption of a good in the manufacturing process or the incorporation of a component into a separate good.⁴⁹ Regarding ‘domestic over imported goods,’ the same Appellate Body interpreted ‘domestic goods’ as “goods originating within the relevant Member’s territory” and ‘imported goods’ as “goods that cross the border into that Member’s territory.”⁵⁰ The in-between term ‘over’ refers to “the use of domestic goods in preference to, or instead of, imported goods.”⁵¹ Regarding ‘goods,’ the Appellate Body noted that ‘goods’ may refer to “any type of good that may be

⁴⁶ Appellate Body Report, *United States – Conditional Tax Incentives for Large Civil Aircraft*, ¶ 5.18, WTO Doc. WT/DS487/AB/R (adopted Sept. 4, 2017).

⁴⁷ *Id.*

⁴⁸ *Id.* at ¶ 5.22.

⁴⁹ *Id.* at ¶ 5.8.

⁵⁰ *Id.* at ¶ 5.10.

⁵¹ *Id.* at ¶ 5.11.

used by the subsidy recipient, including parts or components that are incorporated into another good, materials or substances that are consumed in the production process of another good, or tools or instruments that are used in the production process.”⁵² The broad scope indicates that ‘*goods*’ is not limited to actually traded goods.

Here, the New EV Tax Credit should be considered a prohibited subsidy under the above-mentioned WTO case law interpretations of Article 3.1(b). In fact, the “Critical Minerals” requirement and the “Battery Component” requirement laid out in IRA-amended § 30D(e) closely fits with the WTO explanation of the phrase ‘*the use of domestic over imported goods*.’ *Goods* may refer to the battery components that will be incorporated into the electric vehicle and the various critical minerals that are consumed in the production process of EV batteries. The ‘*use*’ will consequently be satisfied as the New EV Tax Credit explicitly requires both the consumption and incorporation of such goods in the manufacture of electric vehicles. Moreover, § 30D(e) requirements satisfy the ‘*domestic over imported goods*’ element as they explicitly condition the tax credit on the use of domestic critical minerals and battery components over imported ones.

The possible counterargument that the prohibited contingency does not exist because critical minerals from countries the U.S. has a free trade agreement and battery components imported from Canada and Mexico are all allowed is unlikely to be successful. First, the Appellate Body noted that a subsidy does not have to require the use of domestic goods over the complete exclusion of imported goods in order to be prohibited by Article 3.1(b). Secondly, this selective inclusion of certain WTO Members violates GATT Article 1 Most Favored Nation clause as it states that “any advantage, favour, privilege, or immunity granted by any contracting party to any product originating in or destined for any other country shall be accorded immediately and unconditionally to the like product originating in or destined for the territories of all other contracting parties.”⁵³ Thirdly, the “Excluded Entities” provision in § 30D(d)(7) that applies after 2024 will create a more obvious prohibited contingency because it requires the use of domestic goods instead of imported goods from China. On the final element of *contingency*, the discernible conditions from the texts of § 30D(e) “Critical Minerals” and “Battery Component” requirements and of § 30D(d)(7) “Excluded Entities” provision will prove *de jure* contingency. The implications of these texts played out in the EV market will subsequently satisfy *de facto* contingency. Fourthly, the “Assembly Requirement” in § 30D(d)(1)(G) indicates another *de jure* contingency that favors domestic EVs over imported EVs. In conclusion, the New EV Tax Credit will most likely be viewed as an import substitution subsidy under Article 3.1(b) that the United States is prohibited from granting under Article 3.2.

C. GATT ARTICLE III NATIONAL TREATMENT ON INTERNAL TAXATION AND REGULATION

III:4 The products of the territory of any contracting party imported into the territory of any other contracting party shall be accorded treatment no less favorable than that accorded to like products of national origin in respect of all laws, regulations and requirements affecting their internal sale, offering for sale, purchase, transportation, distribution or use...

⁵² *Id.* at ¶ 5.9.

⁵³ GATT Article I:1.

The United States likely violates Article III:4. Three elements must be satisfied to find an Article III:4 violation: (1) the imported and domestic products at issue are ‘like products;’ (2) the measures at issue is a ‘law, regulation, or requirement affecting their internal sale, offering for sale, purchase, transportation, distribution, or use;’ (3) the imported products are accorded ‘less favorable’ treatment than that accorded to like domestic products.⁵⁴

The New EV Tax Credit will satisfy the first element without needing to go through the traditional ‘like products’ analysis. To determine ‘like products,’ the WTO panel considers whether the products at issue are alike and/or substitutable regarding end-uses, physical property, consumer tastes and habits, and tariff classification. Moreover, products are treated as ‘like products’ within the meaning of Article III:4 “when origin is the sole distinguishing criterion.”⁵⁵ See *India – Autos*. Here, products affected by the New EV Tax Credit such as electric vehicles, critical minerals, and battery components will most likely pass the ‘like products’ test under the panel’s declaration in *India – Autos*. Much like the ‘indigenization’ condition in *India – Autos* that distinguished products solely by their origin as domestic or imported, the § 30D(d) “Final Assembly” requirement (plus the “Excluded Entities” provision) and § 30D(e) “Critical Minerals” and “Battery Component” requirements all condition the grant of the tax credit solely upon origin, meaning where the product was extracted, processed, manufactured, or assembled. As the panel declared that products distinguished under this standard alone may be treated as ‘like products’ within the meaning of Article III:4, the products at issue regarding the New EV Tax Credit will be considered ‘like products.’

The New EV Tax Credit will satisfy the second element from the plain meaning of Article III:4. It affects the internal sale, offering for sale, and purchase of electric vehicles as a regulation under the Internal Revenue Code and a statutory provision enacted under the IRA. It is also implemented by regulations from the Treasury Department. Given any of these legislations or regulatory bodies, the New EV Tax Credit is subject to III:4.

The New EV Tax Credit will satisfy the third element of less favorable treatment due to the origin-based discrimination of electric vehicles, critical minerals in EV batteries, and battery components. ‘Less favorable treatment,’ according to the Appellate Body in *EC – Asbestos*, expresses the Article III:1 principle that internal regulations “should not be applied... to afford protection of domestic production.”⁵⁶ In *EC – Approval and Marketing of Biotech Products*, the WTO panel concluded that Argentina failed to demonstrate the European Communities’ ‘less favorable treatment,’ reasoning that Argentina did not allege that the treatment of products differed depending on their origins which may have been established if Argentina showed evidence that “domestic biotech products have not been less favorably treated in the same way as imported biotech products, or that the like domestic non-biotech varieties have been more favorably treated than the imported non-biotech varieties.”⁵⁷

⁵⁴ Appellate Body Report, *Korea – Measures Affecting Imports of Fresh, Chilled and Frozen Beef*, ¶ 133, WTO Doc. WT/DS161/AB/R (adopted Dec. 11, 2000).

⁵⁵ Panel Report, *India – Measures Affecting the Automotive Sector*, ¶ 7.174, WTO Doc. WT/DS175/R (adopted Dec. 21, 2001).

⁵⁶ Appellate Body Report, *European Communities – Measures Affecting Asbestos and Products Containing Asbestos*, ¶ 100, WTO Doc. WT/DS135/AB/R (adopted Mar. 12, 2001).

⁵⁷ Panel Report, *European Communities – Measures Affecting the Approval and Marketing of Biotech Products*, ¶ 7.2513-2516, WTO Doc. WT/DS293/R-05 (adopted Sept. 29, 2006).

Here, the New EV Tax Credit gives imported products less favorable treatment than domestic products by granting a tax credit on conditions based solely on the origins of electric vehicles and certain of their components. The less favorable treatment is arguably the result of this tax credit’s attempt to protect and promote the domestic production of EV and EV parts. Unlike the rather confusing argument by Argentina, a complainant government can easily show that domestically assembled EVs will be treated more favorably in the market than a foreign assembled EVs imported into the U.S. (except those coming from Mexico and Canada). Similarly, battery components imported into the U.S. from South Korea, for instance, will face less favorable treatment by EV manufacturers than a domestically produced battery component due to the “Battery Component” requirement which incentivizes both EV consumers and producers to favor domestic (plus neighbors’) goods over imported goods.⁵⁸ Therefore, the New EV Tax Credit clearly shows ‘less favorable treatment’ to imported goods compared to domestic goods.

III:5 No contracting party shall establish or maintain any internal quantitative regulation relating to the mixture, processing or use of products in specified amounts or proportions which requires, directly or indirectly, that any specified amount or proportion of any product which is the subject of the regulation must be supplied from domestic sources. Moreover, no contracting party shall otherwise apply internal quantitative regulations in a manner contrary to the principles set forth in paragraph 1.

The United States likely violates Article III:5 given the plain meaning of the provision. The New EV Tax Credit establishes several internal quantitative regulations relating to the processing of electric vehicles and their components in specific amounts or proportions. It directly requires that any specified amount or proportion of the new electric vehicle subject to the tax credit must be supplied from domestic sources.

For instance, the New EV Tax Credit’s “Critical Minerals” requirement establishes a year-by-year schedule of specific numerical percentages of critical minerals that must be extracted or processed in the United States or any country the U.S. has a Free Trade Agreement with or recycled in the United States. The “Battery Component” requirement is further restrictive by taking out the “countries with which the U.S. has a free trade agreement with” provision. This requirement demands a year-by-year schedule of specific numerical percentages of battery components that were manufactured or assembled in North America.

The New EV Tax Credit contains several trade-distorting provisions that WTO rules were designed to prevent. As a tax credit that is contingent upon the use of domestic over imported goods, the New EV Tax Credit will most likely be considered a prohibited subsidy under ASCM Article 3.1(b). The United States therefore has a duty to withdraw this tax credit under its WTO obligations. Moreover, this tax credit most likely violates the national treatment principle under GATT Article III as the regulation shows less favorable treatment to imported EVs, EV battery components, and critical minerals by, quite simply, favoring domestic goods or those from certain countries. The exclusion from ‘less favorable treatment’ for certain countries also likely violates the MFN principle under

⁵⁸ Unlike the “Critical Minerals” LCR requirement, the “Battery Component” requirement does not carve-out imports from countries with which the U.S. has a free trade agreement. So, critical minerals processed in South Korea would count towards the tax credit but not battery components.

GATT Article I. Violations of ASCM Article 3 and GATT Art. III both stem from the New EV Tax Credit’s local content requirements.

III. A Trade Tool to Address Green Subsidy LCRs

As section II showed, WTO rules will most likely classify the New EV Tax Credit as a prohibited subsidy under ASCM Article 3.1(b) due to its local content requirements (LCRs). Yet because potential complainants such as the EU, Japan, and South Korea have so far foregone this slam dunk case in favor of bilaterally dealing with the United States, this LCR-filled green subsidy is currently not subject to review at the WTO. The WTO can wait for another complainant, such as China, to challenge the New EV Tax Credit but this scenario faces the risk of an “appeal into the void” as there is no WTO Appellate Body to adjudicate if the U.S. appeals any adverse WTO panel decision. Rather than wait, the WTO should actively react to the New EV Tax Credit by creating a new trade tool that can address the crux of its illegality: trade distorting LCRs within an otherwise ‘green’ subsidy.

Before diving into this trade tool, it is important to note that the climate policy goal of encouraging EV purchases and the national security goal of developing a domestic EV battery supply chain could have been achieved in a WTO-consistent manner. The U.S. could have updated the Old EV Tax Credit’s incentive to reflect current EV models’ battery capacities. Instead of LCRs, the U.S. could have created a separate set of direct subsidies to domestic producers of EVs, battery components, and critical minerals. Given that congressional action to re-legislate the IRA’s EV tax credit portion is unlikely to occur, the proposed trade tool aims to control green subsidy LCRs in a way that maximizes the green subsidy’s effect on fighting climate change while minimizing the LCRs’ trade-distorting effect.

This trade tool, titled “The Green Subsidy LCR Mitigation Program,” (“LCR Program”) would be a WTO program enforced by members against a member who violates or potentially violates ASCM Article 3.1(b) and does not withdraw the green subsidy LCR voluntarily. The LCR Program sets out to achieve three goals: (1) the WTO’s goal of reducing barriers to trade and eliminating discriminatory treatment in international trade relations,⁵⁹ (2) the country’s goal underlying the use of LCR(s), and (3) the WTO and the green subsidy’s goal of sustainable development and the protection and preservation of the environment.⁶⁰ The LCR Program is not a substitute for Article 3.1(b) prohibition but a guaranteed *worse* treatment for WTO members using LCRs in their green subsidies who ignore Article 3.1(b) for some reason.

A. THE GREEN SUBSIDY LCR MITIGATION PROGRAM

This program mandates a trade-off wherein WTO members *temporarily* waive the member’s Article 3.1(b) duty not to grant or maintain an LCR subsidy and *temporarily* protects it from challenges in the WTO in return for the violating member’s acceptance of mandatory commitments. The violating member must (1) accept a negotiated expiration date (“Sunset Provision”) for the LCR, (2) accept WTO surveillance, periodically provide requested information, and publish a post-expiration report on the LCR’s impact with the WTO, (3) prohibit the exportation of the subsidized green goods, (4) financially contribute to the UN Framework Convention on Climate Change’s

⁵⁹ Marrakesh Agreement Establishing the World Trade Organization, Apr. 15, 1994, 1867 U.N.T.S. 154.

⁶⁰ *Id.*

(UNFCCC) Green Climate Fund, and (5) enter preferential treatment negotiations with requesting WTO members after the expiration date. It is important to note again that the LCR Program’s purpose is to highly discourage green subsidy LCRs and encourage compliance with ASCM Article 3.

The LCR Program’s success hinges upon the efficacy of WTO surveillance of the green subsidy LCR. In “A Proposed Code to Discipline Local Content Requirements,” Cimino, Hufbauer, and Schott argue that LCRs are generally inconsistent with WTO rules but are not effectively challenged due to “gaps in the multilateral rulebook, weak surveillance, and the inadequacy of enforcement.”⁶¹ Given that the LCR Program addresses LCRs that persist despite the rules and temporarily protects them from WTO enforcement, this article provides helpful insights on surveillance. On surveillance, the authors argue that “[m]ore “sunshine” is the place to start, in the form of better reporting of LCR practices.”⁶² A new WTO monitoring body would mandate semiannual reports on all new and existing LCRs.⁶³ The monitoring body would then identify LCRs that violate members’ WTO obligations and “analyze their trade-distorting costs.”⁶⁴

The LCR Program adopts a similar surveillance function. It focuses on analyzing the trade-distorting costs in order to minimize an identified LCR’s negative impact on international trade. A WTO monitoring body (potentially the SCM Committee) will collect information from the violating member and other members to measure the damage caused by the LCR. These findings will then be periodically published and circulated to all WTO members. These disclosures will maintain the “sunshine” on the green subsidy LCR until its eventual “sunset” (i.e., expiration date) to prevent any discretionary abuse by the violating member during its participation in the LCR Program. Surveillance and periodic disclosures will “name and shame” the violating member, calculate trade-distorting costs, measure any environmental benefit (i.e., amount of reduced greenhouse gas emission due to the green subsidy), and disclose comprehensive information about the LCR(s).

The disclosures of trade-distorting costs and environmental benefits will also provide incentives for the violating member to modify, if not erase, the LCR. The violating member is incentivized to incur less trade-distorting costs because they may serve as evidence for the mandatory post-expiration preferential treatment negotiations under commitment (5). The greater the trade-distorting costs, the more preferential treatment the member will be pressured to concede. Similarly, the violating member will be incentivized to produce greater environmental benefits because they will substitute the financial contribution to the Green Climate Fund under commitment (4). The deduction by measured environmental benefits will be capped, however, to a certain level so that the violating member does make some monetary contribution to the Green Climate Fund. As such, the LCR Program’s surveillance mechanism under commitment (2) provides the Program with the sticks and carrots to continuously pressure LCRs to become less damaging during its allowed existence.

The idea of imposing mandatory commitments that make green subsidy LCRs more burdensome and costly, as opposed to waiving the Article 3 obligation given their

⁶¹ Cathleen Cimino-Isaacs, Gary Clyde Hufbauer, & Jeffrey J. Schott, *A Proposed Code to Discipline Local Content Requirements*, PETERSON INSTITUTE FOR INTERNATIONAL ECONOMICS (Feb. 2014), <https://www.piie.com/sites/default/files/publications/pb/pb14-6.pdf>, at 6.

⁶² *Id.* 9.

⁶³ *Id.* 10.

⁶⁴ *Id.*

environmental benefits, derives from the finding that LCRs are unhelpful, if not detrimental, in fighting against climate change and the argument that the WTO “should respond to the realities of international life.”⁶⁵ Both Charnovitz, in “Green Subsidies and the WTO,” and Mattoo and Subramanian, in “Four Changes to Trade Rules to Facilitate Climate Change Action,” declined to change Article 3 in their considerations of altering trade rules to accommodate environmental policy objectives. Mattoo and Subramanian argue that LCR subsidies do not promote and “may even hinder” environmental objectives “because they merely induce the substitution of more costly domestic inputs for cheaper foreign alternatives.”⁶⁶ Charnovitz notes that LCR subsidies are illegal not only under WTO law (given Article 3) but also under international environmental law because it “specifically warns against measures that distort trade.”⁶⁷ Describing LCRs as a “counterproductive practice” that creates a collective action dilemma wherein all countries would be worse off if they all adopted it, he argues that “cooperation by all players to agree *not* to engage” in LCRs is the ideal policy.⁶⁸ Given these characteristics and acknowledging Mattoo and Subramanian’s point about the cost-ineffective import substitution, he finds LCR subsidies as “a political economy failure” and “not a sustainable development solution.”⁶⁹

The LCR Program is designed with the above findings as its theoretical foundation and therefore intends to be a last resort enforcement option in case SCM Article 3 fails to be effective for some reason. The program is proposed because, as Charnovitz rightly notes, the WTO should respond to realities in international trade.⁷⁰ The current reality is that green subsidy LCRs like the U.S.’s New EV Tax Credit will likely be unchallenged at the WTO. Even if challenged, it will not be withdrawn in light of the absence of a functioning Appellate Body – and WTO challenges will detract from a needed focus on climate change. The LCR Program provides an alternative to non-enforcement due to inaction. The other reality of an absent WTO Appellate Body, however, is one that the LCR Program cannot fix. In fact, the Appellate Body must be revived in order for the WTO’s temporary protection from the dispute settlement system to have meaningful value. While the fact that the United States is likely a target of the program and the necessary player for its effectiveness may be problematic, it may simultaneously alarm U.S. policymakers that these green subsidy LCRs further displaces the U.S. as a trustworthy leader in the WTO. If, on the other hand, the WTO Appellate Body is revived, the LCR Program will function as a complementary trade tool to Article 3, addressing only the “bad faith” green subsidy LCRs that ignores the sanction under Article 3 or those that have gone unchallenged for some reason.

The Green Subsidy LCR Mitigation Program provides the WTO with the authority to deal with green subsidy LCRs that fail to be withdrawn under Article 3. For protecting the green subsidy LCR from being further challenged under the WTO dispute settlement system, the LCR Program ensures an eventual expiration under WTO surveillance. It also mandates additional obligations such as financial contributions to the Green Climate Fund

⁶⁵ Charnovitz, *supra* note 12, at 66 (footnote 154).

⁶⁶ Aaditya Mattoo & Arvind Subramanian, *Four Changes to Trade Rules to Facilitate Climate Change Action*, Center for Global Development (May 2013), https://www.cgdev.org/sites/default/files/Mattoo_Subramanian-four-changes.pdf, at 5.

⁶⁷ *Id.* 62-63.

⁶⁸ *Id.* 65.

⁶⁹ *Id.* 65.

⁷⁰ Charnovitz, *supra* note 12, at 66.

and future preferential treatment negotiations with affected members to mitigate the LCRs’ damage. The LCR Program therefore creates opportunities to benefit international trade and climate change as much as possible while disciplining the LCR. Finally, the LCR Program’s implementation will remind all WTO members that LCRs are prohibited and show that the WTO can evolve its rules when members circumvent them.

B. TENTATIVE TERMS OF THE LCR PROGRAM

Article 1: The LCR Program shall accept Local Content Requirements (LCRs) contained in green subsidies (“LCR Green Subsidies”) that (i) a member has self-identified as a potential prohibited subsidy under ASCM Article 3.1(b) or (ii) a member has initiated a complaint against in the WTO dispute settlement system. Members shall self-identify their LCR Green Subsidies and provide relevant information in advance of providing such subsidies.

Article 2: Once an eligible Green Subsidy LCR has been notified, the violating member (“Participant”) must agree to enter immediate consultations pursuant to Article 23 of the GATT with any WTO member that believes the LCR has nullified or impaired the benefits or rights accruing to that member to decide on the duration and amounts for the Participant’s mandatory commitments.

Article 3: The LCR Program commits to the following obligations until the expiration date of the LCR(s) at issue: (i) waiver of the Green Subsidy LCR from withdrawal by the Participant under ASCM Article 4.7 and (ii) protection from complaints by other WTO Members under the WTO’s Dispute Settlement Body.

Article 4: The Participant commits to the following obligations:

- (i) “Sunset Provision”: Expiration date(s) for the LCR(s).
- (ii) “WTO Surveillance”: Mandatory and periodic submission of information related to or in connection with the LCR(s).
- (iii) “Export Prohibited”: Goods subsidized by the Green Subsidy LCR(s) under the LCR Program shall not be exported.
- (iv) “Fund Contribution”: Participant shall annually contribute to the Green Climate Fund for an amount negotiated under Article 2. The required contribution amount may be deducted by the amount of environmental benefit produced but shall not exceed 75% of the contribution amount.
- (v) “Preferential Treatment”: After the expiration date of an LCR, Participant shall initiate preferential treatment negotiations with any Member that requests a negotiation.

Article 5: The LCR Program for a Participant ends on the expiration date of the LCR(s). The Participant shall then draft and publish the post-expiration report regarding the LCR(s).

IV. CONCLUSION

The New EV Tax Credit dramatically changed the pre-existing EV tax credit regulation with local content requirements for critical minerals, battery components, and EV assembly. While these LCRs may help build a domestic EV supply chain for the United States, they may equally harm international trade and the fight against climate change.

Analysis of this tax credit under WTO rules show potential violations under GATT Article 3 and under ASCM Article 3. In both violations, the culprits are clearly the LCRs. Yet, the inaction of countries like EU, Japan, and South Korea to challenge them poses a serious problem that sets a dangerous precedent. Adhering to the viewpoint that the trade rule prohibiting LCRs should not be relaxed to facilitate green subsidies, this paper suggests the LCR Program. By closely monitoring the LCR until its scheduled expiration, the program seeks to incentivize the violating member to mitigate the LCR’s negative effects and to benefit the fight against climate change with financial contributions. Because an LCR-filled green subsidy like the New EV Tax Credit is likely to engender more LCRs in the green subsidy space, the WTO and its members should actively utilize pre-existing and new trade tools to stop this contagion. Doing so will protect international trade from detrimental protectionism and help the fight against climate change.

CHAPTER 20: DOMESTIC AND INTERNATIONAL LAW CONSTRAINTS ON THE PRESIDENT'S AUTHORITY TO IMPOSE SANCTIONS FOR CLIMATE CHANGE PURPOSES

NOAH LEVIN*

INTRODUCTION

For decades, the Industrial Revolution was considered the single greatest source of human development. The Industrial Revolution led to innovation, efficient manufacturing, and eased the path towards globalization. The advancements that have come since the onset of the Industrial Revolution are undeniable. However, over the past fifty years some point to the Industrial Revolution as also bringing something more sinister to the world – a climate crisis.

The amount of carbon dioxide (CO₂) in the atmosphere is now over fifty percent higher than before the Industrial Revolution began.¹ In the 6,000 years prior to the Industrial Revolution the measure of CO₂ in the atmosphere was steadily at 280 parts per million (ppm) but is now measured at over 420 ppm.² Since the 1990s U.S. government officials, most prominently former Vice President Al Gore, have drawn attention to the rising rate of CO₂ emissions and raised alarm about global impacts should urgent action to reduce emissions not be taken.³ Scientific, government, and activist warnings have only become more fervent since the start of the twenty-first century leading to domestic laws in numerous countries and international agreements reached at global conferences.⁴

As the number of entities sounding the alarm about the climate crisis grew from the 1990s into the twenty-first century, another crisis more immediately led to global change – the September 11th attacks (9/11). In the aftermath of 9/11, the U.S. government and other governments took actions that would forever alter the daily lives of citizens in the name of national security. The United States created the Department of Homeland Security,⁵ and most obviously to citizens was the increased airport security both in the

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¹ *Carbon dioxide now more than 50% higher than pre-industrial levels*, NAT'L OCEANIC AND ATMOSPHERIC ADMIN. (June 3, 2022), <https://www.noaa.gov/news-release/carbon-dioxide-now-more-than-50-higher-than-pre-industrial-levels>.

² *Id.* (during this time period average temperatures were roughly seven degrees Fahrenheit warmer than average temperatures before the Industrial Revolution, forests are believed to have thrived on Antarctica, and sea levels were between five and twenty-five meters higher than today).

³ *See, e.g.*, Benjy Starlin, *MTP Flashback: In 1993, Al Gore warned about climate change as U.S. temperatures soared*, NBC NEWS, (July 27, 2022), <https://www.nbcnews.com/meet-the-press/meetthepressblog/mtp-flashback-1993-al-gore-warned-climate-change-us-temperatures-soare-rcna40221>.

⁴ *See, e.g.*, Montreal Protocol on Substances that Deplete the Ozone Layer, Preamble, Sept. 16, 1987, S. Treaty Doc. 100-10; United Nations Framework on Climate Change, May 9, 1992, S. Treaty Doc. No. 102-38; Kyoto Protocol to the United Nations Framework Convention on Climate Change, Dec. 10, 1997, 2303 U.N.T.S. 162; Paris Agreement to the United Nations Framework Convention on Climate Change, Dec. 12, 2015, T.I.A.S. No. 16-1104.

⁵ *Creation of the Department of Homeland Security*, DEP'T. OF HOMELAND SEC., <https://www.dhs.gov/creation-department-homeland-security#:~:text=Department%20Creation&text=With%20the%20passage%20of%20the,doors%20on%20March%201%2C%202003>.

United States and throughout the world. Other changes include the increased scope of the surveillance state, most notably implemented through the passage of the Patriot Act,⁶ and sanctions and export controls imposed by the United States and its allies to crack down on the ability of terrorist organizations to fund themselves and get materials necessary to carry out further attacks.⁷

Just as the scope of the national security state expanded after 9/11, the scope of the term “national security” has grown since the 2010s. The Trump administration viewed economic prosperity as national security and incorporated this view into the official foreign policy of the United States.⁸ The Trump administration justified steel and aluminum tariffs in the World Trade Organization (WTO) on the basis of national security.⁹ Embracing this expanded conceptualization of national security, the Biden administration has defended Trump-era tariffs at the WTO under the guise of national security¹⁰ and justifies massive subsidy regimes under both a national security and economic security framing.¹¹

Fast-forward to today and climate activists see the climate crisis as a threat to human life much like terror attacks were viewed as a threat to human life after 9/11. Climate activists frequently call the climate crisis an “existential threat” and the Biden administration concurs in this judgement.¹² Further, the United State Department of

⁶ USA Patriot Act, Pub. L. 107-56.

⁷ See Exec. Order No. 13224, 31 C.F.R. 594 (2001) (declaring terrorism a threat to the national security, foreign policy, or economy of the United States and directing the U.S. government to block property and prohibit “transactions with persons who commit, threaten to commit, or support terrorism” to respond to the threat).

⁸ See *National Security Strategy of the United States of America*, THE WHITE HOUSE (2017), <https://trumpwhitehouse.archives.gov/wp-content/uploads/2017/12/NSS-Final-12-18-2017-0905.pdf> (devoting the entirety of Pillar II, one of four pillars, to the promotion of American prosperity, including a section titled “Rejuvenate the Domestic Economy” and another section titled “Promote Free, Fair, and Reciprocal Economic Relationships”).

⁹ See *The Effect of Imports of Steel on the National Security*, DEPARTMENT OF COMMERCE BUREAU OF INDUSTRY AND SECURITY (2018), https://www.commerce.gov/sites/default/files/the_effect_of_imports_of_steel_on_the_national_security_-_with_redactions_-_20180111.pdf (finding that imports of steel can have an effect on national security justifying the use of Section 232 of the Trade Expansion Act of 1962 raise tariffs on steel); Proclamation No. 9705, 83 Fed. Reg. 11625 (2018) (directing the modification of Chapter 99 of the Harmonized Tariff Schedule of the United States to raise tariffs on steel following the finding that the import of steel posed a threat to the national security); *Panels established to review US steel and aluminum tariffs, countermeasures on US imports*, WORLD TRADE ORGANIZATION (Nov. 21, 2018), https://www.wto.org/english/news_e/news18_e/dsb_19nov18_e.htm#:~:text=DISPUTE%20SETTLEMENT-,Panels%20established%20to%20review%20US%20steel%20and%20aluminium%20tariffs%2C%20countermeasures,on%20steel%20and%20aluminium%20imports (stating that the United States justified raising tariffs on steel and aluminum “for the protection of its essential security interests given the key role steel and aluminum plays in US national defence”).

¹⁰ See Ben Unglesbee, *USTR blasts WTO after panel rules against steel, aluminum tariffs*, SUPPLYCHAINDIVE (Dec. 15, 2022), <https://www.supplychaindive.com/news/ustr-blasts-wto-steel-aluminum-tariffs/638822/> (stating that “the Biden administration lashed out” after the WTO panel rejected U.S. national security justifications for the Trump-era steel and aluminum tariffs).

¹¹ See, e.g., *White House Fact Sheet: CHIPS and Science Act Will Lower Costs, Create Jobs, Strengthen Supply Chains, and Counter China*, THE WHITE HOUSE (Aug. 9, 2022), <https://www.whitehouse.gov/briefing-room/statements-releases/2022/08/09/fact-sheet-chips-and-science-act-will-lower-costs-create-jobs-strengthen-supply-chains-and-counter-china/> (arguing the CHIPS Act, which provides subsidies for U.S.-manufactured semiconductor chips, is important for both economic competitiveness and national security purposes).

¹² See, e.g., President Joseph R. Biden, Remarks by President Biden Before Signing Executive Actions on Tackling Climate Change, Creating Jobs, and Restoring Scientific Integrity, *in* The White House Briefing Room, available at <https://www.whitehouse.gov/briefing-room/speeches-remarks/2021/01/27/remarks-by-president-biden-before-signing-executive-actions-on-tackling-climate-change-creating-jobs-and-restoring->

Defense and Intelligence Community view the climate crisis as a risk to national security, particularly as sea levels rise which will put vital defense infrastructure at risk.¹³ In light of these assessments from the Biden administration, climate activists have urged President Biden to declare the climate crisis as a national emergency.¹⁴ By declaring a national emergency, President Biden would be able to take actions that may otherwise be outside of his authority.¹⁵ Considering Congress is unlikely to pass any significant legislation addressing the climate crisis in the near future, climate activists hope President Biden uses his powers to create fundamental changes much like the fundamental changes we saw after 9/11.

This paper contemplates whether the International Emergency Economic Powers Act (IEEPA) would be one of the national security authorities bestowed upon the president following the declaration of climate change as a national emergency. IEEPA is an authority climate activists hope President Biden will utilize should he declare climate change a national emergency¹⁶ because IEEPA allows the president to reach conduct that takes place overseas which would ordinarily be outside the scope of U.S. jurisdiction.¹⁷ In the climate change context, this means that companies, industries, or countries that have a nexus to the United States and are contributors to climate change could be targeted under IEEPA. While IEEPA is primarily used as a financial tool, this paper will test the bounds of IEEPA when used to target the trade of goods, not just monetary transactions.¹⁸

Once declared, IEEPA powers are very broad. This paper will first consider whether the president has the power to declare a national emergency and to invoke IEEPA thereafter. Next, the paper will use hypothetical policies – targeting high polluting

scientific-integrity/ (Jan. 27, 2021) (“It’s – that’s why I’m signing today an executive order to supercharge our administration [sic] ambitious plan to confront the existential threat of climate change. And it is an existential threat.”); Oliver Whang, *Greta Thunberg reflects on living through multiple crises in a ‘post-truth society’*, NATIONAL GEOGRAPHIC (Oct. 28, 2020), <https://www.nationalgeographic.com/environment/article/greta-thunberg-reflects-on-living-through-multiple-crises-post-truth-society> (stating that Greta Thunberg, a climate activist, views climate change as an existential threat).

¹³ See, e.g., *2022 National Defense Strategy of The United States of America*, DEPARTMENT OF DEFENSE (2022), <https://media.defense.gov/2022/Oct/27/2003103845/-1/-1/1/2022-NATIONAL-DEFENSE-STRATEGY-NPR-MDR.PDF> at 2, 5-7, 14, 16, 18, 20, 22; *White House Fact Sheet: Prioritizing Climate in Foreign Policy and National Security*, THE WHITE HOUSE (Oct. 21, 2021), <https://www.whitehouse.gov/briefing-room/statements-releases/2021/10/21/fact-sheet-prioritizing-climate-in-foreign-policy-and-national-security/>; Exec. Order No. 13990, 86 Fed. Reg. 7037 (2021).

¹⁴ See, e.g., Lydia Millet, *Why Biden Should Declare a Climate Emergency*, THE NEW REPUBLIC (Dec. 7, 2020), <https://newrepublic.com/article/160478/biden-declare-climate-emergency>.

¹⁵ See *A Guide to Emergency Powers and Their Use*, BRENNAN CENTER FOR JUSTICE (Feb. 8, 2023), <https://www.brennancenter.org/our-work/research-reports/guide-emergency-powers-and-their-use> (stating that up to 148 statutory powers could become available to the president once a national emergency is declared).

¹⁶ See, e.g., Maya Golden-Krasner & Jean Su, *The Climate President’s Emergency Powers: A Legal Guide to Bold Climate Action from President Biden*, CENTER FOR BIOLOGICAL DIVERSITY (Feb. 2022), 20-25, <https://www.biologicaldiversity.org/programs/energy-justice/pdfs/Climate-Emergency-Powers-Report.pdf>.

¹⁷ 50 U.S.C. §§ 1701 *et seq.*

¹⁸ To most effectively target trade and not just financial transactions, the president will need to use his powers under 50 U.S.C. §1702(a)(1)(B) (stating that the president can “investigate, block during the pendency of an investigation, regulate, direct and compel, nullify, void, prevent or prohibit, any acquisition, holding, withholding, use, transfer, withdrawal, transportation, importation or exportation of, or dealing in, or exercising any right, power, or privilege with respect to, or transactions involving, any property in which any foreign country or a national thereof has any interest by any person, or with respect to any property, subject to the jurisdiction of the United States”).

industries and companies; using IEEPA to harden international commitments such as those agreed to in the Paris Agreement; and to crack down on greenwashing – to test the bounds of IEEPA powers and to weigh the effectiveness of these hypotheticals in achieving their goals. Finally, the paper will determine whether these hypothetical measures enacted pursuant to the president's IEEPA authority is sufficient to withstand international legal challenges at the WTO.

I. INVOKING IEEPA FOR CLIMATE CHANGE

A. *National Emergencies Act*

The President must first declare a national emergency to invoke IEEPA. Examples of national emergency declarations leading to the invocation of IEEPA include post-9/11 terrorism related emergencies, an emergency regarding the proliferation of nuclear weapons and weapons of mass destruction in North Korea and Iran, and most recently regarding Russia's invasion of Ukraine. Because a national emergency declaration is a precondition to invoking IEEPA authority, there is a threshold question of whether climate activists have legal grounds to call on President Biden to declare climate change a national emergency. To answer this question, analyzing procedural and legal constraints under the National Emergencies Act (NEA) is required.

The NEA is a broad statute with minimal constraints on the president.¹⁹ NEA requirements include specifying which statutory authorities the president plans to invoke following the national emergency declaration, publishing the proclamation in the Federal Register, keeping records, informing Congress of all rules and regulations promulgated pursuant to the national emergency, and providing Congress with biannual reports detailing how money was spent for actions taken pursuant to the national emergency.²⁰ Termination of the emergency occurs through a presidential declaration or the passage of a joint resolution in Congress, or automatically terminates annually without an affirmative presidential extension.²¹ Apart from these mainly procedural steps, the only legal constraints on the president are which statutes can properly be used to respond to the declared national emergency. IEEPA is one of the statutes that can be invoked upon declaration of a national emergency.

B. *Legal Grounds for Invoking IEEPA*

1. How to Invoke IEEPA

It does not necessarily follow that IEEPA can be invoked if the President declares a national emergency. IEEPA powers can be used when three main requirements are met: first, the national emergency is an “unusual and extraordinary threat;” second, the

¹⁹ Senate Historical Office, *Reasserting Checks and Balances: The National Emergencies Act of 1976*, UNITED STATES SENATE (July 1, 2021), <https://www.senate.gov/artandhistory/senate-stories/reasserting-checks-and-balances.htm#:~:text=The%20House%20agreed%20to%20the,reporting%20requirements%20for%20future%20emergencies.&text=1>. Interestingly, the NEA was passed with an intent to curb presidential emergency powers, but the legislation has arguably not had its intended effect. For a critique on the presidential autonomy in declaring a national emergency and recommendations to amend the NEA to curb this authority further, see Gene Healy, *Emergency Powers*, CATO INSTITUTE (2022), <https://www.cato.org/cato-handbook-policy-makers/cato-handbook-policy-makers-9th-edition-2022/emergency-powers-reform>.

²⁰ Jennifer K. Elsea et. al., *Emergency Authorities Under the National Emergencies Act, Stafford Act, and Public Health Service Act*, CONGRESSIONAL RESEARCH SERVICE (last updated July 14, 2020), <https://crsreports.congress.gov/product/pdf/R/R46379> at 3 nn.17, 20-23.

²¹ *Id.* at n.24.

emergency “has its source in whole or substantial part outside the United States;” and third, the emergency poses a threat to the United States’ “national security, foreign policy, or economy.”²² IEEPA can only respond to the specific threat described in the national emergency, meaning new threats require new national emergency declarations before IEEPA powers can be used to respond to those threats.

Following IEEPA invocation, the president is usually afforded broad deference to his justification for the invocation. Courts are generally unwilling to second guess the president’s judgements on what constitutes a threat to national security or how the president should go about conducting foreign policy. Because an invocation of IEEPA is unlikely to produce successful challenges, the president has significant economic tools to influence the conduct of foreign governments, companies, and nationals. Broadly speaking, following IEEPA invocation, the president has jurisdiction to regulate, including prohibit, foreign exchange transactions, credit transfers, or payments even passing through a financial institution subject to U.S. jurisdiction.²³ Preclusion from interacting with the U.S. financial system has profound effects on an entity as the U.S. dollar is the reserve currency, meaning most transactions will pass through a U.S. financial institution for the purposes of foreign exchange or correspondent banking accounts.²⁴

IEEPA limitations are unlikely to be relevant when used to counter climate change. The primary limitation to IEEPA, known as the Berman Amendment, is aimed at protecting First Amendment ideals by prohibiting the president from regulating valueless personal communications as well as the exportation of information or informational materials regardless of format.²⁵ The interpretation and scope of the Berman Amendment is cabined in some ways.²⁶ The restriction on the president from regulating “transactions ordinarily incident to travel to or from any country” may slightly limit the scope of measures available to the president to counter climate change using IEEPA.²⁷

Other legal considerations are primarily procedural. For example, the president is directed to consult “in every possible instance with Congress,” but this gives significant leeway for the president to say consultation was not possible.²⁸ Once the president takes actions under IEEPA, Congress must be given a report about its use and further reports must be submitted to Congress biannually.²⁹

2. Can IEEPA Be Invoked for Climate Change

Understanding the guardrails around IEEPA, the question becomes whether climate change fits into the statute. IEEPA cannot be invoked without a declared national emergency and that national emergency must encompass what the president aims to target using his IEEPA authorities. To illustrate, if the president declares the drilling of oil a national emergency because oil contributes to climate change and has been a large source of both economic and military conflict, he would be limited to using IEEPA powers solely

²² 50 U.S.C. §1701(a).

²³ §1702(a).

²⁴ ADAM M. SMITH ET. AL., U.S., EU, AND UN SANCTIONS: NAVIGATING THE DIVIDE FOR INTERNATIONAL BUSINESS, CH. 3 AT 1-2 (BLOOMBERG LAW, 2019).

²⁵ §1702(b)(3). For further background, see Jarred O. Taylor III, *Information Wants to be Free (of Sanctions): Why the President Cannot Prohibit Foreign Access to Social Media Under U.S. Export Regulations*, 54 Wm. & Mary L. Rev. 297, 307-08 (2012).

²⁶ SMITH, *supra* note 24, at 5.

²⁷ §1702(b)(4).

²⁸ §1703(a).

²⁹ §1703(c).

to countering the threat posed by drilling for oil. Therefore, declaring a national emergency as broadly as possible would also keep the president's IEEPA powers as broad as possible. Declaring climate change itself as a national emergency, including in the understanding of the emergency that many human activities have caused and continue to exasperate the emergency, would be an effective way to do this. Once a broad national emergency is declared, White House Counsel should consider whether IEEPA actually can be invoked in this instance.

The first step in deciding whether IEEPA can be invoked is determining whether climate change is a threat with its source "in whole or substantial part" outside the United States. Because there is no disputing that the threat of climate change does not have its source "wholly" outside the United States, compliance with this statutory guardrail comes down to what "substantially" means. There are two potential frames of reference to look at the cause of the threat of climate change – historical emissions or current emissions. Historical emissions will prove to be the highest hurdle for the president to get over in justifying IEEPA invocation and will be further analyzed.

Historical emissions, or the all-time emissions each country has emitted, would be the most favorable frame of reference for a challenger to the invocation of IEEPA. Under this view, the United States is the leading emitter of greenhouse gases (GHGs).³⁰ Since 1750, the United States has been responsible for about twenty-five percent of global GHG emissions, emitting over 415 billion tons of GHGs.³¹ The European Union is the next closest emitter, responsible for over 290 billion tons of GHGs since 1750, or twenty-two percent of global emissions.³² China's 237 billion tons of GHGs since 1750 rounds out the top three largest historical emitters.³³ Therefore, the United States, European Union, and China are the three largest causes of the climate threat underpinning a national emergency and any IEEPA authorities stemming from there.

Plaintiffs challenging the use of IEEPA authorities to counter climate change would point to the United States being the largest historical emitter of GHGs. Courts will then need to decide whether the United States' role as the largest historical emitter of GHGs means the climate threat does not substantially originate outside the United States. Definitions of "substantial" yield varying but similar results. For purposes of this analysis, "more than minor or trivial" will be used as a good summary of multiple definitions.³⁴ Judges may also utilize canons of construction to determine what "substantial" means in the statute. The Harmonious-Reading Canon says that provisions of a text should be interpreted in a way that makes the provisions compatible with each other. Therefore, "whole" should be interpreted to be compatible with "substantial." While substantial does not mean whole, to keep the terms harmonious, substantial should be interpreted as close to whole, or at least a majority. A similar analysis follows using the *Noscitur a Sociis*, or the Associated-Words Canon, which states that words around each other should inform us how to interpret other words. Because "whole" is an unambiguous term, "whole" is best suited to inform the definition of "substantial." Again, while substantial does not mean whole, because whole is unambiguous it implies that substantial should be interpreted as close to whole, or at least a majority.

³⁰ Hannah Ritchie, *Who has contributed most to global CO2 emissions?*, OUR WORLD IN DATA (Oct. 1, 2019), <https://ourworldindata.org/contributed-most-global-co2>

³¹ *Id.*

³² *Id.*

³³ *Id.*

³⁴ See *Substantial definition*, LAW INSIDER (Apr. 13, 2023), <https://www.lawinsider.com/dictionary/substantial>.

With these definitional points in mind, a challenge to the use of IEEPA to counter the threat of climate change would not be invalidated due to the threat not arising “in whole or substantial part outside the United States.” Seventy-five percent of historical GHG emissions originate from outside the United States which is undoubtably “more than minor or trivial.” In fact, seventy-five percent is an overwhelming majority. The Harmonious-Reading and Associated-Words Canons remove any additional doubt. If “substantial” must be closely connected to “whole,” the United States would need to account for far more than just twenty-five percent of historical GHG emissions for the threat of climate change to have arisen in substantial part within the United States. Therefore, a court is unlikely to strike down IEEPA invocation on the grounds that the threat does not derive itself wholly or substantially outside of the United States. Despite the United States being the leading historical emitter, the rest of the world is by far the substantial driver of the climate threat.

Additional challenges to the president invoking IEEPA will center on whether the national emergency threatens the “national security, foreign policy, or economy” of the United States. The national emergency only needs to threaten one of the listed items to meet the statutory threshold, but climate change can be argued as a threat to all three.

National security judgements are rarely invalidated by the courts. When they are it is usually because the executive branch does not have the authority to take the actions it took in the name of national security, not because a court does not consider it to be a national security concern.³⁵ In this instance, the president is clearly given the power to take actions permitted under IEEPA, mainly sanctioning entities and providing for export and import restrictions so long as a national emergency related to the actions taken is declared. Both the Department of Defense (DoD) and the Intelligence Community (IC) have cited climate change as a national security threat. The IC rated risks across three broad categories – Geopolitical Tensions Over Climate Responses, Climate Exacerbated Geopolitical Flashpoints, and Climate Effects Impacting Country-Level Instability – and rated each subcategory as either a high or medium risk to national security over the next twenty years.³⁶ The DoD views climate change as a “critical national security issue,” “a threat multiplier,” and a “top management challenge” which has already cost the DoD “billions of dollars” and “will continue to amplify operational demands on the force, degrade installations and infrastructure, increase health risks to our service members, and could require modifications to existing and planned equipment.”³⁷ Given that courts are unlikely to impose their own views on what constitutes a threat to national security,

³⁵ See, e.g., *Youngstown Sheet & Tube Co. v. Sawyer*, 343 U.S. 579, 636-38 (1952) (Jackson, J., concurring) (holding, in a case where the president attempted to seize steel during the Korean War for defense purposes, that “[w]hen the President acts pursuant to an express of implied authorization of Congress, his authority is at its maximum, for it includes all that he possesses in his own right plus all that Congress can delegate” but without an express congressional grant of authority, presidential actions rely on independent authority or authority derived from the “zone of twilight” between presidential and congressional authorities. When presidential actions go against a congressional directive, the presidential action must be consistent with presidential powers and congressional action was impermissible.) In the current case, the president would be operating with the express authority of Congress via the IEEPA statute, giving the president solid ground to defend his powers.

³⁶ *National Intelligence Estimate: Climate Change and International Responses Increasing Challenges to US National Security Through 2040*, NATIONAL INTELLIGENCE COUNCIL (2021), https://www.dni.gov/files/ODNI/documents/assessments/NIE_Climate_Change_and_National_Security.pdf.

³⁷ *Department of Defense Climate Adaptation Plan*, DEPARTMENT OF DEFENSE (2021), <https://www.sustainability.gov/pdfs/dod-2021-cap.pdf> at 3.

especially if doing so would contradict assessments from the DoD and IC, it is doubtful a court would invalidate IEEPA because climate change is not a threat to national security.

A threat posed to economic security by climate change would also justify the invocation of IEEPA powers. Economic security and national security have increasingly been cited in unison, especially since the start of the Trump administration.³⁸ For example, the Trump administration imposed tariffs on steel and aluminum in violation of the United States' WTO commitments and the Biden administration has continued to defend these tariffs on national security grounds.³⁹ While some call the national security defenses to the imposition of these tariffs "obviously bogus,"⁴⁰ both the IC and DoD cite economic security in their national security assessments.⁴¹

Economic considerations go beyond the economic-national security nexus. A Deloitte analysis found that a lack of action on climate change will lead to economic damages throughout U.S. industries.⁴² With adequate climate change measures, the U.S. economy could grow by \$3 trillion over the next half century and add one million jobs.⁴³ However, a lack of climate change action would result in a loss of 900,000 jobs and \$14 trillion from the U.S. economy over the next fifty years as a result of climate change impacts.⁴⁴ With studies from highly regarded companies like Deloitte and similar studies available from universities, think tanks, and governments, any challenge to IEEPA can likely be adequately defended referring to the economic impacts of climate change.

The final prong available to justify the invocation of IEEPA is a threat to U.S. foreign policy, which will likely be justified in this context. It is important to consider what issues bleed into the definition of foreign policy. Just as with the term national security, foreign policy arguably encompasses more than what is first thought. Considering the international discussions centered around climate refugees, refugees and immigration more broadly can be cabined under the foreign policy umbrella. In the United States, the Department of State has a large role in negotiating refugee agreements with the global community, which will likely be increasingly relevant as the number of climate-related refugees increases. Considering the role of the State Department in immigration and refugees, the president will likely be on sound footing claiming climate change poses a unique threat to U.S. foreign policy worthy of invoking IEEPA purely on immigration and refugee grounds.

³⁸ Peter Navarro, *Why Economic Security is National Security*, THE WHITE HOUSE (Dec. 10, 2018), <https://trumpwhitehouse.archives.gov/articles/economic-security-national-security/>; Jim Garamone, *Trump Announces New Whole-of-Government National Security Strategy*, DEPARTMENT OF DEFENSE (Dec. 18, 2017), <https://www.defense.gov/News/News-Stories/Article/Article/1399392/trump-announces-new-whole-of-government-national-security-strategy/>.

³⁹ *Statement from USTR Spokesperson Adam Hodge*, OFFICE OF THE UNITED STATES TRADE REPRESENTATIVE (Dec. 9, 2022), <https://ustr.gov/about-us/policy-offices/press-office/press-releases/2022/december/statement-ustr-spokesperson-adam-hodge>.

⁴⁰ Scott Lincione, *Donald Trump Staggered the Global Trading System. Joe Biden Might Finish It Off.*, CATO INSTITUTE (Dec. 14, 2022), <https://www.cato.org/commentary/donald-trump-staggered-global-trading-system-joe-biden-might-finish-it>.

⁴¹ National Intelligence Council, *supra* note 36, at 6 (citing critical minerals as essential for both economic and national security).

⁴² *Deloitte Report: Inaction on Climate Change Could Cost the US Economy \$14.5 Trillion by 2070*, DELOITTE (Jan. 25, 2022), <https://www2.deloitte.com/us/en/pages/about-deloitte/articles/press-releases/deloitte-report-inaction-on-climate-change-could-cost-the-us-economy-trillions-by-2070.html>.

⁴³ *Id.*

⁴⁴ *Id.*

Global efforts to combat climate change further bolster the foreign policy nexus. The president can make note of numerous climate-related agreements such as the Paris Agreement, and the United Nations Framework Convention on Climate Change. The president can also reference annual Conference of the Parties meetings where climate issues are discussed. Finally, the president can make note of the significant resources the State Department is already devoting to climate change issues through the Office of the Presidential Special Envoy for Climate, Office of Conservation and Water, Office of Environmental Quality, and Office for Global Change. Combining the increased risk of having a substantial number of climate refugees around the world, the numerous multilateral efforts to combat climate change, and the significant domestic resources devoted to finding climate change solutions utilizing foreign policy, the president would likely be successful in defending an invocation of IEEPA on foreign policy grounds.

In sum, IEEPA requires the President declare a national emergency and for IEEPA actions to be tailored to that national emergency. The national emergency must originate in whole or substantial part outside the United States, and the emergency must pose a threat to the U.S. national security, economy, or foreign policy. While challengers may dispute whether climate change substantially originates from outside the United States, a court will most likely view both historical and current emissions as primarily originating outside the United States. From there, the president would only need to defend the invocation of IEEPA under one of national security, economic, or foreign policy grounds. Courts rarely strike down national security determinations, and a court would be unlikely to do so here considering DoD and IC reports link climate change to national security concerns. Economic concerns are likewise unlikely to be invalidated by courts because the concerns are backed up by reports from well-regarded companies, universities, and governments. Finally, the president can defend a linkage to foreign policy by showing the concerns over climate refugees impacting the global community, multilateral agreements and discussions, and significant State Department resources devoted to climate change. Once these threshold questions about whether IEEPA can be invoked in this context are answered, the question becomes what the president can do with IEEPA and how effective its use would be.

II. IEEPA APPLIED TO A CLIMATE CHANGE EMERGENCY

A. *Overview of IEEPA Powers*

Once IEEPA is invoked, the president has the power to impose crippling measures on countries and entities that are a source of the threat outlined. Broadly speaking, sanctions can be applied to an entire country (“comprehensive sanctions” or “embargoes”), at specific governments (“government-based sanctions”), at specific economic sectors (“sectoral sanctions”), or to specific individuals or entities (“list-based sanctions”). Controversially, sanctions known as “secondary sanctions” are designed to force foreign entities not otherwise covered by a sanctions program to decide between doing business with either the U.S. or the sanctioned entities, essentially forcing an “us or them” decision on foreign entities.⁴⁵

⁴⁵ Jeffrey A Meyer, *Second Thoughts on Secondary Sanctions*, 30 U. Pa. J. Int'l. L. 905, 906 (2014) (stating that secondary sanctions are particularly controversial in part because there is a view the U.S. uses these tools to impose its sovereignty and jurisdiction extraterritorially in order to disrupt the global trading and investment landscape through the United States' economic might).

Regardless of the type of sanctions regime imposed, once an entity – be it an entire country, government, economic sector, or individuals – is sanctioned, there are far reaching implications. Without a specific exception or license issued by the Office of Foreign Assets Control (OFAC) at the U.S. Treasury Department, U.S. entities will at best be severely limited in their ability to transact with an entity covered by the sanctions program. Practically, this means sanctioned entities will be cut off from or have limited access to the U.S. financial system, property in the U.S. can be frozen, and property entering the U.S. from a sanctioned entity can be seized or denied entry. Further, products being exported that have any nexus to the U.S. can also be prohibited from going to the sanctioned entity. From a practical perspective, being sanctioned by the United States can be financially and materially devastating. Understanding the implications of sanctions, considering how sanctions could be applied in a climate change emergency context is a worthwhile exercise.

B. Hypothetical Sanction Designs

1. Hypothetical One – Sanctions Targeting High Emitting Industries or Companies

The first sanctions design that could be deployed could focus on the world's largest emitters of GHGs, either from an industry perspective or on an individualized basis. Drawing from the European Union's Carbon Border Adjustment Mechanism (CBAM) which applies a fee based on GHG emissions before certain products enter the E.U., this sanctions program would target specific industries and products. For example, CBAM currently applies to carbon-intensive industries like cement, steel, iron, aluminum, and fertilizers.⁴⁶ A sanctions program following a declaration of climate change as a national emergency and the invocation of IEEPA could also target these types of industries. Administrative ease favors a sweeping application of these sanctions, but sanctioning only the dirtiest actors in an industry would incentivize sanctioned entities in the targeted industries to get cleaner by providing a pathway for removal from the sanctioned list. Imposing sanctions on only the worst emitters also incentivizes non-sanctioned entities to continue reducing their GHG emissions by investing in research and development to find cleaner production methods or by buying verifiable carbon offsets.

Specific issues arise under this hypothetical. First, many GHG intensive industries produce products necessary for modern life. Although cleaner products such as “green steel” are becoming increasingly common in the United States and European Union, countries such as Brazil, India, and China are not incorporating these innovations at the same pace.⁴⁷ Therefore, a second issue is that costs for American consumers are likely to rise as available supply of sanctioned products decreases due to sanctions prohibiting, or at least complicating, their import into the United States.

⁴⁶ *Carbon Border Adjustment Mechanism*, EUROPEAN COMMISSION, https://taxation-customs.ec.europa.eu/green-taxation-0/carbon-border-adjustment-mechanism_en.

⁴⁷ Ali Hasanbeigi, *Steel Climate Impact: An International Benchmarking of Energy and CO2 Intensities*, GLOBAL EFFICIENCY INTELLIGENCE (Apr. 2022), <https://static1.squarespace.com/static/5877e86f9de4bb8bce72105c/t/624ebc5e1f5e2f3078c53a07/1649327229553/Steel+climate+impact-benchmarking+report+7April2022.pdf> at 3.

2. Hypothetical Two – Sanctions Targeting Countries Not Meeting International Commitments

A key critique of many international agreements is the lack of enforcement mechanisms. When former President Trump withdrew from the Paris Agreement, one of his critiques focused on other countries not meeting their commitments while the United States felt obligated to meet its commitments.⁴⁸ A sanctions program could be designed to address these concerns and apply de facto enforcement mechanisms on otherwise self-regulating international agreements by applying sanctions on countries not meeting their Paris Agreement commitments. The president could impose varying levels of sanctions to fit the delinquency. For example, the worst performers could be comprehensively sanctioned, therefore creating an embargo. No U.S. person would be able to trade or do business with that country or any national of that country. Due to the severe consequences of a country being comprehensively sanctioned, this should only be applied to the worst offenders. Countries not meeting their Paris Agreement commitments but are not far off could face sectoral sanctions where the worst-emitting sectors are sanctioned but not the entire country. This would prohibit U.S. persons from trading with or doing business with entities in that sector when the transaction is sectoral-specific. For example, U.S. persons could be prohibited from engaging in steel-specific transactions in China due to sectoral sanctions imposed on China's steel industry for not meeting its Paris Agreement commitments. An alternative to sectoral sanctions would be imposing list-based sanctions to the largest emitters in a country which would achieve a similar result to sectoral sanctions without targeting an entire sector.

Specific drawbacks once again arise under this hypothetical. Like with Hypothetical One, U.S. consumers could lose access to industries and companies that produce vital materials for modern life. Targeting industries or entire countries could cause significant disruptions, particularly when one country controls access to a large portion of a critical material. This is the case with the Democratic Republic of the Congo (DRC) which has over seventy percent of the world's cobalt reserves and with just one of its mines outputting over forty percent of global annual cobalt output.⁴⁹ Cobalt is a key mineral needed to produce batteries, meaning that if the DRC is sanctioned for failing to meet its commitments, the effort to electrify transit could be hurt as a result. Therefore, beyond just cost increases and access issues for U.S. consumers, sanctions in this realm could have a net negative impact despite trying to enforce the Paris Agreement. To get around this unintended consequence, OFAC can issue licenses allowing for transactions with countries or industries if the transaction is required to develop a green industry or product.

⁴⁸ See, e.g., *Statement by President Trump on the Paris Climate Accord*, THE WHITE HOUSE (June 1, 2017), <https://trumpwhitehouse.archives.gov/briefings-statements/statement-president-trump-paris-climate-accord/#:~:text=It%20would%20once%20have%20been,negotiate%20a%20far%20better%20deal> (Former President Trump stating the Paris deal is “non-binding” and “impos[es] no meaningful obligations on the world's leading polluters”). This critique is not unfounded as no G20 country was found to be on track to meet its Paris obligations. See Olivia Lai, *Every G20 Country is Failing to Meet Paris Agreement on Climate Change*, EARTH.ORG (Sept. 17, 2021), <https://earth.org/every-g20-country-is-failing-to-meet-paris-agreement-on-climate-change/#:~:text=Countries%20including%20Australia%2C%20Brazil%2C%20Indonesia,the%20Paris%20Agreement%20in%202015>.

⁴⁹ See *Five Critical Mineral Producers in Africa*, ENERGY CAPITAL AND POWER (Feb. 21, 2023), [https://energycapitalpower.com/five-critical-mineral-producers-in-africa/#:~:text=The%20Democratic%20Republic%20of%20the%20Congo%20\(DRC\)%20represents%20one%20of,a%20globally%20competitive%20mining%20hub](https://energycapitalpower.com/five-critical-mineral-producers-in-africa/#:~:text=The%20Democratic%20Republic%20of%20the%20Congo%20(DRC)%20represents%20one%20of,a%20globally%20competitive%20mining%20hub).

Of course, what constitutes a green industry or product will be heavily debated especially considering the dirty aspects of producing green products – such as the mining for cobalt.

3. Hypothetical Three – Sanctions Targeting Company Commitments and Greenwashing

Greenwashing describes a company's marketing, advertising, or public statements and commitments about how green the company really is. This takes shape in many forms. For example, a company may say their product is "green" without defining what that means. Many companies are also making claims about becoming "carbon neutral" by a certain year, but there is very little in the way of making this claim and then not taking action. A sanctions regime could be designed to target companies making claims about becoming carbon neutral by a certain year but do not. To illustrate, should a company like TotalEnergies – a French company that is one of the world's seven "supermajor" oil companies – claim it will be carbon neutral by 2040 but fails to reach or even make progress towards that goal, TotalEnergies could be added as a sanctioned entity. Depending on the sanctions design, a lack of progress towards meeting certain commitments could cause sanctions or sanctions might only be imposed once the date of the commitment arrives.

Designing a sanctions regime in this way would incentivize companies to actually meet their stated commitments, but significantly fewer companies would likely make commitments in the first place out of fear of being swept into the sanction regime. Therefore, the chilling effect is a significant drawback of this design.

C. Limits to IEEPA Powers

Although IEEPA gives broad powers to the president, it does not bestow unlimited powers upon the president. Chief among these limitations is the inability to sanction U.S. persons, a term that includes U.S. businesses.⁵⁰ As previously mentioned, the United States is a large emitter of GHGs and is home to some of the largest individual companies responsible for GHG output. The inability to reach the conduct of these companies under IEEPA blunts the effectiveness of any program and the legitimacy of the sanctions regime will be questioned abroad because it does not impose equal penalties on domestic industry. Although the president is granted broad powers in foreign affairs, the president is unable to take the same or similar actions in the domestic sphere without legislative authority from Congress.⁵¹

Statutory limits exist under IEEPA as well. There are four limitations outlined in the statute: communications, humanitarian aid, Berman Amendment language, and

⁵⁰ See 31 C.F.R. § 560.314 (stating that a U.S. person is a "citizen, permanent resident alien, entity organized under the laws of the United States or any jurisdiction within the United States (including foreign branches), or any person in the United States"). While U.S. persons must comply with U.S. sanctions imposed on foreign entities, U.S. persons themselves cannot be sanctioned like foreign persons can be because of due process restrictions. *Cf.* United States v. Verdugo-Urquidez, 494 U.S. 259, 165, 271 (1990) (holding by the plurality that Fourth Amendment rights only extend to aliens upon entry into the United States); Agency for Int'l Dev. v. All. for Open Soc'y Int'l, Inc. 140 S. Ct. 2082, 2086 (2020) (holding that "it is long settled as a matter of American constitutional law that" foreigners outside of the United States do not have constitutional rights).

⁵¹ See, e.g., Zivotofsky v. Kerry, 576 U.S. 1, 13-15 (2015) (holding that while the president does not have unlimited powers without congressional checks and balances when it comes to foreign affairs, the president does have recognition power in part due to the necessity of the country to speak with one voice on the world stage).

transactions ordinarily incident to travel.⁵² First, “postal, telegraphic, telephonic, or other communication” is permitted between a U.S. person and a sanctioned entity as long as the communication does not transmit anything of value.⁵³ Humanitarian aid is usually allowed as well unless humanitarian aid poses its own risks.⁵⁴ In general terms, Berman Amendment language permits the exchange of information or informational materials in any medium from a U.S. person to a sanctioned entity, although OFAC interprets certain limitations built into this.⁵⁵ The final statutory limitation relates to transactions ordinarily incident to travel to or from any country.⁵⁶ While this limitation may appear to be relevant in the climate change context because travel is a driver of GHG emissions, the scope is focused on individuals using otherwise non-sanctioned means of travel. Therefore, if an airline was sanctioned, it would not mean that the airline could evade the sanctions because flying is ordinarily incident to travel. In the climate change context, these limitations are unlikely to impact the primary goals of a sanctions regime.

Conforming with IEEPA’s statutory obligations is the first obstacle for the president to pass before invoking sanctions under IEEPA. As documented above, IEEPA grants broad but not unlimited legal authorities to the president. By declaring a national emergency, the president would be on sound legal footing invoking IEEPA and designing a sanctions program. Statutory constraints are not the only constraints the president will need to consider, however. Further domestic challenges resting on non-statutory theories could be raised.⁵⁷ Internationally, WTO obligations may be implicated depending on how a sanctions program is designed.

III. WTO LEGAL CONSTRAINTS

The WTO seeks to minimize barriers to trade and the General Agreement on Tariffs and Trade (GATT) imposes protectionist limitations on member states with this goal in mind. The WTO provides a dispute resolution mechanism in the event one member state believes another member state violated any of the agreed upon limitations in the GATT through a policy measure. The GATT includes defenses for violations in the event another WTO member moves forward with a claim. Imposing sweeping measures following the invocation of IEEPA, like those outlined in the three hypotheticals, would likely expose the United States to challenges at the WTO for violating GATT commitments. Because this paper tests how IEEPA can be used to impact the trade of goods, analyzing potential GATT violations and defenses will be the focus of this analysis. Other WTO agreements, most notably the General Agreement on Trade in Services as well as agreements such as the Technical Barriers to Trade Agreement may be implicated when using IEEPA but are outside the scope of this analysis.

⁵² §1702(b).

⁵³ §1702(b)(1).

⁵⁴ §1702(b)(2).

⁵⁵ §1702(b)(3).

⁵⁶ §1702(b)(4).

⁵⁷ One potential theory for further domestic litigation would be the Major Questions Doctrine.

A. Potential GATT Violations

1. National Treatment

National treatment is an obligation articulated under GATT Article III requiring WTO member states treat imported goods equally to domestic goods. GATT Article III:4, which represents the most likely path to challenge IEEPA-imposed measures under Article III, requires regulations effect domestic and imported like products equally once the like products are in the internal market.⁵⁸ The United States will defend against this claim by arguing that Article III:4 should not apply. Despite IEEPA not applying to U.S. products, thus treating domestic and imported products differently, case law articulates that Article III is intended to put like *imported* products on an equal competitive footing with their like domestic counterparts once they are imported.⁵⁹ A strict textualist reading of Article III:4 leads to the conclusion that if the products are never imported, Article III is not implicated. Therefore, if a measure is challenged then the United States can argue that because IEEPA would prevent the import of certain products from certain sources when 50 U.S.C. §1702(a)(1)(B) is used, an Article III claim would fail to meet the burden of fitting into the text of the obligation itself.⁶⁰

Case law exists challenging this strict textual reading. Pointing to *China – Autos*, countries challenging U.S. measures can point to the “affect” the measures have on the competitiveness of foreign products in the U.S. market. *China – Autos* held that China violated Article III:4 because its measure had an “affect” on the “internal sale, offering for sale, purchase, transportation, distribution, or use” of the products covered by the Chinese regulations.⁶¹ IEEPA measures regulating the import of foreign products would also have an “affect” on the “internal sale, offering for sale, purchase, transportation, or use” of covered products while IEEPA’s limitations mean like domestic products would not face the same regulations. Absent a corollary domestic measure, discrimination between domestic and foreign like products would be treated differently in violation of the text and spirit of Article III. Ultimately, prior cases are not used as binding precedent in the WTO. Therefore, with a strict textualist reading, the United States should prevail on the grounds that the measures imposed do not impact imports while a more spirit of the text interpretation of Article III may cause the United States to be found in violation of Article III.

2. Most Favored Nation

Most favored nation (MFN), like national treatment, reflects a principle of non-discrimination in the trading system. While national treatment is designed to prevent discrimination between domestic and imported like products, MFN is designed to prevent discrimination between like products from different exporters.⁶² GATT Article I, which articulates the MFN principle, states that:

⁵⁸ See General Agreement on Trade and Tariffs (GATT) Article III.

⁵⁹ See Panel Report, *Italian Discrimination Against Imported Agricultural Machinery*, ¶ 11, L/833 – 7S60 (adopted Oct. 23, 1958).

⁶⁰ For purposes of this article, it is presumed the full authority under IEEPA will be used, including the authority to block imports which the president can use at his discretion, see 50 U.S.C. §1702(a)(1)(B).

⁶¹ Appellate Body Report, *China – Measures Affecting Imports of Automobile Parts*, ¶ 196, WTO Doc. WT/DS339/AB/R, WT/DS340/AB/R, WT/DS342/AB/R (adopted Jan. 12, 2009).

⁶² See GATT Article I:1; Appellate Body Report, *Canada – Certain Measures Affecting the Automotive Industry*, ¶ 84, WTO Doc. WT/DS139, WT/DS142/AB/R (adopted June 19, 2000).

“...any advantage, favour, privilege or immunity granted by any contracting party to any product originating in or destined for any other country shall be accorded immediately and unconditionally to the like product originating in or destined for the territories of all other contracting parties.”

Of the hypotheticals provided in Section II, Hypothetical Two (Sanctions Targeting Countries Not Meeting International Commitments) would be the most likely to implicate MFN because certain countries will claim their exporters are not granted the same “advantage, favour, privilege or immunity” that another exporting country gets from the United States. Hypothetical Two would see IEEPA measures imposed on countries failing to meet their agreed upon GHG reduction targets, thereby prohibiting them from exporting products to the United States. Any country caught up in these measures that, for example, exports steel into the United States would take issue with other countries being able to export their steel to the United States. The United States is required to “immediately and unconditionally” provide the same conditions for like products from other contracting states, but IEEPA would prohibit certain countries from importing steel while allowing other countries to import steel. Aspects of MFN would likely be litigated, but the depth of potential MFN inconsistencies would depend on the form of IEEPA measures implemented.

3. Quantitative Restrictions

Quantitative restrictions are generally prohibited under GATT Article XI. Article XI articulates that “no prohibitions or restrictions” apart from tariffs, taxes, or other charges are allowed, such as quotas on the number of a certain product allowed to enter or leave a member state.⁶³ Should IEEPA be used to implement a sanctions program similar to Hypothetical Three (Sanctions Targeting Company Commitments and Greenwashing), Article XI is unlikely to be implicated. Hypothetical Three would only target companies not living up to their stated commitments and would not prohibit or restrict the import of any products into the United States on the whole nor would it restrict the export of any products outside of the United States. However, both Hypotheticals One (Sanctions Targeting High Emitting Industries or Companies) and Two (Sanctions Targeting Countries Not Meeting International Commitments) may implicate Article XI.

Banning the import of products from an entire industry is generally prohibited under Article XI. Hypothetical One is designed to either target the dirtiest industries or target the dirtiest companies within a given industry. While administrative ease would favor a sweeping industry-wide sanctions program that bans the import of these high GHG-emitting products into the United States, such a measure would implicate Article XI. Focusing only on the dirtiest companies in an industry is not a blanket import ban or restriction on the product. Instead, only certain companies would be unable to trade with the United States, but an unlimited quantity of the product would still be able to enter the U.S. market. Hypothetical Two, which could impose an effective embargo on countries not meeting their GHG-reduction or net-zero commitments could have a similar effect. Hypothetical Two could be tailored to target the worst emitters in the country, similar to a tailored version of Hypothetical One, therefore avoiding a blanket restriction on imports and exports of products to that country.

⁶³ GATT Article XI:1.

Temptation may lead to the most fervent climate activists to call for sanctions leading to a blanket ban on high GHG-emitting industries such as steel, cement, and oil, but any ban of this ilk implicates Article XI. While the United States should aim to follow GATT and broader WTO commitments, it does not necessarily need to if a defense under Article XX or XXI applies.

B. GATT Defenses

Regardless of whether the United States can defend against specific claims of violating a GATT commitment, the GATT provides potential defenses for member states when they violate an article. Broad defenses listed in Article XX will first be analyzed. The Article XXI(b)(iii) defense will also be evaluated because Article XXI(b)(iii) is broadly viewed as a national security exception and IEEPA is broadly viewed as a national security tool for the president.

1. Article XX Defenses

a. Protecting Human, Animal, or Plant Life or Health

Protecting human, animal, or plant life or health is one avenue for the United States to pursue when defending measures imposed under IEEPA. Climate change is impacting the health and lives of humans, animals, and plants.⁶⁴ Therefore, if a country were to challenge a measure imposed by the United States under IEEPA for violating a GATT provision, sufficient evidence likely exists to fit within the first prong of the Article XX analysis by fitting under Article XX(b). However, there are key limitations in Article XX(b). An Article XX(b) analysis first requires the measure “falls within the range of policies designed to protect human, animal or plant life or health” and the measure must be “necessary to fulfill the policy objective.”⁶⁵ The United States likely can argue that the measures it imposes are designed to protect human, animal, or plant life or health, pointing to the holding in *Brazil – Taxation* which states that reducing CO₂ emissions is of high importance.⁶⁶ The United States can also point to the wide array of studies available on the impacts of climate change on these organisms, the language of a national emergency leading to IEEPA referencing climate change and its negative effects, and the tailoring of any sanctions programs on the worst climate actors.⁶⁷

Meeting the necessity requirement of Article XX(b) is another challenge. A necessity analysis requires considering the contribution of the measure towards its objective, the trade restrictiveness of the measure, the importance of the issue at stake, and weighing whether less trade restrictive alternatives that the claimant raises would be equally effective

⁶⁴ See, e.g., *Wildlife and Climate Change*, NATIONAL PARK SERVICE (Dec. 8, 2021), <https://www.nps.gov/articles/000/wildlife-climateimpact.htm>; *Climate Change and Health*, WORLD HEALTH ORGANIZATION (Oct. 30, 2021), <https://www.who.int/news-room/fact-sheets/detail/climate-change-and-health>.

⁶⁵ See Panel Report, *United States – Standards for Reformulated and Conventional Gasoline* (hereafter *US – Gasoline*), ¶ 6.20, WTO DOC. WT/DS2/R (adopted May 20, 1996).

⁶⁶ See Panel Report, *Brazil – Certain Measures Concerning Taxation and Charges*, ¶¶ 7.913-7.916, WTO DOCS. WT/DS472/R, WT/DS497/R (adopted Jan. 11, 2019).

⁶⁷ It would be advisable for the design and structure of sanctions and the language within a national emergency declaration leading to the invocation of IEEPA to include references to the effects of climate change on at least one of human, animal, or plant health of life. In *European Communities – Conditions for the Granting of Tariff Preferences to Developing Countries* (hereafter *EC – Tariff Preferences*), the lack of discussion of, or design alluding to, protecting human life and health in policy documents and regulations led to a WTO panel's skepticism that an Article XX(b) exception applied to its measure. See Panel Report, *EC – Tariff Preferences*, ¶¶ 7.201-202, WTO Doc. WT/DS246/R (adopted Apr 20, 2004).

at achieving the same results.⁶⁸ Here, the trade restrictiveness of the measure will depend on which options from the hypotheticals are imposed. Imposing embargoes on countries not living up to their Paris Agreement commitments or sanctions leading to import bans on high GHG-emitting industries would be highly trade restrictive. Targeting only companies failing to meet their own commitments or only the highest emitting companies within an industry would be less trade restrictive. In either case, any review is likely to acknowledge that climate change is an important issue.

This leaves the contribution of the measure and less trade restrictive alternatives as considerations to determine necessity. Determining effectiveness of the measures is hard to know. If a claim is brought against the United States for imposing a measure like one outlined in the hypotheticals, empirical evidence would exist to show the effectiveness. Without that, scientific and economic models would have to be relied upon. If the United States imposes the most trade restrictive options available, the claimant could point to the less trade restrictive options in the hypotheticals provided, although the United States could easily rebut that the less trade restrictive measures do not go far enough to achieving its goals. Additional alternatives may include diplomatic negotiations, although the United States could point to decades of diplomatic agreements that look good on paper but fail to achieve much of substance.⁶⁹ Ultimately, with a well-crafted national emergency declaration and sanctions design, the United States is likely to show that its measures go towards its policy goal. The United States will also likely show that its objective is important, but it will need to have sufficient data to show the effectiveness of its sanctions design and that less trade restrictive means achieving the same result are not available.

b. Conservation of an Exhaustible Natural Resource

Measures imposed with the goal of conserving an exhaustible natural resource can also excuse what would otherwise be a GATT violation. Article XX(g), unlike Article XX(b), does not include a necessity requirement to justify the measure. Unlike Article XX(b), Article XX(g) requires any measure implemented aimed at conserving an exhaustible natural resource be paired with a domestic measure limiting the production or consumption of the that exhaustible natural resource.⁷⁰ In determining whether a measure fits into Article XX(g), the ends and means of the measure should be closely related and should work closely with the corollary domestic measure.⁷¹ Here, an IEEPA measure could be argued as an attempt to preserve clean air which was accepted as an exhaustible natural resource in *US – Gasoline*.⁷² IEEPA does not, however, apply to domestic producers of products that negatively impact the availability of clean air. IEEPA's lack of applicability to U.S. persons does not preclude an Article XX(g) defense because there is no requirement of identical treatment for domestic and imported products.⁷³

The United States has numerous laws aimed at protecting clean air, begging the question if these laws put domestic regulations on an even footing with IEEPA measures

⁶⁸ See Appellate Body Report, *Brazil – Measures Affecting Imports of Retreaded Tyres*, ¶ 156, WTO DOC. WT/DS332/AB/R (adopted Dec. 17, 2007).

⁶⁹ See, e.g., *Lai*, *supra* note 48.

⁷⁰ GATT Article XX(g).

⁷¹ Appellate Body Report, *China – Measures Related to the Exportation of Rare Earths, Tungsten, and Molybdenum* (hereafter *China – Rare Earths*), ¶ 5.94, WTO Docs. WT/DS431/AB/R, WT/DS432/AB/R, WT/DS433/AB/R (adopted Aug. 29, 2014).

⁷² Panel Report, *US – Gasoline*, at ¶ 6.37.

⁷³ Appellate Body Report, *US – Gasoline*, 20-21, WTO DOC. WT/DS2/AB/R (adopted May 20, 1996).

imposed on foreign importers constituting an outright ban on certain products entering the U.S. market. The Clean Air Act and its follow-on regulations impose limitations on emissions and air pollutants.⁷⁴ Because of the restrictiveness of IEEPA measures, Clean Air Act regulations are unlikely to put domestic producers on an equal footing with foreign producers. While an even distribution of the burden between domestic and foreign producers is not necessary, *China – Rare Earths* held that restrictions on international trade should be met with limitations on domestic production or consumption which “reinforce and compliment” the international trade restriction.⁷⁵ More than just regulations on pollution are needed for the United States to fit within Article XX(g) if it seeks to impose IEEPA measures to counter climate change on a theory of conserving clean air. Therefore, the president would need to find another statute available to him under the NEA allowing him to target domestic production and consumption or sign legislation doing the same to fit under Article XX(g).

c. Chapeau of Article XX

Passing through the chapeau of Article XX is required in the event requirements under Article XX(b) or XX(g) are met. The first part of the chapeau questions whether the measure constitutes “arbitrary or unjustifiable discrimination between countries where the same conditions prevail.” If the United States implements a sanctions regime that sets out clear guidelines for when a foreign entity would be subject to sanctions, this may not be problematic. However, imposing sanctions on countries not meeting their Paris Agreement commitments could lead to one country being subject to sanction and another not despite having equal emissions. For example, if Country A agreed to reduce emissions by thirty percent and Country B agreed to reduce emissions by twenty percent by a certain date, if both countries started out at the same emissions level but each country reduced their emissions by twenty-five percent by the date, only Country A would be subject to sanctions. This is despite both Country A and B still having equal emissions levels. Country A would justifiably claim this is discriminatory. For the United States to fit through the chapeau, it would need to argue that the emissions reduction commitments constitute a “condition” that distinguishes Country A from B – a tenuous, but not impossible claim.

The measure must also not be a “disguised restriction on international trade.” If the United States were to sanction large cement, steel, and oil producers abroad, or even the entire foreign industry, claiming the sanctions are really just attempts to bolster domestic producers would be a fair claim. If the United States were able to show similar restrictions on domestic producers, like is required under Article XX(g), it may fit through this portion of the chapeau. A further complication for the United States in fitting through the chapeau arises if the United States imposes sanctions on countries not meeting their Paris commitments while the United States does not meet its own commitments. Should the United States not meet its own commitments but imposes penalties on other countries not meeting their commitments, this could also be viewed as a disguised restriction on international trade. Ultimately, Article XX defenses will be fact specific at the time IEEPA sanctions are imposed and the form the sanctions take. Because IEEPA is broadly viewed

⁷⁴ See *Summary of the Clean Air Act*, UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, <https://www.epa.gov/laws-regulations/summary-clean-air-act>.

⁷⁵ Appellate Body Report, *China – Rare Earths*, ¶ 5.136.

as a national security power, the Article XXI(b)(iii) defense could prove to be more stable grounds for the United States.

2. The National Security Exception

Article XXI(b)(iii) serves as an exception when a measure is taken to protect the country's "essential security interests" during a "time of war or other emergency in international relations."⁷⁶ This provision is commonly referred to as "the national security exception." The national security exception is justiciable and not self-judging, meaning WTO dispute resolution panels can determine whether a measure responds to an essential security interest of a member state.⁷⁷ Further, despite the chapeau of Article XXI(b) including the phrase "which is considers," Article XXI(b)(iii) should be reviewed objectively.⁷⁸

Some subjectivity is granted under the chapeau of Article XXI(b) with the determination of what constitutes an "essential security interest." While member states should operate in good faith, if a member state is able to show that a measure was imposed because of a threat "related to the quintessential functions of the state," however the state defines that, the chapeau should be met.⁷⁹ Applied to IEEPA sanctions for climate change, the effects of climate change can be said to fall under an essential security interest. Rising sea levels will impact ports and military readiness, migration will increase, food and water insecurity will increase the likelihood of conflicts, and stronger and more unpredictable weather events will limit the ability of government to keep its citizens safe.⁸⁰

Fitting under the chapeau of Article XXI(b) is not alone enough, meeting the requirements of Article XXI(b)(iii) is also necessary to qualify for the defense. First, the measure must be "taken in a time of" either a war or emergency in international relations. According to *Russia – Transit*, this is an objective determination requiring the measure be taken during the war or emergency.⁸¹ Because IEEPA can only be invoked after the declaration of a national emergency, the emergency would first be declared and then measures responding to the emergency would be deployed. This will satisfy the chronological link articulated in *Russia – Transit*.

Finally, for the United States to successfully invoke the Article XXI(b)(iii) defense, it will need to show that climate change is an emergency in international relations as there is no war involved. In *Russia – Transit*, the panel said an emergency in international relations must be more than run-of-the-mill economic or political disputes between countries, instead qualifying disputes must give rise to "defence and military interests," "maintenance of law and public order interests" such as actual or latent armed conflict, heightened tensions or crises, or "general instability engulfing or surrounding a state."⁸² The panel in

⁷⁶ GATT Article XXI(b)(iii).

⁷⁷ Panel Report, *United States – Certain Measures on Steel and Aluminum Products* (hereafter *US – Certain Measures on Steel and Aluminum Products (Turkey)*), ¶ 7.143, WTO Doc. WT/DS564/R (circulated Dec. 9, 2022) (note that the United States appealed this decision, but there is no functioning Appellate Body to review the appeal and the United States does not need to comply with the decision pending the conclusion of its appeal).

⁷⁸ See, Panel Report, *Russia – Measures Concerning Traffic in Transit* (hereafter *Russia – Traffic in Transit*), ¶ 7.82, WTO Doc. WT/DS512/R (adopted Apr. 26, 2019); Panel Report, *United States – Origin Marking Requirement* (hereafter *US – Origin Marking (Hong Kong, China)*), ¶¶ 7.88-7.89, WTO Doc. WT/DS597/R (circulated Dec. 21, 2022) (appealed by the United States).

⁷⁹ Panel Report, *Russia – Traffic in Transit*, ¶¶ 7.130-7.133.

⁸⁰ National Intelligence Council, *supra* note 36; Department of Defense, *supra* note 37.

⁸¹ Panel Report, *Russia – Traffic in Transit*, ¶ 7.70.

⁸² *Id.* at ¶¶ 7.75-7.76.

US – Steel and Aluminum Products (Turkey) echoes this definition, but provides more flexibility by just saying the emergency “must be, if not equally grave or severe, at least comparable in its gravity or severity to a ‘war’ in terms of its impact on international relations.”⁸³

Although no active armed conflict or “general instability” is engulfing the United States, the United States can argue that the effects of climate change are at least comparable to the gravity or severity of war. Much like war and other armed conflict, climate change is expected to create a refugee crisis, but unlike wars and armed conflict, the refugee crisis due to climate change will impact much broader regions and numbers of people at a significantly higher magnitude than an ordinary war.⁸⁴ The impacts of sea level rise can also be analogized to the impacts of war. Sea level rise will make many U.S. military ports inoperable which can be likened to a port becoming destroyed during wartime by an enemy.⁸⁵

Due to the chronological importance of Article XXI(b)(iii), the United States will need to justify imposing IEEPA sanctions now when ports are still operable and climate refugees are still relatively uncommon. This can be justified by referencing studies demonstrating that the effects of climate change are already starting.⁸⁶ Analogizing again to war, just because a war has just begun and no missiles or bombs struck the homeland yet does not mean there is not a war. Throughout the U.S. war in Iraq, Iraqi forces under Saddam Hussein did not strike the continental U.S. or its territories. Yet, the United States would rightfully have been able to claim trade actions it took against Iraq were taken during a time of war. Therefore, U.S. actions taken now to counter the security threats posed by climate change would be appropriate and should allow for Article XXI(b)(iii) to be successfully invoked. While this argument is strong, it has never been tested. However, with the Appellate Body of the WTO currently defunct due to U.S. blockage of appointments to fill the Appellate Body, should the U.S. lose at the panel level on this issue, it could be expected to do what it did in response to being told its tariffs on steel and aluminum were not justified under Article XXI and “appeal into the void” to remain in compliance with the WTO pending the appeal.⁸⁷

IV. NON-LEGAL CONSTRAINTS – POLITICAL AND FOREIGN POLICY CONSIDERATIONS

Outside of the above legal constraints on a President's IEEPA authority, there are also practical constraints coming from both political and foreign policy considerations.

⁸³ Panel Report, *US – Steel and Aluminum Products (Turkey)*, ¶ 7.154.

⁸⁴ Compare Tetsuji Ida, *Climate refugees – the world's forgotten victims*, WORLD ECONOMIC FORUM (June 18, 2021) <https://www.weforum.org/agenda/2021/06/climate-refugees-the-world-s-forgotten-victims/> (estimating up to 1.2 billion climate refugees by 2050) with *Syria Refugee Crisis Explained*, USA FOR UNHCR (Mar. 14, 2023), <https://www.unrefugees.org/news/syria-refugee-crisis-explained/> (estimating 14 million Syrians are either refugees or internally displaced following the onset of conflict in Syria in 2011).

⁸⁵ See National Intelligence Council, *supra* note 36; Department of Defense, *supra* note 37.

⁸⁶ See, e.g., *Climate change widespread, rapid, and intensifying*, INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE (Aug. 9, 2021), <https://www.ipcc.ch/2021/08/09/ar6-wg1-20210809-pr/>.

⁸⁷ See Yuka Hayashi, *WTO Rules Against U.S. Tariffs on Imported Steel, Aluminum*, THE WALL STREET JOURNAL (Dec. 9, 2022), <https://www.wsj.com/articles/wto-rules-against-u-s-tariffs-on-imported-steel-aluminum-11670611598>; *United States appeals panel reports regarding US duties on steel and aluminum products*, WORLD TRADE ORGANIZATION (Jan. 30, 2023), https://www.wto.org/english/news_e/news23_e/ds544_552_556_564apl_30jan23_e.htm; James Bacchus, *Echoing Trump, Biden Embraces International Trade Lawlessness*, CATO INSTITUTE (Dec. 12, 2022), <https://www.cato.org/blog/echoing-trump-biden-embraces-international-trade-lawlessness>.

On the domestic side, a president would be loath to see the dominance of the U.S. dollar falter, but aggressive sanctions programs could do just that. By cutting off major companies or even entire countries from the U.S. market and financial institutions, these entities would have to operate outside of the U.S. dollar. While the U.S. dollar losing its reserve currency status may not register as a significant issue for all voters, higher prices and supply shortages would. An aggressive sanctions regime seeking to counter climate change would impact entities that provide valuable products, manufacture essential items, or are one of few sources of key products.

Balancing the immediate needs and wants of the U.S. citizenry with longer-term climate concerns will weigh heavily on a president considering taking these actions, especially considering the next presidential election is never more than four years away. Further complicating the calculus is the effectiveness of sanctions. Studies show sanctions only “work” about thirty percent of the time.⁸⁸ If climate-based sanctions are too aggressive, they may work even less in achieving their objective – influencing companies, industries, and countries to do more to counter climate change.⁸⁹

Foreign policy considerations will also come into play. Aggressive sanctions regimes could alienate allies by targeting them directly or their key industries and companies of allies. For example, if the U.S. imposed sanctions on TotalEnergies, the U.S.-France alliance would be significantly chilled. Targeting countries and their key industries or companies could chill relations between those countries and Washington to such an extent that diplomatic discussions on multilateral climate efforts could break down, or at least move forward without the U.S. welcomed at the table. Finally, by straining relations with allies and likely significantly weakening the dominance of the U.S. dollar, the result of using IEEPA to impose aggressive climate-based sanctions could accelerate the rise of China. Unilateral action by the U.S. in this way could create a political and economic vacuum that China would be happy to fill. China is currently the world’s largest GHG emitter, continues to open coal plants, is growing its nuclear arsenal, has expansionist and imperialist ambitions, and has a woeful human rights record.⁹⁰ The United States will need to consider all of these factors, in addition to the legal considerations, before deciding whether using IEEPA to impose sanctions on the worst GHG-emitters is the right action to take.

⁸⁸ Smith, *supra* note 24 at CH. 1, 1.

⁸⁹ U.S. sanctions are most effective because of the global reliance on the U.S. financial system, but if the U.S. dollar loses its dominance U.S. sanctions could become less effective.

⁹⁰ See, e.g., Ian Tisea, *Largest global emitters of carbon dioxide 2021 by country*, STATISTA (Feb. 6, 2023)

V. CONCLUSION

Climate activists calling for President Biden to declare climate change a national emergency are right when they say it will give President Biden significant powers to act without new congressional legislation. One of the powers flowing from a national emergency declaration is the broad IEEPA statute. Should President Biden or a future president declare climate change a national emergency he would have the legal authority to do so and to use IEEPA to reach and influence foreign conduct to respond to the national emergency. While foreign countries and foreign entities can be targeted, IEEPA is limited in the sense that domestic activity cannot be sanctioned in the same way. WTO constraints will be implicated by such an expansive use of IEEPA, although there are avenues to get around WTO constraints. Additional constraints posed by domestic and foreign policy concerns will be important for the president to weigh. Ultimately, as with any decision, the president will have to balance the pros and cons of using IEEPA in this way, craft a sanctions program that is tailored to the threat, and minimizes the cons of the policy.

PART V

BEYOND TRADITIONAL TRADE AND CLIMATE BOUNDARIES

Transboundary harms and risks require strengthening the global response to climate change. However, the global landscape to achieve this involves multiple pathways, institutions, disciplines, and regimes. International trade and climate policies are two of these pathways but by themselves, they are insufficient to achieve these objectives. The intersection of trade law, environmental law and the climate change regime covers far more ground than the traditional trade law rules focused on non-discrimination, subsidies, standards and regulations, and the Common But Differentiated Responsibilities (CBDR) discussed so far in this book. This Part V moves into that widening aperture, looking at cross currents from the human rights, investment law, government procurement, finance, and intellectual property arenas in an increasingly interconnected world as they too enter the territory where trade law meets climate change. Each chapter proposes using trade tools in new or different ways in the context of climate change, opening the door to the possibility of using the link between trade and climate change to go farther and faster than could be done in the trade arena alone.

Extreme weather, rising seas and damaged ecosystems are threatening the lives of millions of climate refugees.¹ According to the UN High Commissioner for Refugees (UNHCR), between 2008 and 2016, an annual average of 21.5 million people were forcibly displaced each year by weather-related events such as floods, storms, wildfires and extreme temperatures. This climate migration is expected to surge in coming decades with forecasts from some NGOs predicting that more than 1 billion people could be displaced globally by 2050 due to climate change and natural disasters.² In a context in which the global governance for forced migration and refugees is not well-equipped, either legally or financially, to deal with climate refugees or migrants, such massive movements will have major implications for human rights obligations, for international peace and security, for economic development as well as for international trade and supply chain stability. Chapter 21, “‘GATS’-Undheit! The Argument for Using the General Agreement on Trade in Services to Alleviate the Climate Migration Crisis,” offers a way to being to address this problem, making the case for encouraging countries to open their borders in an orderly way to climate migrants through liberalization of their World Trade Organization (WTO) services commitments under the General Agreement on Trade in Services’ (GATS) Mode 4 covering the movement of persons. This idea, coming as it does at the intersection of trade and human rights law, could have an even greater impact if married to incentives from the climate change regime. Under the Paris Agreement, countries have flexibility for their differing capabilities to implement the measures they deem necessary to achieve their climate commitments. Why not allow those countries that agree to open their services schedules (and hence their borders) to climate refugees to claim credit under their

¹ UN Environment Programme (UNEP) expert Essam El Hinnawi coined the term ‘climate refugee’ in 1985.

² Institute for Economics & Peace. (2020). *Over one billion people at threat of being displaced by 2050 due to environmental change, conflict and civil unrest*. Available at <https://www.economicsandpeace.org/wp-content/uploads/2020/09/Ecological-Threat-Register-Press-Release-27.08-FINAL.pdf>

Nationally Determined Contributions (NDCs) – contending that accepting climate refugees is one of their ways of contributing to the adaptation to climate change impacts?

Speeding up the transfer of green and climate technologies to both facilitate technical know-how and open new markets in the developing world within all ‘dirty’ industries is also an essential element in the fight against climate change. Technology development and transfer was clearly recognized from the time the United Nations Framework Convention on Climate Change (UNFCCC) was established and later in 2010, when the Conference of the Parties (COP) created the Technology Mechanism to accelerate the development and transfer of climate technologies.³ As with climate refugees, lessons learned in the traditional trade arena could be helpful here too. From the patent pool concepts employed to speed the development of pandemic and disease-fighting pharmaceuticals, to creation of green technology clubs similar to carbon clubs, to government procurements policies to “buy green,” the trading system has a number of ideas and practices that can be tweaked and twisted to apply in the climate change arena. These practices fit within a number of WTO Agreements, including the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS). Chapter 22, “Technology Transfer and Cooperation in the Steel Sector,” posits using some of these lessons learned in the broader trade realm to the steel sector to promote the rapid transfer of low-carbon and net-zero technologies.

Of all the areas at the margins of traditional trade law that have the potential to make the most significant contribution to the fight against climate change, it is finance and international investment that matter most since they promote innovation and leverage financing opportunities. Trade tools need to be used to enable private sector participation and to help forge the essential public-private partnerships (PPPs) and incentives for private funding that are crucial to drawing in the trillions of dollars needed if the world is to reach its Paris Agreement targets, particularly for developing countries. Yet, as with subsidies, where it was the subsidies to renewable energy that were challenged rather than those granted for fossil fuels, the investment world has seen coal and fossil fuel companies challenging countries’ newly imposed environmental permits and laws enacted to meet climate goals as violations of their investment rights. However, investment disputes, including those subject to various forms of Investor-State Dispute Settlement (ISDS) mechanisms, turn on concepts such as fair and equitable treatment and regulatory expectations. As Chapter 23 (“Either we kill it, or it will kill us”: The Unlikely Use of Investor State Dispute Settlement to Enable Renewable Energy Policy”) contends, even the rules and the ISDS mechanisms included in the Energy Charter Treaty could be turned on their head and used as an incentive to create a secure and stable environment for climate measures if appropriate regulatory expectations are put in place – and soon.

Climate financing is the essential linchpin for the world to reach the goals of the Paris Agreement. Here too the traditional trade tool of promoting the adoption of international standards could be put to a new use in promoting acceptance of standards for what constitutes ‘green’ finance. Chapter 24, “Financing the Green-to-Brown Transition,” focuses on the often-ignored realm of whether investments made in ‘dirty’ industries can nonetheless fit within the bounds of a ‘green’ finance standard, underscoring the critical need to draw investment in to support decarbonization in industries traditionally shunned by ‘green’ investment.

³ United Nations Climate Change. *What is Technology Development and Transfer?* Available at: <https://unfccc.int/topics/what-is-technology-development-and-transfer>

In each of these forays into the use of trade tools in the broader arena, three critical components stand out: 1) the imperative of finding ways to link climate change commitments, particularly NDCs, national adaptation plans, and climate policy commitments, to trade tools; 2) the need for significant incentives drawn from both the trade and climate regimes as well as from the public and private sectors to spur adoption of these ideas; and 3) multi-stakeholder cooperation between the different regimes. While policymakers have an essential role to play, particularly in setting pro-climate regulatory expectations, the real work of promoting green technology transfer and green investment and finance likely lies with public-private partnerships and multi-stakeholder collaboration. With such cooperation among the cross-cutting regimes presented in this Part, as well as with collaboration from governments, international organizations and the private sector, public trust and accountability can be maximized while transaction costs and trade barriers can be lowered. Bringing together the disciplines and norms from human rights, intellectual property, investment and finance while using tools of the trade and climate change regimes in new ways can contribute to addressing a variety of climate mitigation and adaptation challenges. The chapters in this Part V suggest ways to do just that.

CHAPTER 21: “GATS”—UNDHEIT! THE ARGUMENT FOR USING THE GENERAL AGREEMENT ON TRADE IN SERVICES TO ALLEVIATE THE CLIMATE MIGRATION CRISIS

ELAZAR KOSMAN*

This paper argues for using the General Agreement on Trade in Services, Mode 4, to direct climate migration. Breaking from the post–World War II model for refugee protection, this paper seeks to solve the impending migratory crisis before residents of a stressed region are displaced. First, the discussion will argue that the refugee crisis is a two-stage phenomenon beginning with a region growing from economically uninhabitable to physically uninhabitable. Second, to solve the initial economic crisis, this paper argues for using Mode 4 to allocate prospective migrants from regions depleted in resources to resource-rich countries. With inhabitants of a stressed region leaving off their own accord for economic reasons, both the immigrants and destination country can benefit. Lastly, this paper describes several incentives for governments to create an exception to their “unbound” Mode 4 for climate migrants.

I. INTRODUCTION

As a result of climate change, analysts predict that the world might see between 44 and 216 million migrants fleeing stressed regions.¹ The United Nations Framework Convention on Climate Change (UNFCCC) does not mention climate migration, and the international community has been hesitant to provide legislative protection for this impending crisis.² Prescribed legislative solutions, hoping to ensure that countries will open their borders to climate refugees, have failed to be implemented. What is more, litigation advocating for courts to broaden the term “refugee” under the Refugee Convention has also proven to be insufficient, and the Human Rights Commission’s (HRC) rulings remain unclear regarding the extent that climate migrants must suffer in their depleted regions before their right to life is violated.³

Traditional thinking assumes that climate migrants suffer from their land becoming physically uninhabitable. Thus, this paradigm correlates solving the climate migration crisis to the Refugee Convention, as both pertain to people seeking land that they may safely inhabit. This analysis, however, overlooks the relationship between global warming and its economic consequences, as climate migrants suffer from their land becoming economically uninhabitable before their land becomes physically uninhabitable. Additionally, in the case of “sudden” onset weather events, many residents sustain

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¹ John Podesta, *The climate crisis, migration, and refugees*, BROOKINGS (July 25, 2019), <https://www.brookings.edu/research/the-climate-crisis-migration-and-refugees/>; Umair Irfan, *Why we still don't yet know how bad climate migration will get*, VOX (March 16, 2022), (“Since 2008, an average of more than 20 million people per year have been displaced by extreme weather events, many of which were exacerbated by climate change, according to the IPCC.”) <https://www.vox.com/2022/3/16/22960468/ipcc-climate-change-migration-migrant-refugee>.

² *See gen.*, UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE, https://unfccc.int/files/essential_background/background_publications_htmlpdf/application/pdf/conveng.pdf.

³ HUMAN RIGHTS COMMITTEE, *Ioane Teitiota* (Jan. 29, 2020) case https://tbinternet.ohchr.org/_layouts/15/treatybodyexternal/Download.aspx?symbolno=CCPR%2fC%2f127%2fd%2f2728%2f2016&Lang=en.

economic harm, but do not suffer from their land becoming permanently physically uninhabitable because once the weather subsides, they may return. Because wealthier people have the resources to protect themselves, those living on the lower end of the economic spectrum are often most drastically impacted by the warming globe. Given that the climate migration crisis begins as a crisis due to an ecosystem’s dwindling resources, the appropriate manner to diagnose the climate refugee crisis is from an economic perspective.

Noting the World Trade Organization’s (WTO) mission “to improve the welfare of the peoples of the WTO’s members,”⁴ this paper argues that the organization’s General Agreement on Trade in Services (GATS), Mode 4, may be an effective mechanism to solve much of the climate migration crisis. Countries can use Mode 4 to transfer inhabitants of areas depleted of resources to resource-rich territories so that individuals and families may earn money abroad where they can find employment. Instead of waiting for the incidence of mass migration, this proposition offers to solve the crisis before inhabitants of a troubled region are forced to flee. Generally, migrants fleeing stressed regions are associated with negative externalities of their immigration, impacting the migrants themselves and their destination country – whereas “choice” migration, using the GATS, can have a positive effect. The GATS is an efficient framework because it need not be negotiated on an international level; thus, it may be utilized while circumventing the onerous task of creating an entirely new international framework for migration. The source country will benefit from sending migrants elsewhere by decreasing the pressure inhabitants place on their region’s stressed ecosystem and by way of the remittance back to migrants’ relatives. Instead of a chaotic crisis, where millions of migrants are pouring out of troubled regions, nations can uniformly direct migrants to resource-rich countries whose economies can benefit from economic migrants.

Under this scheme, countries benefit economically from an increase in their labor force and consumer growth. Economic migrants supplement labor shortages and complement the receiving countries’ domestic workforce rather than taking jobs from their domestic workers. Although governments have the incentive to open their Mode 4 to high-skilled workers or nations willing to invest under Mode 3, the international community can also incentivize developed countries to open their Mode 4 to foreign low-skilled workers without Mode 3 investment, in exchange for carbon credits. Given that the United States, European Union, China, and Japan – while enjoying the largest economies in the world – have meager Mode 4 commitments, the time is ripe for these powers to exclude from their “unbound” Mode 4 climate migrants and broaden the terms, “temporary” and “services,” under the new climate migrant exception.

II. THE CLIMATE MIGRATION CRISIS

In 2017, out of 68.5 million people forcibly displaced, at least 22.5 million migrants were forced to move by “sudden onset” weather events caused in part by climate change.⁵

⁴ *WTO in Brief*, WORLD TRADE ORGANIZATION, https://www.wto.org/english/thewto_e/whatis_e/inbrief_e/inbr_e.htm.

⁵ John Podesta, *The climate crisis, migration, and refugees*, BROOKINGS (July 25, 2019), <https://www.brookings.edu/research/the-climate-crisis-migration-and-refugees/>; Umair Irfan, *Why we still don't yet know how bad climate migration will get*, VOX (March 16, 2022), (“Since 2008, an average of more than 20 million people per year have been displaced by extreme weather events, many of which were exacerbated by climate change, according to the IPCC.”) <https://www.vox.com/2022/3/16/22960468/ipcc-climate-change-migration-migrant-refugee>.

Although the remaining two-thirds of displacements can be attributed to other humanitarian crises, it is evident that climate change induced “slow onset” events – desertification, land degradation, and sea level rise – cause or at least exacerbate political instability, economic tensions or ethnic conflict.⁶ In the worst case scenario, assuming countries continue to emit high levels of greenhouse gas (GHG) emissions and the world sees unequal development of nations, up to 216 million people may be forced to move across Latin America, North Africa, Sub-Saharan Africa, Eastern Europe, Central Asia, South Asia, East Asia, and the Pacific.⁷ In the most optimistic scenario, where countries emit a low level of GHG emissions and developing countries see inclusive sustainable development, the world could still see 44 million people fleeing their homes because of climate change.⁸

While the UNFCCC⁹ and the Kyoto Protocol¹⁰ fail to explicitly recognize the climate migration crisis, the UNFCCC does mention several principles that govern the migratory crisis: First, developed countries should take the lead in combating the effects of climate change.¹¹ Second, because developing countries will have “specific needs and special circumstances,” and are particularly vulnerable to the adverse effects of climate change, they should be given full “consideration.”¹² Third, the international community should promote sustainable economic growth and development in developing countries.¹³ Fourth, the international community should consider how to meet the concerns of developing countries, including small island countries, countries with low-lying coastal areas, arid and semi-arid regions, forested areas and areas liable to forest decay, areas prone to natural disasters, drought and desertification or that have areas with fragile ecosystems.¹⁴ In accordance with these principals, this paper argues that developing countries are responsible to use GATS Mode 4 to alleviate the crisis of climate migration by contending with economic and physical upheaval in developing and least developed countries.

⁶ *Id.* Arguably, such was the case in Syria, where drought helped push many Syrians into cities before the war, worsening tensions and leading to rising discontent. Abrahm Lustgarten, *The Great Climate Migration*, THE NEW YORK TIMES, (citing Colin P. Kelley, Shahrzad Mohtadi, Mark A. Cane, Richard Seager & Yochanan Kushnir, *Climate change in the Fertile Crescent and implications of the recent Syrian drought*, PNAS (March 2, 2015)), <https://www.nytimes.com/interactive/2020/07/23/magazine/climate-migration.html>. Similarly, in Egypt and Libya, crop losses led to unemployment, which stoked Arab Spring uprisings. Abrahm Lustgarten, *The Great Climate Migration*, THE NEW YORK TIMES (citing Caitlin E. Werrell, Francesco Femia, & Anne-Marie Slaughter, *The Arab Spring and Climate Change*, CAP (Feb 28, 2013)).

⁷ Renata Brito, *Report: Climate change could see 200 million move by 2050*, ASSOCIATED PRESS (Sept. 13, 2021), <https://apnews.com/article/africa-climate-environment-and-nature-immigration-europe-69cada32a7c13f80914a2a7b48fb5b9c>.

⁸ *Id.*

⁹ *See supra*, note 2.

¹⁰ KYOTO PROTOCOL TO THE UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE (1998), <https://unfccc.int/resource/docs/convkp/kpeng.pdf>.

¹¹ *See gen.*, UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE, ¶ 1, https://unfccc.int/files/essential_background/background_publications_htmlpdf/application/pdf/conven g.pdf.

¹² *Id.* at ¶ 2.

¹³ *Id.* at ¶ 5.

¹⁴ *Id.* at ¶ 8.

A. Current legislative and judicial efforts to protect climate migrants will likely fail.

In 1951, the Allies ratified the Refugee Convention. A United Nations multilateral treaty, the convention defines the term “refugee,” and sets out the rights of individuals who are granted asylum, along with the responsibilities of nations that grant asylum. Many advocates seek to model recourse for climate refugees after the Refugee Convention, obligating countries to open their borders to migrants fleeing from uninhabitable regions.¹⁵ There is a divergence in view, however, as to what legal mechanism should protect climate migrants. Some advocate for the definition of “refugee,” under the Refugee Convention, to be broadened either legislatively or judicially to accommodate climate refugees.¹⁶ Others argue that the threat of climate change and the subsequent large-scale migration demands an entirely new framework.¹⁷

From a legislative perspective, expanding the definition of “refugee” under the Refugee convention, or creating an entirely new framework, may help alleviate the climate migration crisis. International organizations, however, find little merit in pursuing this end. Rejecting these possibilities, Dina Ionesca, the head of the Migration, Environment and Climate Change Division at the United Nations Migration Agency, argues that “[o]pening the 1951 Refugee Convention might weaken the refugee status . . . whe[n] so many people . . . need . . . protection because of persecution and ongoing conflicts.”¹⁸ Moreover, she continues: given that climate migrants usually do not cross borders, and people moving internally are not under the responsibility of the international community but rather of their own state government, a universal attempt to broaden the term “refugee,” or to structure an entirely new framework, is an inadequate remedy for this crisis.¹⁹ Lastly, says Ionesca, implementing a legal framework for climate refugees, will be difficult given that “isolating climatic reasons . . . from humanitarian, political, social, conflict or economic ones . . . may lead to long and unrealistic legal procedures, perhaps [ultimately] neglecting some . . . migrants who cannot definitively [prove] that climate caused their migration.”²⁰

¹⁵ *Should international refugee law accommodate climate change?*, UNITED NATIONS (July 3, 2014), <https://news.un.org/en/story/2014/07/472372>.

¹⁶ *Id.*

¹⁷ Benoit Mayer, *The International Legal Challenges of Climate-Induced Migration: Proposal for an International Legal Framework* 360, [https://www.colorado.edu/law/sites/default/files/Mayer%20\(Corrected\)-S.pdf](https://www.colorado.edu/law/sites/default/files/Mayer%20(Corrected)-S.pdf).

¹⁸ Dina Ionesco, *Let's Talk About Climate Migrants, Not Climate Refugees*, UNITED NATIONS SUSTAINABLE DEVELOPMENT GOALS (June 6, 2019) (emphasis added), <https://www.un.org/sustainabledevelopment/blog/2019/06/lets-talk-about-climate-migrants-not-climate-refugees/>; see also Oli Brown, *Migration and Climate Change*, IOM INTERNATIONAL ORGANIZATION FOR MIGRATION 13–15 (2008) (arguing that the word refugee is inappropriate to be used for environmental migrants) <https://www.un-ilibrary.org/content/books/9789213630235/read>.

¹⁹ Dina Ionesco, *Let's Talk About Climate Migrants, Not Climate Refugees*; see also Oli Brown, *Migration and Climate Change*, IOM International Organization For Migration 14 (2008) (“Strictly speaking, categorization as a refugee is reliant on crossing an internationally recognized border: someone displaced within their own country is an “internally displaced person.”) <https://www.un-ilibrary.org/content/books/9789213630235/read>.

²⁰ Dina Ionesco, *Let's Talk About Climate Migrants, Not Climate Refugees*; See Steve Lonergan, *The Role of Environmental Degradation in Population Displacement*, ENVIRONMENTAL CHANGE AND SECURITY PROJECT REPORT 11-12 (1998), (“It is extremely difficult to isolate the specific contribution of environmental change in many forms of population movement, especially those which are more “voluntary” in nature.”) <https://oceanfdn.org/sites/default/files/The%20Role%20of%20Environmental%20Degradation%20in%20Population%20Displacement.pdf>. Take, for example, Hurricane Katrina which impacted the Gulf Coast of the United States in August of 2005. The storm that displaced over a million New Orleans residents is presented at times to have been caused by climate change. While it is likely true that it was caused, in part, by

Given the United Nation's unenthusiastic response to the idea of expanding the term "refugee" or creating a brand-new climate framework, the unaddressed problem of climate migration may likely ripen into a humanitarian crisis.

Any attempt from advocates to protect climate migrants using the judicial system has also failed. The Teitiota family living in New Zealand sued for protection when they faced deportation to Kiribati, a country facing oblivion due to rising sea levels.²¹ Using legal theories based on (A) Principle 15 of the Guiding Principles on Internal Displacement ("Guiding Principles"),²² (B) section 129(1) of the Refugee Convention,²³ and (C) article 6 of the International Covenant on Civil and Political Rights (ICCPR),²⁴ Teitiota argued that he and his family had the right to maintain the life they built in New Zealand.²⁵ The Immigration and Protection Tribunal submitted to his alleged facts but held that even his allegations, taken as true, did not merit recourse.²⁶

The court held that (A) the Guiding Principles were not applicable to his predicament because he was not internally displaced, as he and his family were living in New Zealand, not in Kiribati.²⁷ Teitiota failed to satisfy (B) the criteria of section 129(1) of the Refugee Convention because (i) the fear of persecution in Kiribati was not "well-founded"; (ii) he failed to demonstrate he was being persecuted due to "human agency" – which is necessary, in New Zealand, to qualify under the Convention; and, lastly, (iii) his persecution was not linked to the necessary grounds of race, religion, nationality, membership of a particular social group or political opinion.²⁸ The court also denied recourse under (C) the "right to life" in article 6 of the ICCPR because (i) to be deprived of the right to life, one must suffer "by state action or as a consequence of its omission" and (ii) he did not establish an "imminent" or "sufficient degree of risk to his life."²⁹ The lower court's decision was affirmed in New Zealand's High Court,³⁰ Appeals Court,³¹ and a third time, in its Supreme Court.³²

Having exhausted his domestic remedies, Teitiota filed a communication with the HRC, again, under Article 6 of the ICCPR.³³ In its review of the New Zealand Supreme Court's decision, the HRC concluded that the "author has not demonstrated clear

global warming, there were other factors at play, such as "flawed and outdated engineering practices" used to build New Orleans's levees and "local land subsidence and wetland degradation that left parts of the [Mississippi Delta] more vulnerable to flooding."

²¹ AF (Kiribati) [2013] NZIPT 800413 (25 June 2013).

²² Guiding Principles for International Displacement, UNITED NATIONS, <https://www.brookings.edu/wp-content/uploads/2016/07/gpenglish.pdf>.

²³ Refugee Convention, 129(1).

²⁴ International Covenant on Civil and Political Rights, UNITED NATIONS, <https://www.ohchr.org/en/instruments-mechanisms/instruments/international-covenant-civil-and-political-rights>.

²⁵ *Id.*

²⁶ AF (Kiribati) [2013] NZIPT 800413 (25 June 2013).

²⁷ *Id.* at ¶ 45–48.

²⁸ *Id.* at ¶ 51–54.

²⁹ *Id.* at ¶ 81–89.

³⁰ Teitiota v Chief Executive of the Ministry of Business Innovation and Employment [2013] NZHC 3125 (26 November 2013).

³¹ Teitiota v Chief Executive of the Ministry of Business, Innovation and Employment [2014] NZCA 173 (8 May 2014).

³² Teitiota v Ministry of Business Innovation and Employment [2015] NZSC 107 (20 July 2015).

³³ HUMAN RIGHTS COMMITTEE, *Ioane Teitiota* (Jan. 29, 2020) case https://tbinternet.ohchr.org/_layouts/15/treatybodyexternal/Download.aspx?symbolno=CCPR%2fC%2f127%2fd%2f2728%2f2016&Lang=en.

arbitrariness or error in the domestic authorities’ assessment as to whether he faced a real, personal and reasonably foreseeable risk of a threat to his right to life.”³⁴ While the court admitted that the “sea-level rise is likely to render Kiribati uninhabitable,” it argued that a decade and a half could be sufficient for Kiribati – at least, with the assistance of the international community – to make the necessary intervention to save the island and its inhabitants from environmental oblivion.³⁵

While the HRC notes the possibility for climate protection under Article 6 of the ICCPR,³⁶ it leaves open the question: what circumstances must an applicant endure before falling under Article 6 protection?³⁷ Accepting that 60% of the population obtains fresh water from rationed supply, and that earning a livelihood is far more difficult because of crop salination, the HRC noted that it was still not impossible to live in Kiribati; thus, Teitiota’s right to life was insufficiently threatened.³⁸ What is immediately clear from the HRC’s ruling, is that prospective migrants facing dire circumstances of poverty because of climate change, such as Teitiota, are not eligible to legal recourse.

B. Traditional thinking overlooks the economic aspect of climate migration.

Much of the literature on climate migration assumes that inhabitants migrate because their land is no longer physically inhabitable; thus, it fails to engage with the economic nature of climate migration. Land can become physically uninhabitable because of sea-level rise, or if a region grows too hot to survive.³⁹ In accordance with this assumption – like World War II refugees – the migrants suffer a forced exodus to seek shelter as they cannot simultaneously continue to live in their source region while remaining alive. This paradigm, however, obfuscates the nature of the crisis; apart from climate change causing territory to become physically uninhabitable, the land also becomes economically uninhabitable. Regions can become economically uninhabitable a decade prior to their land becoming physically uninhabitable, but where climate change is severely draining their ecosystem’s resources, slowly plunging their inhabitants into extreme poverty.⁴⁰ Even if inhabitants eventually emigrate because their land is no longer physically uninhabitable, the reality is that long before their region became physically uninhabitable, the warming climate had thrust residents of the area into severe economic difficulty.

Climate change does not affect all individuals to the same degree. Because wealthier people have the resources to protect themselves, those living on the lower end of the economic spectrum are often most drastically impacted by the warming globe.⁴¹ Seventy-five percent of the world’s poor living in rural areas count on natural resources such as forests, lakes, and oceans for their livelihoods and thus, are precipitately threatened by

³⁴ *Id.* at ¶ 9.7

³⁵ *Id.* at ¶ 9.12

³⁶ *UN landmark case for people displaced by climate change*, AMNESTY INTERNATIONAL (Jan. 20, 2020), <https://www.amnesty.org/en/latest/news/2020/01/un-landmark-case-for-people-displaced-by-climate-change/>.

³⁷ *See gen., Ioane Teitiota.*

³⁸ *Id.*

³⁹ Abraham Lustgarten, *The Great Climate Migration*, THE NEW YORK TIMES, <https://www.nytimes.com/interactive/2020/07/23/magazine/climate-migration.html>.

⁴⁰ *See infra* p. 12–14.

⁴¹ S. Nazrul Islam & John Winkel, *Climate Change and Social Inequality*, DEPARTMENT OF ECONOMIC & SOCIAL AFFAIRS (Oct. 2017), https://www.un.org/esa/desa/papers/2017/wp152_2017.pdf.

climate change.⁴² Available evidence indicates that groups disadvantaged economically suffer from a three-step vicious cycle: (a) increase in the exposure to the adverse effects of climate change; (b) increase in their susceptibility to damage caused by climate change; and (c) decrease in their ability to cope and recover from the damage suffered.⁴³ This demographic does not have the resources to protect itself from climate change and is most susceptible to their ecosystem's rapid loss of resources, which proceeds a region becoming physically uninhabitable.

Scholars bifurcate the environmental crisis into “sudden onset” climate events and “slow onset” climate events.⁴⁴ While the former may arise by way of extreme storms, wildfires, tornadoes, or flooding,⁴⁵ the latter can impact a region through desertification, land degradation, rising sea levels, and increased salination of freshwater.⁴⁶ These disparate phenomena are unique in that usually residents suffering from “slow onset” events may reach a point where their land is no longer physically inhabitable, but those suffering from “sudden onset” events can often return once the weather event has completed its course; thus, inhabitants suffering from the former will eventually become permanent refugees. What both “sudden” and “slow onset” climate events have in common is that given the depletion of resources, the residents’ territory becomes economically uninhabitable because of disappearing resources. Viewed in this manner, “slow onset” climate disasters are the inverse of their “sudden onset” counterparts. Gradual climate disasters impoverish communities slowly by ever-increasingly destroying a region’s ecosystem while its inhabitants are stationary; i.e., *before* they flee. Whereas inhabitants of areas escaping from a sudden extreme weather event are impoverished only *during* and *after* the land has become temporarily physically uninhabitable.

For both sudden and slow events, inhabitants without the resources to protect themselves from the changing climates are plunged into poverty.⁴⁷ Theoretically speaking, if the post-World War II paradigm engages with this crisis, it allows those whose land becomes physically uninhabitable to find “refuge” elsewhere. This paradigm remedies “slow onset” events that deem a region physically uninhabitable. Of course, after a “sudden onset” weather event runs its course, the land returns to being physically inhabitable, making a refugee-type solution largely inapplicable. The refugee paradigm does not attend to the dire economic fallout that occurs the decade prior to inhabitants fleeing from “slow onset” events and the decade after residents suffer from “sudden onset” weather events.

⁴² *How climate change impacts poverty*, WORLD VISION (June 21, 2021), <https://www.worldvision.ca/stories/climate-change/how-climate-change-impacts-poverty>.

⁴³ S. Nazrul Islam & John Winkel, *Climate Change and Social Inequality*.

⁴⁴ *Key Concepts On Climate Change And Disaster Displacement*, THE UN REFUGEE AGENCY, <https://www.unhcr.org/5943aea97.pdf>.

⁴⁵ *How Climate Change Is Fueling Extreme Weather*, EARTH JUSTICE (June 1, 2021), <https://earthjustice.org/features/how-climate-change-is-fueling-extreme-weather>. Generally speaking, residents suffering from a region experiencing “sudden onset” disasters have, after their crisis has ended, a place where they may return, as overall, apart from their temporary disaster, they retain a suitable place to live. Therefore, from a policy perspective, an effective strategy for mitigating “sudden onset” weather events must include strengthening a vulnerable region’s resilience to “sudden onset” climate events. This may be done by investing in climate-resilient infrastructure. Michael Mullan, *Climate-resilient Infrastructure*, OECD (2019), <https://www.oecd.org/environment/cc/policy-perspectives-climate-resilient-infrastructure.pdf>.

⁴⁶ *Slow onset events*, UNITED NATIONS CLIMATE CHANGE, <https://unfccc.int/wim-excom/areas-of-work/slow-onset-events>.

⁴⁷ *See infra* p. 12–14.

C. *Regions suffering from dying ecosystems.*

Two regions currently suffering economically because of “slow onset” climate events are the Sahel and South Asian regions. The Sahel – nine countries stretching across the continent from Mauritania to Sudan – faces extraordinary population growth and steep environmental decline.⁴⁸ With more than 100,000 people killed due to drought, and containing more than 150 million people, the region is threatened by rapid desertification, severe water shortages, and deforestation.⁴⁹ According to the World Bank, roughly 80% of the farmable land in this region has already been degraded.⁵⁰ For similar reasons, the World Bank projects that the South Asian region will soon have the highest prevalence of food insecurity in the world.⁵¹ About 8.5 million people have already fled this region, with many forced to resettle in the Persian Gulf.⁵² Still, analysts project that an additional 17 to 36 million more people are in danger of being uprooted.⁵³

Many regions continue to suffer from the after-effects of “sudden onset” extreme weather events. For example, in 2013, roughly one million Filipinos were forced into poverty by Typhoon Haiyan after it destroyed over a million homes, and sapped \$12.9 billion from the national economy.⁵⁴ In 2010, due to devastation from Cyclone Aila, Bangladesh’s unemployment and poverty levels surged 49 percent and 22 percent, respectively.⁵⁵ In Guatemala, after Hurricane Stan in 2005, 7.3 percent of affected families were forced to send children to work instead of school.⁵⁶ In the circumstances of “sudden” and “slow-onset” climate events, citizens suffer equally from poverty.

By 2100, analysts estimate that 48 Pacific islands overall will be lost to the rising ocean.⁵⁷ The island state, Kiribati, standing less than seven feet above sea level, is acutely vulnerable to rising tides and an increase in storms.⁵⁸ Indeed, Abanuea, and Tebua Tarawa, two islands surrounding Kiribati are already underwater. Because of flooding attributable to high tides and storm surges, over 100,000 citizens, residence of the capital city, South Tarawa, are at risk of losing their homes.⁵⁹ In part because of the emersion of outer islands and the erosion of beaches, the flooding contaminates crops, drinking water, and water

⁴⁸ *Where Climate Change Is Reality: Supporting Africa’s Sahel Pastoralists to Secure a Resilient Future*, THE WORLD BANK (Sept. 21, 2020) <https://www.worldbank.org/en/news/immersive-story/2020/09/21/where-climate-change-is-reality-supporting-africas-sahel-pastoralists-secure-a-resilient-future>; Abrahm Lustgarten, *The Great Climate Migration*, THE NEW YORK TIMES, <https://www.nytimes.com/interactive/2020/07/23/magazine/climate-migration.html>.

⁴⁹ Abrahm Lustgarten, *The Great Climate Migration*, THE NEW YORK TIMES, <https://www.nytimes.com/interactive/2020/07/23/magazine/climate-migration.html>.

⁵⁰ *Where Climate Change Is Reality: Supporting Africa’s Sahel Pastoralists to Secure a Resilient Future*, THE WORLD BANK (Sept. 21, 2020) <https://www.worldbank.org/en/news/immersive-story/2020/09/21/where-climate-change-is-reality-supporting-africas-sahel-pastoralists-secure-a-resilient-future>.

⁵¹ *Status of Food Security in East and Southeast Asia and Challenges of Climate Change*, CLIMATE (March 14, 2022); Abrahm Lustgarten, *The Great Climate Migration*, THE NEW YORK TIMES, <https://www.nytimes.com/interactive/2020/07/23/magazine/climate-migration.html>.

⁵² See, *The Great Climate Migration*.

⁵³ See *id.*

⁵⁴ *Breaking the link between extreme weather and extreme poverty*, GLOBAL FACILITY FOR DISASTER REDUCTION AND RECOVERY, <https://www.gfdrr.org/en/breaking-link-between-extreme-weather-and-extreme-poverty>,

⁵⁵ *Id.*

⁵⁶ *Id.*

⁵⁷ Deshmukh & Amrita, *Disappearing Island Nations Are The Sinking Reality of Climate Change*, QRIUS (May 17, 2019), <https://qrius.com/disappearing-island-nations-are-the-sinking-reality-of-climate-change/>.

⁵⁸ Ericka Rosen, *Climate Change in Kiribati: How will rising sea levels effect Kiribati?* ARCGIS STORYMAPS (Jan. 22, 2021), <https://storymaps.arcgis.com/stories/7f455136b85f4edd8655d15a89b5039f>.

⁵⁹ *Id.*

used for agriculture, resulting in food scarcity.⁶⁰ An increase in storms and the warming ocean has damaged much of the coral reefs, ruining aquatic habitats, and causing a drastic loss for the country's robust fishing industry.⁶¹

Under these circumstances, where Kiribati residents have tried to emigrate but found little recourse from the international community, advocates would argue that expanding the definition of the word "refugee" under the Refugee Convention or creating an additional framework for climate migrants can provide protection.⁶² This is likely false, however; among the various reasons why Teitiota, a native Kiribatian, was unable to seek recourse under the Refugee Convention was because the court held that he was not "forced" to migrate and that the fear of persecution in Kiribati was not "well-founded."⁶³ Thus, even if countries were to expand current legal structures to protect climate migrants, likely, this demographic in crisis would only find protection under the strictest circumstances – where it is truly impossible to live in the distressed region.

A legal structure allowing immigration hinging upon the circumstances of land becoming economically uninhabitable could help someone like Teitiota emigrate. Using an economic induced mechanism to allow for climate migration would directly address climate change-induced poverty, both prior to when inhabitants in regions suffering from "slow onset" events must flee, and after inhabitants of regions are thrust into poverty from "sudden onset" events. At the same time, having addressed the economic antecedent to land becoming physically uninhabitable, this mechanism will also solve climate migration in the classical sense, where inhabitants must flee because their land is physically uninhabitable.

III. SOLVING THE CLIMATE MIGRATION CRISIS USING THE GATS

The goal of the WTO "is to improve the welfare of the peoples of the WTO's members."⁶⁴ Illustrative of this purpose, pursuant to the most favored nation rule, WTO members may not discriminate against one another in trade.⁶⁵ GHG emissions are largely a result of the making and trading of goods; thus, developed countries are *de facto*, discriminating against least developed countries (LDC) by causing LDC territory to become economically uninhabitable. The WTO vows to increase economic predictability and transparency to create jobs so that consumers can benefit from competition.⁶⁶ GHG emissions arising from developed countries are doing the opposite; these emissions are wreaking economic havoc in the territories of LDCs.

The WTO was formed based on an ethic of economic inclusivity; thus, alleviating structural economic issues using international trade is part of the WTO's articulated

⁶⁰ *Id.*

⁶¹ *Id.* For some Small Island Developing States, like Kiribati, policymakers differ on whether they can mitigate the rising tides threatening to submerge their islands or if perhaps the government should resettle its citizens in different safer country. Benoit Mayer, *The International Legal Challenges of Climate-Induced Migration: Proposal for an International Legal Framework* 360, [https://www.colorado.edu/law/sites/default/files/Mayer%20\(Corrected\)-S.pdf](https://www.colorado.edu/law/sites/default/files/Mayer%20(Corrected)-S.pdf).

⁶² Bill Frelick, *Rethinking Asylum on a Warming Planet* (Dec. 21, 2020), <https://www.hrw.org/news/2020/12/21/rethinking-asylum-warming-planet>.

⁶³ 0907346 [2009] RRTA 1168 (10 December 2009) (Australian litigation).

⁶⁴ *WTO in Brief*, WORLD TRADE ORGANIZATION, https://www.wto.org/english/thewto_e/whatis_e/inbrief_e/inbr_e.htm.

⁶⁵ *What we stand for*, WORLD TRADE ORGANIZATION, https://www.wto.org/english/thewto_e/whatis_e/what_stand_for_e.htm.

⁶⁶ *Id.*

purpose. The objective of the WTO is to “help its members use trade as a means to raise living standards, create jobs and improve people’s lives.”⁶⁷ The WTO explicitly supports Least Developed Countries (LDC) – indeed, over forty-five members of WTO are LDCs.⁶⁸ LDCs stand to lose the most from climate change. For this reason, ensuring that citizens of these countries are protected from climate migration, should be of major priority. The close relationship between trade and GHG emissions and the direct implication of economic upheaval in many regions owing to global warming places a special onus on the WTO to combat the fallout from the warming climate.

The WTO’s GATS can be an effective mechanism to solve the climate migration crisis, as it can be used to transfer inhabitants of regions depleted of resources to resource-rich territories. Under the GATS, countries give up some of their sovereign rights to liberalize trade in services.⁶⁹ The GATS offers several “modes” of services:⁷⁰ Mode 1, accounting for 25–30% of all world services trade, is referenced as “cross-border supply,” and pertains to services produced in one country but consumed in another – such as a law firm delivering legal services by phone to a different country; Mode 2 makes up 10–15% of traded services and is termed “consumption abroad,” where a consumer is staying abroad and is consuming domestic services; Mode 3, equaling 55%–60% of services is discussed as “commercial presence” where, for example, a financial institution might open up a branch abroad; and finally, Mode 4 – facilitating the temporary movement of individuals to supply services – sees 0–4% of all GATS commitments to date.⁷¹ Overall, countries utilize Mode 4 far less than other modes.

Presently, the WTO is encouraging all member countries to further open their service sectors, including Mode 4.⁷² Most of the current GATS commitments under the WTO were implemented between 1994 and 1995, and since then, few countries have revised their GATS schedules to open their markets to more foreign service providers.⁷³ Now more than ever, these negotiations can provide an opportunity to address the economic fallout from global warming and, by doing so, avoid the human rights crisis associated with climate migration: territories becoming economically and physically uninhabitable.

The timeframe for implementing a legal mechanism to contend with climate migration is short, given the imminent threat of large-scale climate migration. Using the GATS to ameliorate climate migration is efficient as it would circumvent the arduous task of creating an entirely new framework for migration. Moreover, to utilize Mode 4, it is unnecessary to engage in centralized negotiations, as is the case for any international framework. Instead, each individual country can unilaterally agree to liberalize its Mode 4 commitments. Under the GATS, the international community can help states adapt properly to the warming climate by allowing inhabitants suffering from drained ecosystems to seek employment abroad. The remittance granted back to the source country can bolster the source country’s economy. An increase in consumer power and

⁶⁷ *Who we are*, WORLD TRADE ORGANIZATION, https://www.wto.org/english/thewto_e/whatis_e/who_we_are_e.htm.

⁶⁸ *Id.*

⁶⁹ GATS Part I Art I 2(d).

⁷⁰ Marion Panizzon, *Trade and Labor Migration: GATS Mode 4 and Migration Agreements*, DIALOGUE ON GLOBALIZATION 12 (Jan. 2010), <https://www.wti.org/research/publications/8/trade-and-labor-migration-gats-mode-4-and-migration-agreements/>.

⁷¹ *Id.* at 12.

⁷² *Id.* at 6.

⁷³ *Id.*; Julia Nielson & Daria Taglioni, *A quick guide to the GATS*, at 32 OECD (Nov. 12, 2003) https://www.iom.int/sites/g/files/tmzbdl486/files/2018-07/quick_guide.pdf.

taxing the remittance can help fund greater climate adaptation for the source region.⁷⁴ Using the GATS to direct migration can help alleviate the extreme poverty inhabitants of depleted areas may not otherwise avoid.

Some might argue that opening the GATS will neglect those who cannot provide services, such as kids and the elderly. This can be easily remedied by allowing whole families to emigrate rather than the breadwinner alone. Moreover, by enabling families to relocate, the communities formed in destination countries can serve as a support system to others from the source country wishing to emigrate.

The GATS can protect citizens before a humanitarian crisis arises where millions of people are forced to make a chaotic escape from an uninhabitable region. Furthermore, the GATS is far more humane than other refugee frameworks, as it would allow migrants to choose their destination country, rather than being forced with no other option into neighboring territories. Without utilizing the GATS to direct “choice” migration, those moving as a result of climate change will be engaged in “forced” migration and are less beneficial to destination countries.⁷⁵ There is a number of problems associated with forced migration: migrants who are forced to flee their source country tend to arrive in destinations with few job opportunities; they place a strain on public services and infrastructure; they can fray the destination region’s political and social fabric;⁷⁶ and lastly, it leads to worse health, educational and social indicators among migrants themselves.⁷⁷ Under the GATS, immigration would not be forced, thereby, avoiding the traditional issues of refugee migration. Instead, citizens would emigrate under government supervision as each country negotiates the transfer of services under Mode 4. Orchestrated in this manner, rather than of a chaotic human rights crisis, climate migration can be orderly and humane.

A. Structuring GATS Mode 4 to Accommodate Climate Migrants.

The WTO formed the GATS as a negative list concept where the presumption is that each country bars foreign services unless a country affirmatively commits to opening its markets. In practice, each commitment affirms that the country is “unbound” – meaning it has no obligation to allow foreign services to enter its country – except for specifically enumerated instances. Under the GATS, there are two mechanisms to either affirm a country’s unbound obligations or to create exceptions: (A) “horizontal commitments” – commitments applicable to all sectors, and (B) “sector-specific commitments.”⁷⁸ For an individual to immigrate under the GATS, they must satisfy the following enumerated rules: (i) the destination country must affirmatively agree to allow migrants;⁷⁹ (ii) prior to

⁷⁴ Climate adaptation might include land policy reform to avoid land degradation; water storage and management; irrigation systems; flow regulators along rivers; tide and storm surge barriers

⁷⁵ Uri Dadush & Mona Niebuhr, *The Economic Impact of Forced Migration*, CARNEGIE ENDOWMENT FOR INTERNATIONAL PEACE (April 22, 2016), <https://carnegieendowment.org/2016/04/22/economic-impact-of-forced-migration-pub-63421>.

⁷⁶ *Id.*

⁷⁷ Graham R. Davidson & Stuart C. Carr, *Forced Migration, Social Exclusion and Poverty: Introduction*, <https://journals.sagepub.com/doi/pdf/10.1375/prp.4.1.1>.

⁷⁸ Julia Nielson & Daria Taglioni, *A quick guide to the GATS*, at 10 OECD (Nov. 12, 2003) https://www.iom.int/sites/g/files/tmzbd1486/files/2018-07/quick_guide.pdf.

⁷⁹ *Id.* at 9–10.

immigrating, they must have a job in the destination country;⁸⁰ (iii) the duration of their stay may not be permanent;⁸¹ and finally, (iv) they may emigrate only to provide services.⁸²

Problematically, however, the United States, European Union, China, and Japan,⁸³ despite enjoying the largest economies in the world, have very few Mode 4 commitments. The United States, for example, in its horizontal commitments, is “[u]nbound, except for” the following limited categories: (A) qualified services salespersons can enter for ninety days⁸⁴; (B) intra-corporate transferees provided they are (i) managers, (ii) executives or (iii) specialists, can emigrate for three years with the option to extend for an additional two years⁸⁵; (C) fashion models are allowed to enter for three years but with no option to extend⁸⁶; and lastly, (D) specialty occupations, “requiring theoretical and practical application of highly specialized knowledge,” may also emigrate for three years.⁸⁷

The European Union remains unbound except for (A) intra-corporate transferees working in a senior position within a juridical person; (B) persons working for a juridical person having uncommon knowledge essential to the establishment’s services; and (C) salespersons not engaged in making direct sales to the general public.⁸⁸ The European Union grants its member states the autonomy to define “temporary.”⁸⁹ China’s is unbound except for (A) managers, executives, and specialists for one year and extendable to up to five years;⁹⁰ as well as (B) service salespersons for ninety days.⁹¹ Japan, too, is unbound except for (A) foreign persons employed by a juridical person of a member state other than Japan, but for no longer than five years;⁹² and (B) persons staying in Japan for the purpose of participating in business negotiations for the sale of services or for establishing a commercial presence in Japan can stay for up to ninety days.⁹³

While commitments under Mode 4 are governed by the overarching rules of the GATS, countries are given broad leeway on how to liberalize their GATS commitments. By inserting in the Mode 4 exceptions list an additional exception for prospective migrants

⁸⁰ See *Annex On Movement Of Natural Persons Supplying Services Under The Agreement*, GENERAL AGREEMENT ON TRADE IN SERVICES, ¶ 2.

⁸¹ *Id.*

⁸² *Id.* at ¶ 3.

⁸³ Caleb Silver & Erika Rasure, *The Top 25 Economies in the World*, INVESTOPEDIA (Feb. 3, 2022), <https://www.investopedia.com/insights/worlds-top-economies/>.

⁸⁴ See *The United States of America Schedule of Specific Commitments*, GENERAL AGREEMENT ON TRADE IN SERVICES (April 15, 1994), <https://docs.wto.org/dol2fe/Pages/SS/directdoc.aspx?filename=Q:/SCHD/GATS-SC/SC90.pdf&Open=True>.

⁸⁵ See *id.*

⁸⁶ See *id.*

⁸⁷ See *id.*

⁸⁸ See *European Union Schedule of Specific Commitments*, GENERAL AGREEMENT ON TRADE IN SERVICES (April 15, 1994) [https://docs.wto.org/dol2fe/Pages/FE_Search/FE_S_S006.aspx?Query=\(@Symbol=%20gats/sc/*\)%20and%20\(%20@Title=%20european%20communities%20or%20european%20union%20\)%20or%20\(@CountryConcerned=%20european%20communities%20or%20european%20union\)\)&Language=ENGLISH&Context=FomerScriptedSearch&languageUIChanged=true#](https://docs.wto.org/dol2fe/Pages/FE_Search/FE_S_S006.aspx?Query=(@Symbol=%20gats/sc/*)%20and%20(%20@Title=%20european%20communities%20or%20european%20union%20)%20or%20(@CountryConcerned=%20european%20communities%20or%20european%20union))&Language=ENGLISH&Context=FomerScriptedSearch&languageUIChanged=true#).

⁸⁹ *Id.* at 7.

⁹⁰ See *The People’s Republic of China Schedule of Specific Commitments*, GENERAL AGREEMENT ON TRADE IN SERVICES (April 15, 1994), <https://docs.wto.org/dol2fe/Pages/SS/directdoc.aspx?filename=Q:/SCHD/GATS-SC/SC19.pdf&Open=True>.

⁹¹ See *id.*

⁹² See *Japan Schedule of Specific Commitments*, WORLD TRADE ORGANIZATION 1–4 (Feb. 14, 2002), <https://docs.wto.org/dol2fe/Pages/SS/directdoc.aspx?filename=Q:/SCHD/GATS-SC/SC46.pdf&Open=True>.

⁹³ See *id.*

whose regions are suffering from depleted resources, Mode 4 can be an efficient way to accommodate climate migrants. This way, developed countries will help relocate inhabitants of crowded, depleted regions to expansive resource-rich areas. Not only are many developed countries the cause of global warming,⁹⁴ but some developed countries might benefit from the warming of their northern territories. Canada and Russia, for example, can benefit from their arid northern land becoming farmable.⁹⁵ These countries, arguably, have a unique responsibility to liberalize their Mode 4 commitments to allow inhabitants of depleted regions to provide services in their newly inhabitable lands.

Under the current rules of the GATS, Member commitments may not allow migrants to enter foreign countries for permanent residency.⁹⁶ But while the commitments must be temporary, WTO Members are free to interpret the term “temporary” as they wish and to set varying definitions for different categories of service providers.⁹⁷ For most countries, the timeframe of temporary under Mode 4 varies between ninety days and five years depending on the category of service supplier;⁹⁸ however, they can be extended, should a country allow it. Given this leeway, member states can extend their commitment long enough to accommodate climate migrants if the migrants will face increasingly worse climate conditions upon returning to their source country. This can be structured initially by allowing residents to stay in the destination country for longer than the standard three to five years, or by enabling the migrants to renew their Mode 4 permission to emigrate after their term has ended – at least until the migrants can relocate to a resource-rich region for good.

Traditionally, the GATS liberalizes the transfer of services and service suppliers as opposed agriculture and manufacturing.⁹⁹ However, services incidental to agriculture or services incidental to manufacturing are ambiguous as to whether they may constitute the supply of a service covered by the GATS or agriculture or manufacturing, which fall outside of the GATS.¹⁰⁰ Fruit pickers, for example, can be viewed as temporary agricultural laborers or as suppliers of fruit-picking services.¹⁰¹ Similarly, manufacturing is usually construed to be referencing a factory in which the manufacturer owns the inputs and outputs – say, for example, the fabric used to sew shirts.¹⁰² What is unclear is a scenario where the factory does not own the fabric used, but rather is tasked by fee or contract to turn material into shirts.¹⁰³ An argument exists for such manufacturing services to be governed as a regular manufacturer, independent of the GATS or like services – to be controlled by the GATS. To accommodate climate migrants, countries should construe

⁹⁴ By Nadja Popovich and Brad Plumer, *Who Has The Most Historical Responsibility for Climate Change?*, NEW YORK TIMES, [HTTPS://WWW.NYTIMES.COM/INTERACTIVE/2021/11/12/CLIMATE/COP26-EMISSIONS-COMPENSATION.HTML](https://www.nytimes.com/interactive/2021/11/12/climate/cop26-emissions-compensation.html)

⁹⁵ Emily Chung, *Canada could be a huge climate change winner when it comes to farmland*, CBC NEWS (Feb. 12, 2020), [HTTPS://WWW.CBC.CA/NEWS/SCIENCE/CLIMATE-CHANGE-FARMING-1.5461275](https://www.cbc.ca/news/science/climate-change-farming-1.5461275); Abrahm Lustgarten, *How Russia Wins the Climate Crisis*, THE NEW YORK TIMES, [HTTPS://WWW.NYTIMES.COM/INTERACTIVE/2020/12/16/MAGAZINE/RUSSIA-CLIMATE-MIGRATION-CRISIS.HTML](https://www.nytimes.com/interactive/2020/12/16/magazine/russia-climate-migration-crisis.html).

⁹⁶ See *Annex On Movement Of Natural Persons Supplying Services Under The Agreement*, GENERAL AGREEMENT ON TRADE IN SERVICES, ¶ 2.

⁹⁷ Julia Nielson and Daria Taglioni, *A Quick Guide To The Gats And Mode 4*, at 6 OECD, [HTTPS://WWW.IOM.INT/SITES/G/FILES/TMZBDL486/FILES/2018-07/QUICK_GUIDE.PDF](https://www.iom.int/sites/g/files/tmzbdl486/files/2018-07/quick_guide.pdf).

⁹⁸ *Id.* at 7.

⁹⁹ *Id.* at 8.

¹⁰⁰ *Id.*

¹⁰¹ *Id.*

¹⁰² *Id.*

¹⁰³ *Id.*

service suppliers, at least with respect to climate migrants, broadly to include these ambiguous categories.¹⁰⁴

B. Incentivizing countries to liberalize their GATS, Mode 4.

Key to solving climate migration is incentivizing governments to liberalize their Mode 4 to climate migrants. Problematically, developed countries are primarily interested in allowing high-skilled service providers under Mode 4.¹⁰⁵ Intra-corporate transferees account for 43% – the largest share of commitments in Mode 4.¹⁰⁶ This is closely followed by business visitors making up 24% of commitments and the category of executives, managers, and specialists setting up commercial presence equaling 25% of commitments made.¹⁰⁷ Moreover, often developing countries will agree to allow Mode 4 migrants into their country conditioned upon the source country investing resources into the destination country under Mode 3.¹⁰⁸ In fact, over 60% of Mode 4 commitments are conditioned on the commercial presence of a foreign service supplier.¹⁰⁹

LDCs – many of whom will suffer the most from climate migration – will need the GATS to transfer low skilled service providers to resource-rich countries.¹¹⁰ This is unusual under Mode 4 because governments do not often liberalize their GATS to low skilled workers, and LDCs cannot usually afford Mode 3 investments. Because this system intrinsically discriminates against LDCs, under the principles of the UNFCCC granting special considerations to LDCs,¹¹¹ the international community must consider methods to incentivize countries to liberalize Mode 4 to low skilled workers without relying on Mode 3 investments.¹¹² One way to incentivize countries to liberalize their GATS without receiving investment under Mode 3, is for the international community to offer carbon credits to countries if they create an exception to their “unbound” GATS commitments for climate migrants, and in addition, construe the terms “temporary” and “services” broadly.

Apart from value granted under Mode 3, or carbon credits, allowing migrants to enter under Mode 4 will help the receiving country’s economy. Far from usurping jobs from natives, immigrants form businesses at double the rate than their domestic counterparts;¹¹³ thus, creating more job opportunities in the destination country. In addition, immigrants tend to complement the destination country’s labor force rather than compete.¹¹⁴ For example, low-cost immigrant childcare can give women in the domestic country the freedom to enter the workforce.¹¹⁵ In this manner, integrating immigrants into the

¹⁰⁴ *Id.*

¹⁰⁵ *Id.* at 16.

¹⁰⁶ Marion Panizzon, Trade and Labor Migration: GATS Mode 4 and Migration Agreements, *DIALOGUE ON GLOBALIZATION* 16 (Jan. 2010), <https://www.wti.org/research/publications/8/trade-and-labor-migration-gats-mode-4-and-migration-agreements/>.

¹⁰⁷ *Id.*

¹⁰⁸ *Id.* 17.

¹⁰⁹ *Id.*

¹¹⁰ *See gen. id.*

¹¹¹ *See supra* p. 5.

¹¹² *Id.*

¹¹³ Robert W. Fairlie, *Immigrant Entrepreneurs and Small Business Owners, and their Access to Financial Capital*, SBA 3 (May, 2012), <https://www.sba.gov/sites/default/files/rs396tot.pdf>.

¹¹⁴ Scott A. Wolla, The Economics of Immigration: A Story of Substitutes and Complements FEDERAL RESERVE BANK OF ST. LOUIS (May 2014), <https://research.stlouisfed.org/publications/page1-econ/2014/05/01/the-economics-of-immigration-a-story-of-substitutes-and-complements/>.

¹¹⁵ *Id.*

economy allows for domestic women to increase their economic prowess. Another scenario, for example, is immigrants filling low-skilled construction jobs.¹¹⁶ This demographic can lower the cost of building homes, and thereby, presumably increase the number of homes being built. It might follow from this phenomenon an increase in the need for high-skilled workers such as plumbers, contractors and electricians.¹¹⁷ Many recognize this sort of economic migration to be crucial as it ensures a demographic to supplement the receiving country's potential labor shortages.¹¹⁸ Countries concerned that migrants might usurp jobs from natives can implement wage parity laws to ensure that employers are not incentivized to hire immigrants. Such a legal regime can ensure that employers will hire immigrants as a result of a need for additional labor rather than from undercutting the salary of domestic employees.

C. Limiting the migratory flow under the GATS.

In their commitments, countries can limit the number of migrants that can enter under the exclusions to their “unbound” Mode 4. The United States, for example, allows for up to 65,000 fashion models and specialty occupations per year.¹¹⁹ This way, under the GATS itself, countries can govern the flow of migrants. In addition, even should a nation commit to a number of exclusions to their “unbound” Mode 4, that does not imply that prospective migrants may enter unilaterally. For Mode 4 to be accessible, countries must also align their immigration policies to allow economic migrants to enter.¹²⁰ This can be done by directing domestic immigration law and controlling which applicants may receive a visa.¹²¹ There are no multilateral harmonized visa requirements; thus, countries can regulate economic migration independent of their GATS Mode 4 commitments. While traditionally, the mismatch between visa and service provider categories is thought of as to disincentivize Mode 4 commitments,¹²² in the context of climate migration, the freedom for precise regulatory control may be of net benefit. Should a country place a blanket exception to climate migrants, it would likely see millions of migrants pour in, provided that such migrants would otherwise satisfy the requirements of the GATS. In addition, not all regions will suffer the same from global warming – nor at the same time.¹²³ Using the regulatory effect of visa requirements, countries can ensure that they are not overwhelmed by migrants and that regions that are affected the worst by climate change – be it from “sudden” onset events or “slow” onset events – can receive help by allowing the region's residents to emigrate for employment.

¹¹⁶ *Id.*

¹¹⁷ *Id.*

¹¹⁸ Dan Kosten, *Immigrants as Economic Contributors: Immigrants Fill the Temporary Needs of American Employers*, NATIONAL IMMIGRATION FORUM, <https://immigrationforum.org/article/immigrants-as-economic-contributors-immigrants-fill-the-temporary-needs-of-american-employers/>.

¹¹⁹ See *The United States of America Schedule of Specific Commitments*, GENERAL AGREEMENT ON TRADE IN SERVICES (April 15, 1994) (specifying additional requirements to be eligible under services

¹²⁰ Marion Panizzon, *Trade and Labor Migration: GATS Mode 4 and Migration Agreements*, DIALOGUE ON GLOBALIZATION 29 (Jan. 2010), <https://www.wti.org/research/publications/8/trade-and-labor-migration-gats-mode-4-and-migration-agreements/>.

¹²¹ *Id.*

¹²² *Id.*

¹²³ *International Climate Impacts*, EPA, https://19january2017snapshot.epa.gov/climate-impacts/international-climate-impacts_.html.

IV. CONCLUSION

The international community is hesitant to take measures to solve the impending migratory crisis. Such hesitancy runs the risk of neglecting to protect inhabitants of vulnerable regions from the deleterious effects of climate change. Traditional analysis of the climate migration crisis places incorrect emphasis on a refugee crisis rather than an economic crisis. While both occur, waiting until residents become refugees ignores their extreme poverty leading up to migration. The WTO’s mission is to stabilize and strengthen economies through trade, and the organization has a trade tool, GATS Mode 4, that can ameliorate the climate migration crisis. Given that the climate-caused refugee crisis first begins with an economic crisis, by allowing migrants to emigrate for job opportunities in resource-rich countries, the international community can avert the climate migration crisis. Most developed countries have meager Mode 4 commitments, and the WTO has recommended that such countries further liberalize their obligations. Given the impending migration crisis, now is the time for nations to take the next step – to strengthen their own economies by opening their labor force to economic migrants suffering from climate change.

CHAPTER 22: TECHNOLOGY TRANSFER AND COOPERATION IN THE STEEL SECTOR

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I. INTRODUCTION

Steel undergirds the fabric of modern society. From its use in infrastructure and transport to machinery and consumer goods, steel remains unparalleled as a manufacturing input,¹ serving also as a critical material for technologies that are key to tackling climate change.

With the global demand for steel projected to increase by more than a third through to 2050,² sporadic and incremental technological improvements to the steel production process is insufficient for the sector to meet its target of net-zero emissions by 2050. Instead, measures targeted at technology development and sharing on a larger scale are needed, and action within this decade is imperative if countries are to also achieve the global target of limiting global warming to 1.5 degrees Celsius under the Paris Agreement. Decarbonizing the steel sector requires the concerted efforts of steel producers and stakeholders across the entire steel value chain, for breakthrough technologies to be deployed commercially in a business environment conducive to such green technologies.

This paper begins by examining the current technologies in steelmaking and their decarbonization options to facilitate the sector's transition to net-zero steel. The next section puts forth proposals aimed at bolstering technology sharing and innovation in the steel sector. The final section explores the landscape of certification schemes and their corresponding standards that may be adapted to certification of green steel.

II. TECHNOLOGY IN THE STEEL SECTOR

A. *Why Focus on Steel Now?*

One of the most widely traded commodities in the world, steel forms the lifeblood of many economies in a multi-trillion-dollar industry that employs roughly 6 million people across the globe, further supporting an estimated 43 million additional jobs in other sectors.³ Steel is also produced all over the world, with 25% of its annual production volume traded across the globe each year.⁴ Approximately half of the global steel production occurs in China, with new investments underway.⁵

More importantly, steel is integral to a low-carbon economy: It is a key ingredient to decarbonization technologies such as wind turbines and electric vehicles, with the

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¹ Steel's high strength, recyclability and durability, the ease with which it can be used to manufacture goods, and its relatively low cost make its wholesale substitution unlikely in the foreseeable future. International Energy Agency, *Iron and Steel Technology Roadmap* (October 2020), <https://www.iea.org/reports/iron-and-steel-technology-roadmap>.

² *Id.*

³ International Energy Agency (IEA), *Iron and Steel Technology Roadmap* (October 2020), <https://www.iea.org/reports/iron-and-steel-technology-roadmap>, at 21-23 [hereinafter "IEA"].

⁴ IEA, at 22.

⁵ IEA, at 23.

potential to unlock decarbonization in other critical sectors.⁶ But while a facilitator to climate change solutions, steel is itself a major polluting industry – the sector is responsible for direct carbon dioxide (CO₂) emissions of approximately 2.6 gigatons (Gt) per year, making it the largest emitter among heavy industries, alongside the ranks of concrete and aluminum. Further, as the largest industrial consumer of coal, a core ingredient in the production of steel from iron ore, steel is responsible for 7% of the global total emissions.⁷ Put into perspective, emissions from the steel sector is greater than the total emissions for India, and exceeds that from all road freight.⁸

Although referred to as a “hard-to-abate” sector, the impediments to the steel sector’s transition to net-zero emissions are not insurmountable. However, progress in this decade is imperative: the long investment cycles of steel plants of 10 to 15 years require that investments in new or existing plants beginning 2030 be compatible with a net-zero 2050 objective to avoid stranding these assets.⁹ Moreover, recent studies indicate that approximately 14% of steel companies’ potential value is at risk if they are unable to reduce their environmental impact.¹⁰ Consequently, decarbonization should be of utmost priority for companies seeking to remain economically competitive among their peers in the steel sector.¹¹

B. Current Technologies in Steelmaking

Current technologies in steelmaking require the principal inputs of iron ore, energy (mainly coal, natural gas and electricity), limestone and steel scrap.¹² Of these, iron ore and steel scrap provide the metallic inputs necessary for steel production, with 1.05-1.2 tons of metallic input required per ton of steel.

Steel production can be largely distinguished between “primary” steel production (using iron ore as its main source of metallic input) and “secondary” production (which relies on steel scrap).¹³ Collectively, primary and secondary steel production were responsible for approximately 2.6 gigatons of carbon dioxide (Gt CO₂) in 2020, equivalent to roughly 7% of global total emissions.¹⁴

Today, steel production is dominated by three main production routes:

1. Blast Furnace-Basic Oxygen Furnace (BF-BOF)

Coke and iron ore are fed into the blast furnace and reduced to molten iron, which is subsequently refined to crude steel in the basic oxygen furnace. This accounts for about 70% of global steel production and roughly 90% of primary production,¹⁵ emitting an average of 2.3 tons of CO₂ per ton of crude steel.¹⁶

⁶ Mission Possible Partnership, Net-Zero Steel Sector Transition Strategy (October 2021), at 10 [hereinafter “MPP”].

⁷ IEA.

⁸ IEA.

⁹ MPP, at 6.

¹⁰ McKinsey, Decarbonization Challenge for Steel: Hydrogen as a Solution in Europe (April 2020).

¹¹ Id.

¹² IEA.

¹³ Note however that this distinction may be less clear-cut in many instances since scrap is often used in primary production and iron is commonly used in secondary production. IEA, at 25.

¹⁴ MPP, at 10. See also, IEA, 17-18.

¹⁵ IEA, at 29.

¹⁶ MPP, at 11.

2. Electric Arc Furnace (EAF)

Electricity is used to melt scrap steel, though other sources of metallic iron such as direct reduced iron or hot metal can also be used. This accounts for 25% of global steel production, emitting an average of 0.6 tons of CO₂ per ton of crude steel (though emissions are highly dependent on the carbon intensity of the electricity supply).¹⁷

3. Direct Reduced Iron-Electric Arc Furnace (DRI-EAF)

Iron ore is reduced in a solid state using a reducing gas (usually hydrogen and carbon monoxide derived from natural gas). The end product, direct reduced iron (DRI), is mainly used as feedstock in an EAF.¹⁸ This accounts for around 5% of global steel production, emitting an average of 1.4 tons of CO₂ per ton of crude steel when natural gas is used.¹⁹

In addition to the three main production routes above which make up 95% of global steel production, three other process units are also in use today, albeit with “very limited penetration”: (i) Smelting Reduction (an alternative process for ironmaking that avoids the use of a coke oven or coking coal); (ii) Open-Hearth Furnace (an outdated alternative to the BOF, phased out due to its inferior energy performance); and (iii) Induction Furnaces (increasing in recent years, often used to produce special alloys).²⁰

As these technologies draw on different input resources that vary in their abundance across regions, their respective uptake and consequent decarbonization pathways by steel producers will also vary across the globe. For instance, the decarbonization pathway for steel producers in the United States, which largely adopt EAF using scrap steel, will be different from that of European and Chinese producers which predominantly produce steel through the BF-BOF route. In contrast, producers in regions such as the Middle East, with abundant and low-cost natural gas, may find themselves more suited to DRI-EAF technology.

C. Decarbonization Options in Steelmaking

A panoply of decarbonization options and strategies exists for steel producers, including (i) technology performance improvements within conventional routes (*viz.* BF-BOF, EAF and DRI-EAF); (ii) demand reduction through material efficiency; (iii) Carbon Capture, Usage and Storage (CCUS); and (iv) fuel shifts away from coal towards natural gas, hydrogen and bioenergy.²¹

Reliance on one single technology or mitigation lever alone is insufficient. For example, while steel scrap will play a more central role both as an input to secondary steelmaking (a process involving electricity that will decarbonize as the power sector decarbonizes) and primary steelmaking to aid in lowering the emissions intensity of production, not all steel demand can be met by recycling scrap owing to scrap supply limitation as well as industry needs in regards to the purity content of steel that may not be achieved through scrap-based EAF.²²

¹⁷ MPP, at 11.

¹⁸ MPP, at 11. See also, IEA, at 29, for a description of the principal differences between BF-BOF and DRI-EAF routes.

¹⁹ MPP, at 11.

²⁰ IEA, 29-30.

²¹ IEA, at 75. See also, Zhiyuan Fan and S. Julio Friedmann, *Low-Carbon Production of Iron and Steel: Technology Options, Economic Assessment, and Policy* (April 21, 2021), *Joule* 5, 829–862.

²² MPP, at 6.

In addition, the relative importance of the various levers evolves over time. A projection by the IEA (2020) found that in the short term, the combined effects of technology performance improvements within conventional routes and demand reduction through material efficiency accounted for 90% of sectoral emission reductions annually, whereas in the medium to long term, CCUS and fuel shifts play a greater role.²³

More importantly, different technologies will be cost-competitive in different regions. Just as most existing primary steelmaking is situated in locations with access to coal mines, iron ore deposits, and water and rail transport infrastructure, steel producers may find themselves gravitating towards new locations with access to low-cost zero-carbon electricity, CCUS infrastructure and sequestration sites, and competitively priced natural gas.²⁴

Thus, in order to achieve decarbonization in the steel sector, deep transformation is essential where current technologies provide only mitigation potential.²⁵ To effectively remove emissions, breakthrough steelmaking technologies that utilize zero-carbon electricity, zero-carbon hydrogen, or carbon capture technologies are essential. Further, residual emissions that cannot be abated through technology developments will also need to be addressed through offsetting via carbon removal technologies such as direct air carbon capture, where the cost of purchasing or producing these offsets – estimated at an additional \$70 billion annually from 2050 – is likely to fall on the steel producers themselves.²⁶

Steel producers representing 20% of global primary production capacity have since committed to ambitious emissions reduction goals, which have in turn spurred projects towards breakthrough low carbon steelmaking technologies. As of June 2021, at least 25 such projects have been publicly announced.²⁷ Notably, the transition to hydrogen-based steelmaking as a replacement for the current BF-BOF route features as a promising key production technology, though a complete transition to a pure hydrogen-based steel production is not needed to meet the target of a carbon-neutral steel industry.

Among the deep carbonization literature on steel, seven steel decarbonization strategies and outlooks are of note:²⁸

²³ IEA, at 75.

²⁴ MPP, at 7.

²⁵ Lukas Hermwille et al, A Climate Club to Decarbonize the Global Steel Industry (May 23, 2022), <https://doi.org/10.1038/s41558-022-01383-9>.

²⁶ MPP, at 29.

²⁷ MPP, at 12. See Green Steel Tracker, <https://www.industrytransition.org/green-steel-tracker/>.

²⁸ McKinsey, Tackling the Challenge of Decarbonizing Steelmaking (2021).

	Strategy	Examples	Current Outlook
Basic oxygen furnace (BOF)	Make efficiency improvements to optimize BF–BOF operations	Optimized BOF inputs (DRI, scrap), increased fuel injection in BF (e.g., hydrogen, PCI)	Technology readily available at competitive cost
Biomass reductants	Use biomass as an alternative reductant or fuel	Tecnored process	Process possible in Latin America and Russia, due to biomass availability
Carbon capture and usage (CCU)	Capture fossil fuels and emissions, and create new products	Bioethanol production from CO ₂ emissions	Currently at a pivot stage
Carbon capture and storage (CCS)	Capture and store CO ₂ from steelmaking process and release or inject them as fuel in another process	CO ₂ captured from iron-making process injected into oil fields to enhance recovery	Technology readily available at competitive cost
Electric arc furnace (EAF)	Maximize secondary flows and recycling by melting more scrap in EAF	EAF usage to melt scrap	Technology readily available
DRI plus EAF using natural gas	Increase usage of DRI in EAF	Current DRI plus EAF plants using natural gas (NG)	
DRI plus EAF using H₂	Replace fossil fuels in DRI process with renewable energy or H ₂	MIDREX DRI process running on H ₂	

With the majority of these projects concentrated in the Global North, a key challenge for the steel sector will thus be the diffusion of such green steel technologies across the globe to those producers in emerging and developing economies, which correspond geographically to the bulk of the future demand for green steel.²⁹

III. PROPOSALS TO BOLSTER TECHNOLOGY SHARING AND INNOVATION IN THE STEEL SECTOR

The transition to net-zero steel cannot be achieved by a single steel firm alone.³⁰ Commercial-scale deployment of new and breakthrough technologies “requires a strong business case for investment, which calls for collaboration across the steel value chain, as well as supportive finance and policy environments.”³¹

This section puts forth three main proposals aimed at bolstering the sharing and development of steel technologies necessary for the sector to transition to net-zero steel,

²⁹ Hermwille et al (2022).

³⁰ Baowu Vice General Manager Hou Angui. Reuters, Top Steel Firm China Baowu Unveils Global Alliance to Cut Emissions (November 18, 2021), <https://www.reuters.com/business/sustainable-business/top-steel-firm-china-baowu-unveils-global-alliance-emissions-effort-2021-11-18/>.

³¹ MPP, at 13.

namely: (i) A green steel club for technology sharing; (ii) Public-private partnerships to facilitate green steel technologies; and (iii) Public procurement of green steel to secure demand and thereby drive the development of green steel technologies.

A. A Green Steel Club for Technology Sharing

The steel sector is primed for the induction into a sectoral-based climate club. Germany has put a climate club on the agenda of its G7 Presidency in 2022, with steel identified as a pilot sector.³² Notably, the United States and European Union have agreed to embark on negotiations for “arrangements to restore market-oriented conditions and address carbon intensity” for the aluminum and steel industry.³³

In the context of technology sharing and innovation, such a green steel club would be driven by firms in the steel sector, with the club serving as an international intellectual property (IP) sharing platform that addresses technological uncertainty by coordinating global developments in technology.

Importantly, the club could function as a patent pool with a membership of like-minded steel firms working towards the common climate goal of transitioning to green steel production. Steel firms intending to join the club would be required to license into the pool all patents covering technology of use in the industry, as well as any unpatented technical information that may be needed to assist in the adoption of the relevant green technology. Pool members are then permitted to use any of the pooled technology, which may be at a royalty rate to be agreed upon by the pool committee or through a formal arbitration process under the aegis of the pool, which procedures may be set out in the contract for the creation of the pool.³⁴ A governance structure, weighted to reflect the licensed technologies of the pool members, could also be incorporated into the patent pool.³⁵ More specifically, technologies licensed into the pool may be divided into a number of broad classes, with royalties calibrated to reflect the significance of the technology being licensed.³⁶ Royalties collected may be retained by the respective licensors, on condition that these be channeled into the research and development of green steel technologies.

In the context of the steel sector, this may mean that producers of dirty steel (largely operating in developing and emerging economies) would be able to license basic green steel technology at a relatively low (or no) cost to enable them to take the first step to transitioning to green steelmaking (in some instances, this may require the complete shutting down of dirty steel mills for which no amount of retrofitting with carbon capture technology will aid in the decarbonization of the plant). Following which, these producers may then move up the classes to license more sophisticated green steel technology and be charged the corresponding royalty fees accordingly.

Among green steel producers at the forefront of steelmaking technologies, cross-licensing of green steel technologies through the club/ pool will further boost collaboration between these leaders and speed up the development of new and

³² BMF, AA, BMWi & BMZ, *Steps Towards an Alliance for Climate, Competitiveness and Industry – Building Blocks of a Cooperative and Open Climate Club* (August 2021), https://www.bundesfinanzministerium.de/Content/EN/Downloads/Climate-Action/key-issues-paper-international-climate-club.pdf?__blob=publicationFile&v=4.

³³ U.S.-EU Joint Statement on Steel and Aluminum (October 31, 2021), <https://ustr.gov/sites/default/files/files/Statements/US-EU%20Joint%20Deal%20Statement.pdf>.

³⁴ This follows the patent pools in the automobile and aircraft industries. Robert P. Merges, *Institutions for Intellectual Property Transactions: The Case of Patent Pools* (1999), 19-20.

³⁵ Merges (1999), at 21.

³⁶ Merges (1999), 17-18.

breakthrough technologies that are needed for the sector's transition to net-zero steel. Cross-licensing may be royalty-free for technologies within the same class; otherwise, the difference in royalty should be payable accordingly.

In addition, the club should also establish synergies with other industry-led initiatives, including the recently launched Global Low-Carbon Metallurgical Innovation Alliance (GLCMIA).³⁷ An initiative that brings stakeholders across the value chain – upstream, midstream and downstream – to examine the technologies most efficient and needed to support decarbonization of the steel sector and to promote the industrialization of low-carbon techniques,³⁸ insights gleaned from the work of the GLCMIA may inform the classes of technologies licensed into the pool as well as the technologies which licensing should be encouraged for their efficiency in supporting the decarbonization of the steel sector.

It should be noted that the formation of such a club may be subject to antitrust/ anti-competitive reviews. To this end, the structuring of the internal dynamics and administration of the pool membership may be instructive, following the experience of the aircraft industry patent pool and its creation under the aegis of the Manufacturers Aircraft Association.³⁹

B. Public-Private Partnerships to Facilitate Green Steel Technologies

In complement to the green steel club, public-private partnerships between governments and steel companies forming the membership of the club could facilitate the sharing of investment risks while managing access to intellectual property rights of green steel technologies.⁴⁰

1. Sharing of Investment Risks

Since decarbonized steel production neither lowers production costs nor raises product quality, there is little incentive for related investments.⁴¹ Indeed, fast and deep emissions reductions in the steel sector are unlikely to be driven by economics alone – an early transition to green steel technologies will raise investment costs and the cost of steelmaking in the short term.⁴² Instead, investors are motivated by “the opportunity to capture incipient green steel markets and avoid stranded assets in anticipation of more stringent climate policy.”⁴³ To this end, strong policy interventions and supply chain coordination are crucial in supporting the business case for the transition to green steel technologies in this decade and the next.⁴⁴

Drawing on the successful model of the UK Carbon Trust's Offshore Wind Accelerator, public-private partnerships in the steel sector could similarly be supported by

³⁷ The Global Low-Carbon Metallurgical Innovation Alliance, set up by China Baowu Steel Group, counts as its members more than 60 companies. Reuters, *Top Steel Firm China Baowu Unveils Global Alliance to Cut Emissions* (November 18, 2021), <https://www.reuters.com/business/sustainable-business/top-steel-firm-china-baowu-unveils-global-alliance-emissions-effort-2021-11-18/>.

³⁸ China.org.cn, *Metallurgical Innovation Alliance Formed in Shanghai* (November 19, 2021), http://www.china.org.cn/business/2021-11/19/content_77880959.htm.

³⁹ Merges (1999), 20-21.

⁴⁰ Hermwille et al (2022).

⁴¹ Id.

⁴² MPP, at 3.

⁴³ Lukas Hermwille, *Governing Climate Ambition Increase Through A Sectoral Club of Governments and Industries* (December 17, 2019), <https://www.iddri.org/en/publications-and-events/blog-post/governing-climate-ambition-increase-through-sectoral-club>.

⁴⁴ MPP, at 24.

a combination of coordinated government policy and strong collaboration among partners.

As regards government policy, Contracts for Difference (CfDs) have proven to be instrumental in facilitating low-carbon technology innovation in offshore wind, among other green technologies, and are now central to many emerging business models for various industries and technologies, including CCUS and low carbon hydrogen.⁴⁵ Notably, CfDs incentivize investments in green technologies by providing project developers facing high upfront costs with direct protection from volatile wholesale prices, while also protecting consumers from increased support costs when prices for the renewable energy are high.⁴⁶ Through this bridging of the ‘green premium’, governments signal a strong commitment to renewable energy and green hydrogen production in support of the steel sector’s decarbonization, lending a measure of certainty and confidence to private investors that may be looking to invest in green steel technologies.

2. Managing Access to Intellectual Property Rights of Green Steel Technologies

Public-private partnerships (PPPs) have also emerged as significant institutions in the facilitation of green technologies diffusion. Their proponents contend that PPPs are “a more potent technology transfer strategy” where they can be “more rapidly implemented on a broad scale than can IPR solutions” and “comprehensively address non-IPR barriers to technology transfer.”⁴⁷ Notably, the success of PPPs hinge on minimizing transaction costs, strengthening assurance mechanisms, and maximizing public trust and accountability of partnerships.⁴⁸

Drawing on the example of the US-China Clean Research Energy Center (CERC), the CERC’s approach to IPRs may be replicated in PPPs between members of the green steel club and governments. In particular, the CERC’s inclusion of a joint Technology Management Plan to further detail the specific IP arrangements in each area of cooperation was hailed by some as a model for IP management that could be applied to a broader range of IP-focused collaborative ventures, including but not limited to China, and which could potentially be integrated into the Paris Agreement to facilitate low-carbon technology transfer and cooperation.⁴⁹

In the context of the steel sector, a similar IP framework could be adopted in bilateral or multilateral initiatives between industrialized countries (such as the United States and the European Union) and emerging economies that house dirty steel mills, including China and India. Research partners would be able to share information and retain rights for new technologies created by them. The framework would detail how IP may be shared or licensed in each country and how IP terms and conditions would be negotiated. In the event of collaborative research activities, joint IP ownership is envisaged. Further, should

⁴⁵ Low Carbon Contracts Company, *LCCC’s Growing Net Zero Support*, <https://www.lowcarboncontracts.uk/new-schemes>.

⁴⁶ UK Department for Business, Energy & Industrial Strategy, *Policy Paper: Contracts for Difference* (updated May 13, 2022), <https://www.gov.uk/government/publications/contracts-for-difference/contract-for-difference>.

⁴⁷ Van Smith, *Enabling Environments Or Enabling Discord: Intellectual Property Rights, Public-Private Partnerships, And The Quest For Green Technology Transfer*, 42 *Georgetown Journal of International Law* 817 (2011).

⁴⁸ Tim Forsyth, *Enhancing Climate Technology Transfer through Greater Public-Private Cooperation: Lessons from Thailand and the Philippines*, 29 *Natural Resource Forum* 165 (2005).

⁴⁹ See Joanna Lewis, *A Better Approach to Intellectual Property?: Lessons from the US-China Clean Energy Research Center* (June 9, 2015), www.paulsoninstitute.org/wp-content/uploads/2015/06/PPEE_US-China-Coop-in-Cleantech-IP_English.pdf.

IP be created in a jointly funded research project, the project's participants in both countries have the right to obtain a non-exclusive license to the IP.⁵⁰

C. Public Procurement of Green Steel

Although steel producers are making significant investments in efficiency improvements and breakthrough technologies, further strategic funding, particularly at the later stages of commercial readiness, is needed in order for the sector to make the last leap in its target of net-zero emissions by 2050.⁵¹ In addition, while early investment in commercial-scale plants can accelerate the adoption of new technologies, the high cost of capital and technology and market risks skew the project economics away from such investments.⁵²

Green steel public procurement strategies are thus instrumental in seeding and bolstering the development of early markets. By mandating or preferentially purchasing steel on the basis of carbon-related criteria, governments share in the risks of such investments and in turn drive the development of green steel technologies. Further, collaboration for the sharing and alignment of practices across national governments, local authorities, and public agencies could help aggregate demand and signal a strong commitment to green steel and the transition to green steelmaking.

Insofar as the conditions of open, fair and transparent competition are adhered to in procurements by countries that are signatories to the plurilateral Agreement on Government Procurement (GPA) 2012, countries such as the United States and European Union (which are parties to the GPA) are able to lead the pack in driving demand for green steel through clear procurement terms and conditions for low-carbon steel, which may be replicated by other large-volume private buyers.⁵³

IV. CERTIFYING GREEN STEEL TECHNOLOGY

The final piece to a coherent net-zero transition strategy for the steel sector is the development and implementation of a credible labeling and certification scheme for green steel. In particular, a credible certification scheme will allow steelmakers that are locked into uncertain and higher operating expenditures through their pivoting to green steel technologies to achieve the market premium required to recover such costs⁵⁴ and simultaneously leverage such certification for certainty so as to attract investors seeking investments in green steel technologies.

Presently, the ResponsibleSteel certification represents the steel industry's first global multi-stakeholder standard and certification initiative. Developed by ResponsibleSteel, a not-for-profit organization with an international, multi-stakeholder membership that counts among its members major steel producers such as ArcelorMittal and POSCO,⁵⁵ the ResponsibleSteel certification employs a broad approach to the standards required of 'green steel', "embracing the need not only to address climate change, but also to address

⁵⁰ Ahmed Abdel-Latif, *The Rise of Public-Private Partnerships in Green Technologies and the Role of Intellectual Property Rights* (September 2018), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3504382.

⁵¹ MPP, at 39.

⁵² *Id.*

⁵³ *Id.*

⁵⁴ Hermwille et al (2022).

⁵⁵ ResponsibleSteel, *Members and Associates*, <https://www.responsiblesteel.org/about/members-and-associates/>.

other issues including biodiversity and worker's rights."⁵⁶ Notably, the organization has developed an independent certification standard and program that employs a process aimed at aligning with the ISEAL Codes of Good Practice, covering 12 key Environmental, Social, and Governance (ESG) issues including climate change and greenhouse gas emissions. Certifications of 'green steel' may thus take reference from these standards.

In a similar vein, ArcelorMittal's XCarb green steel certificates, which are specially designed for the company's flat steel products made from iron ore in a blast furnace and verified by an independent auditor, may be reported by a customer purchasing an XCarb certificate as a reduction in their Scope 3 emissions. Drawing on the Renewable Energy Certificates used in the power sector and adapted to the steel industry, these certificates seek to set a benchmark for the industry aimed at quantifying the CO₂ savings from decarbonization technologies employed in steel production. A certification scheme for low-emission steel may thus take reference from this initiative, combined with an independent auditing and compliance mechanism.

It should be noted that such a certifications and labelling scheme will need to be examined for their compliance with the Agreement on Technical Barriers to Trade, insofar as they involve production and process methods that are not distinguishable through the physical products themselves.

V. CONCLUSION

The steel sector stands at a pivotal point in its net-zero transition strategy. The technologies for net-zero steel are known, and most major steel producers are developing these low-carbon production technologies in the pilot phase. Thus, the steel sector can and must rapidly decarbonize to achieve net-zero emissions by 2050 at the latest, in order to limit the rise in global temperatures to 1.5 degrees Celsius.

Realizing these targets through the commercial deployment of new and breakthrough technologies will require collaborations across the steel value chain and supportive policy environments that shape a strong business case for investments. A green steel club focused on technology sharing among members, complemented with public-private partnerships among club members and governments can provide leverage for cooperative low-carbon research and innovation while accumulating demand for green steel needed to seed and underpin markets.

Given that the bulk of steel demand will come from emerging and developing economies in the coming decades, a key challenge for the sector will be to involve these countries early on to lay the foundation for global cooperation. More importantly, the steel sector's transition to net-zero emissions is only as effective as its weakest link – decarbonization technologies must reach the dirtiest steel producers, and the "moral imperative"⁵⁷ rests on the developed world to help them pursue development in a decarbonized manner.

⁵⁶ ResponsibleSteel, 'Green Steel' (March 17, 2020), <https://www.responsiblesteel.org/news/green-steel/>.

⁵⁷ Jane Flegal, Senior Director for Industrial Emissions, White House Office of Domestic Climate Policy, in a webinar held by the Roosevelt Institute entitled "Green Steel Deal: A Transformative Trade Policy for Our Economy & Environment". See account by Simon Lester on International Economic Law and Policy Blog, Prospects for the Green Steel Deal (November 29, 2021), <https://ielp.worldtradelaw.net/green-steel-deal/>.

CHAPTER 23: “EITHER WE KILL IT, OR IT WILL KILL US”: THE UNLIKELY USE OF INVESTOR STATE DISPUTE SETTLEMENT TO ENABLE RENEWABLE ENERGY POLICY

LYRIC PEROT

(Author's Note: Because this chapter was written in the spring of 2022, recent Energy Charter Treaty (ECT) developments need to be taken into account. The ECT has come under scrutiny in recent years for its possible interference with countries' attempts to move toward greener energy sources. Because of this, in 2017 a working group was created to work on modernizing the ECT. In June 2022, the Contracting Parties to the ECT reached an agreement in principle on a modernized text. After being postponed once already, a vote on this modernized text was expected to take place in April 2023. But this vote was postponed indefinitely given continued uncertainty about the ECT's future and an onslaught of withdrawals from the treaty altogether. Notably, a withdrawal from the treaty does not immediately relieve countries of their obligations under the ECT because of a lengthy sunset clause. Thus, while the terms of the modernized ECT, if agreed upon, would alter the analysis of the following paper, the postponement of the vote renders the following analysis not only still relevant, but perhaps more critical than ever for countries striving to facilitate a transition to cleaner energy.)

Several coal and fossil fuel companies have recently brought suits under the Energy Charter Treaty alleging that countries' newly imposed laws favoring clean energy policies violate the rights of their investments under the Treaty. Citing to Articles 10 (Fair and Equitable Treatment) and 13 (Expropriation) these companies contend that their investments were not treated fairly and were taken from them without compensation due to countries enacting legislation phasing out the use of coal and fossil fuel power plants. The possibility of large payouts to coal and fossil fuel companies and regulatory chill on the climate front due to these suits has frightened those hopeful about a shift to cleaner energy sources. However, this paper argues that these suits are unlikely to be successful under the Energy Charter Treaty because the coal and fossil fuel companies do not have a legitimate expectation that there will be no regulatory change toward clean energy, the government interests in regulating for cleaner energy sources are very strong, and the value of the coal and fossil fuel companies' investments are not completely destroyed.

Indeed, not only are the coal and fossil fuel companies unlikely to be successful under the Energy Charter Treaty, but clean and renewable energy sources will be better able to successfully invoke the Energy Charter Treaty to hold countries accountable for implementing their promises under international climate agreements. Clean and renewable energy companies have a legitimate expectation of regulation supporting their investments given international guarantees that are incorporated into their domestic regulatory framework. In addition, any government action preventing the implementation of clean energy regulation lacks persuasive justification. Finally, there is a complete destruction in the value of clean and renewable energy companies when clean regulations are not in fact passed after they are promised to be, preventing companies from competing as expected. Using the Energy Charter Treaty to protect clean and renewable

energy investments will act as an enforcement mechanism for countries heretofore unenforceable international climate agreements, spurring regulatory action toward clean energy.

I. INTRODUCTION

“Either we kill it, or it will kill us.”¹ Headlines bearing similar messages have appeared in European news outlets for years, decrying the little-known agreement that environmentalists argue could bring the Paris Agreement or other climate friendly legislation to its knees.² The headlines are referring to the Energy Charter Treaty (ECT), an often-overlooked multilateral agreement for cooperation in the energy industry, and the only treaty in the world devoted to energy.³ The treaty, which entered into force on 16 April 1998 to protect energy corporations from nationalization by foreign governments is currently binding on 53 signatories predominantly in Europe and Central Asia.⁴ Its purpose is to “establish a legal framework in order to promote long-term cooperation in the energy field.”⁵ The ECT is frequently invoked by investors in foreign countries to receive compensation when a foreign government treats them unfairly or unequally to domestic companies, or when a foreign government claims a right to the company or its products. Investors invoke such protections under the investor-state dispute mechanism of Article 26, which allows for an internationally recognized body to adjudicate any disputes that arise between an investor and a foreign country according to the terms of the treaty.⁶ If another investment treaty applies to two member countries, the more favorable agreement to the investor shall apply.⁷ Although the treaty is currently being heavily invoked to stagnate countries’ climate protective measures, the ECT could instead be invoked to accrue payments for renewable energy companies when countries stray from their international climate change agreements, in effect adding an enforcement mechanism to what are currently non-enforceable climate agreements.

¹ Sam Meredith, ‘*Either we kill it, or it will kill us*’: The fight to dismantle a shadow court system threatening climate goals, CNBC (Nov. 24, 2021), <https://www.cnbc.com/2021/11/24/climate-the-fight-to-dismantle-the-little-known-energy-charter-treaty.html>.

² See, e.g., Donnachadh McCarthy, *You may not have heard of the Energy Charter Treaty – but it allows oil companies to do as they please*, THE INDEPENDENT (Jan. 28, 2022), www.independent.co.uk/climate-change/opinion/energy-charter-treaty-climate-crisis-b2002714.html ; *Eight reasons why the Energy Charter Treaty reform process is doomed to failure*, CLIMATE ACTION NETWORK EUROPE (Dec. 9, 2021), <https://caneurope.org/8-reasons-ect-reform-is-doomed-to-failure/>.

³ Stuart Braun, *Multi-billion euro lawsuits derail climate action*, DEUTSCHE WELLE (Apr. 19, 2021), <https://www.dw.com/en/energy-charter-treaty-ect-coal-fossil-fuels-climate-environment-uniper-rwe/a-57221166>.

⁴ The Energy Charter Treaty members are: Afghanistan, Albania, Armenia, Austria, Azerbaijan, Belarus, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Georgia, Germany, Greece, Hungary, Iceland, Ireland, Japan, Jordan, Kazakhstan, Kyrgyzstan, Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, Republic of Moldova, Mongolia, Montenegro, Netherlands, North Macedonia, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Tajikistan, Turkey, Turkmenistan, Ukraine, United Kingdom, Uzbekistan, Yemen, and the European Union. Australia, Italy, and Russia have withdrawn from the Treaty and are in the twenty-year sunset period in which they are still bound by the Treaty.

⁵ The Energy Charter Treaty preamble, Dec. 17, 1994, <https://www.energychartertreaty.org/>.

⁶ The Energy Charter Treaty, *supra* note 5, at art. 26. Article 26 provides that the parties should apply any previously agreed dispute settlement procedure or else proceed with dispute resolution pursuant to the Convention on the Settlement of Investment Disputes between States and Nationals of other States (ICSID Convention).

⁷ The Energy Charter Treaty, *supra* note 5, at art. 16.

This paper will first provide an overview of the Energy Charter Treaty's membership, formation, and use since its enactment. It will discuss the successes of suits under the arbitration mechanism of the treaty, as well as introduce some of the key articles and provisions of the treaty that relate to climate and the environment. In the third section, the paper addresses the current threat of the Energy Charter Treaty as seen by many environmentalists, including how it has been used to garner large pay outs for fossil fuel companies when countries enact climate favorable policies as well as to discourage the enactment of such climate friendly policies at all to avoid potential litigation. In the fourth section, the paper provides some solutions for how the Energy Charter Treaty could be used in its current form to provide protection to renewable energy investments and to act as a binding mechanism on countries to hold them accountable for implementing climate favorable policies that they have promised to enact. By relying on provisions of the treaty protecting the fair and equitable interests of investors, their legitimate expectations upon investing, and their right to be compensated for expropriation, particularly given similar arguments that have been successfully made by fossil fuel companies, the Energy Charter Treaty can work in favor of climate change policy, rather than against it. This paper concludes that, particularly in the absence of an amendment to the Energy Charter Treaty, but also given the similarities between the provisions included in different investor state dispute settlement mechanisms, the interpretation of the Energy Charter Treaty provisions to protect rather than prevent climate change policy is a critical step in invoking investor-state arbitration to the benefit of climate and the environment.

II. BACKGROUND

A. *Formation and Reformation of the ECT*

The only treaty in the world devoted to energy,⁸ the ECT has received record-breaking damages awards and the title of the most used treaty in investor-state arbitration.⁹ After the Cold War several states met to establish a model for energy cooperation, establishing the European Energy Charter, a non-binding declaration by states to their commitment to cooperate in energy-related trade and efficiency. The Charter sought to facilitate the development of energy resources and energy security while encouraging economic integration with former Soviet Union countries. In the wake of the Charter, the member states decided to negotiate a binding agreement to implement their agreed upon objectives, and negotiated what would become today's Energy Charter Treaty, binding on 55 countries, including the European Union and every EU member state.¹⁰ While early suits most commonly named central and eastern European states as respondents, there has been a noticeable shift toward western European states being named as respondents, largely arising out of changes to regulatory frameworks in western Europe that are now

⁸ Thomas Dauphin, *The Energy Charter Treaty Takes an Axe to Climate Action*, NEWS CHANNEL OF THE EUROPEAN ENVIRONMENTAL BUREAU (May 19, 2020), <https://meta.ecb.org/2020/05/19/the-energy-charter-treaty-takes-an-axe-to-climate-action/>.

⁹ *The Energy Charter Treaty*, INTERNATIONAL INSTITUTE FOR SUSTAINABLE DEVELOPMENT (June 2017), <https://www.iisd.org/projects/energy-charter-treaty>; *Changing dynamics of investment cases under the Energy Charter Treaty*, INTERNATIONAL ENERGY CHARTER (May 18, 2018), <https://www.energycharter.org/what-we-do/dispute-settlement/cases-up-to-18-may-2018>.

¹⁰ Cyrus Benson, Charline Yim & Victoria R Orłowski, *The Energy Charter Treaty*, GLOBAL ARBITRATION REVIEW: THE GUIDE TO ENERGY ARBITRATIONS (Nov. 10, 2020), <https://globalarbitrationreview.com/guide/the-guide-energy-arbitrations/4th-edition/article/the-energy-charter-treaty>.

encouraging renewable energy investments.¹¹ It is this shift that has caused environmentalists to fear the impact of the ECT on member states’ development of regulations to address climate change.

There has been increasing public pressure to terminate the ECT, with a public petition signed by over a million people and an open letter titled “End Fossil Protection” signed by 500 climate experts calling for EU states to withdraw from the treaty.¹² Particularly troubling to those member states seeking to modernize their energy policies and bring them in line with promises made as part of the Paris Agreement, the ECT has recently been invoked by fossil fuel companies seeking compensation from foreign governments over green energy policy changes, such as coal power plant phase-outs.¹³ Though Italy, Australia, and Russia have initiated the withdrawal process from the ECT, because of a twenty-year sunset clause this option has been disfavored by many countries that seek an immediate solution to the threat of fossil fuel suits in response to their environmentally-friendly policies. Similarly, reformation of the treaty to incorporate climate-change protections is a favorable, but unlikely approach.¹⁴ Instead, countries should rely on the dispute-settlement mechanisms already within the existing treaty to protect climate-friendly policies critical to the protection of the environment.

B. The ECT and Bilateral Investment Treaties

Every country that is a member to the ECT also has bilateral investment treaties (BITs) with at least some of the other members of the ECT.¹⁵ In fact, there are 674 BITs that coexist with the ECT.¹⁶ The ECT establishes in Article 16 that in the case of overlap with other investment agreements, whether prior or subsequent, the more favorable agreement to the investor or investment shall apply.¹⁷ An international dispute settlement body, such as the International Centre for Settlement of Investment Disputes (ICSID) that many BITs and the ECT reference, would determine which agreement was more favorable to the investor or investment. As the purpose of the creation of the ECT was the protection and thereby incentivization of investments, it is likely that it will be found the more favorable agreement if any BIT also applies. Therefore, any additional BITs that apply cannot remove the protections provided to investors in the Articles of the ECT, they can only enhance them, rendering the arguments in this paper applicable regardless of whether there is another more protective BIT agreement. Any interpretation under the ECT must be “in accordance with this Treaty and applicable rules and principles of international law.”¹⁸ Thus, interpretations under the ECT may not conflict with international law and may only conflict with an applicable BIT insofar as the BIT further protects investors and investments.

¹¹ *Id.*

¹² *Id.*

¹³ See, e.g., *Uniper v. Netherlands*, ICSID Case No. ARB/21/22; *RWE v. Netherlands*, ICSID Case No. ARB/21/4.

¹⁴ *Modernization of the Treaty*, INTERNATIONAL ENERGY CHARTER, <https://www.energychartertreaty.org/modernisation-of-the-treaty/>; see Meredith, *supra* note 1.

¹⁵ *Members and Observers to the Energy Charter Conference*, INTERNATIONAL ENERGY CHARTER (17 Oct. 2018), <https://www.energycharter.org/who-we-are/members-observers/>; *Database of Bilateral Investment Treaties*, INTERNATIONAL CENTRE FOR SETTLEMENT OF INVESTMENT DISPUTES (ICSID), <https://icsid.worldbank.org/resources/databases/bilateral-investment-treaties>.

¹⁶ *Investment Policy Hub*, UNCTAD, <https://investmentpolicy.unctad.org/international-investment-agreements/treaties/bit/3118/the-energy-charter-treaty-1994->.

¹⁷ The Energy Charter Treaty, *supra* note 5, at art. 16.

¹⁸ The Energy Charter Treaty, *supra* note 5, at art. 26(6).

C. *The Achmea Case and ISDS Mechanisms Between EU Member States*

On March 6th, 2018, the Court of Justice of the European Union (CJEU) found that investor state dispute settlement provisions of BITs between EU member states are not compatible with EU law.¹⁹ Following the case referred to as *Achmea*, 23 EU member states agreed to terminate all intra-EU bilateral investment treaties, preventing investor state arbitration provisions of such treaties from serving as the legal basis for new arbitration.²⁰ However, the termination agreement that the 23 EU member states signed specifically stated that the ECT, a multilateral rather than bilateral investment agreement, would be addressed “at a later stage.”²¹ The European Commission, in July 2018, issued a statement that the *Achmea* decision applies to the ECT, a position with which 22 EU member states confirmed their support.²² But not all member states agreed, with some arguing that they could not make a statement of support in the absence of a specific judgment on the matter, and others arguing that the *Achmea* judgment by the CJEU is silent with respect to the ECT and multilateral treaties and therefore should not apply.²³

The CJEU has remained silent on the applicability of the *Achmea* ruling to the ECT, prompting a submission by Belgium for a neutral legal clarification on whether the ISDS mechanism of the ECT complies with the *Achmea* decision.²⁴ Though applicability of the *Achmea* decision on the ECT could allow many EU member countries the opportunity to stop complying with the ECT (at least as it pertains to EU countries’ investments in other EU countries), the ECT arbitral tribunals continue to rule in favor of their own competence and thereby continue to allow rulings between EU member countries.²⁵ The CJEU’s ruling in *Achmea* reasoned that European law has primacy over national law, and as such, member states are obligated to prevent their national law from conflicting with the more supreme European law, hence the termination of all intra-EU BITs.²⁶ However, with regard to the ECT the EU itself has ratified it as an international agreement making it a part of European law, and therefore removing any possible conflict between domestic and European law.²⁷ Given the ambiguity regarding the applicability of the *Achmea* decision to the ECT, investment arbitration tribunals will continue to hear energy cases between intra-EU member states and applying the provisions of the ECT.²⁸ Even if the CJEU successfully prevents investment arbitration tribunals from ruling on intra-EU cases, investors from EU member states could still rely on Article 26(2)(a) which provides

¹⁹ *Client Alert: Does Achmea apply to the Energy Charter Treaty? Belgium asks the CJEU*, VOLTERRA FIETTA (Dec. 14, 2020), <https://www.volterrafietta.com/client-alert-does-achmea-apply-to-the-energy-charter-treaty-belgium-asks-the-cjeu/>.

²⁰ Agreement for the termination of Bilateral Investment Treaties between the Member States of the European Union, Aug. 29, 2020, SN/4656/2019/INTT.

²¹ *Id.*

²² *Client Alert: Does Achmea apply to the Energy Charter Treaty? Belgium asks the CJEU*, *supra* note 20.

²³ *Client Alert: Does Achmea apply to the Energy Charter Treaty? Belgium asks the CJEU*, *supra* note 20.

²⁴ *Client Alert: Does Achmea apply to the Energy Charter Treaty? Belgium asks the CJEU*, *supra* note 20.

²⁵ *Masdar Solar & Wind Cooperatief UA v. Kingdom of Spain*, ICSID Case No. ARB/14/1, Award, 16 May 2018, ¶¶ 680 to 683; *Vattenfall AB and others v. Federal Republic of Germany*, ICSID Case No. ARB/12/12, Decision on the *Achmea* Issue, 31 August 2018, ¶ 163.

²⁶ J Robert Basedow, *The Achmea Judgment and the Applicability of the Energy Charter Treaty in Intra-EU Investment Arbitration*, 23 J. INT’L ECONOMIC L. 271, 275 (2020).

²⁷ *Id.* at 288-289.

²⁸ *Masdar Solar & Wind Cooperatief UA v. Kingdom of Spain*, ICSID Case No. ARB/14/1, Award, 16 May 2018, ¶¶ 680 to 683; *Vattenfall AB and others v. Federal Republic of Germany*, ICSID Case No. ARB/12/12, Decision on the *Achmea* Issue, 31 August 2018, ¶ 163.

for dispute resolution between domestic courts to bring suits under the ECT at a domestic level instead.²⁹

D. The Preamble

The ECT preamble states the purpose of the agreement is to create a binding agreement that catalyzes economic growth while liberalizing investment and trade in energy.³⁰ The ECT emphasizes the application of the principles of most favored nation and national treatment, and highlights the importance of removing technical, administrative, and other barriers to trade relating to energy.³¹ The treaty recognizes the necessity of efficiency in energy developments but references the United Nations Framework Convention on Climate Change (UNFCCC) and other international environmental agreements, acknowledging the “increasingly urgent need for measures to protect the environment, including the decommissioning of energy installations and waste disposal, and for internationally-agreed objectives and criteria for these purposes.”³² Though the preamble of the ECT references the members’ intentions to maintain a balance between energy efficiency and developing environmentally friendly energy measures, this notion is not binding on the parties or enforceable through dispute resolution. It is, however, critical under the Vienna Convention on the Law of Treaties, Article 31, for interpretation of the binding terms of the treaty: “a treaty shall be interpreted in good faith in accordance with the ordinary meaning to be given to the terms of the treaty in their context and the light of its object and purpose.”³³ In interpreting whether the ECT has been violated, ISDS bodies must consider that the development of environmentally friendly energy policies is a stated objective of the treaty.

E. Article 19: Environmental Aspects

The ECT makes further reference to the environment in Article 19: Environmental Aspects, inviting members to consider environmental impacts in their decision making, though leaving to the members the decision of exactly how and to what extent they will incorporate environmental concerns. Members are bound in pursuit of sustainable development to consider obligations under international agreements to which they are a party and minimize in an economically efficient manner harmful environmental effects.³⁴ In doing so, members must “take account of environmental considerations” in the formulation and implementation of their energy policies, promote a fuller reflection of environmental costs and benefits, encourage cooperation in attaining the environmental objectives of the treaty, have particular regard to improving energy efficiency, developing and using renewable energy sources, promoting use of cleaner fuels and employing technologies that reduce pollution, and promote the transparency and cooperation between members in achieving the above.³⁵ While members must take environmental considerations as well as efficiency into account, it is up to individual member states to

²⁹ *Energy Charter Treaty arbitration clause cannot be relied on in intra-EU investment disputes says EC*, STIBBE (27 July, 2018), <https://www.stibbe.com/en/news/2018/july/energy-charter-treaty-arbitration-clause-cannot-be-relied-on-in-intraeu-investment-disputes-says-eu>.

³⁰ The Energy Charter Treaty, *supra* note 5.

³¹ The Energy Charter Treaty, *supra* note 5.

³² The Energy Charter Treaty, *supra* note 5.

³³ Vienna Convention on the Law of Treaties art. 31, May 22, 1969, <https://www.ijl.org/wp-content/uploads/2016/08/VCLT-Art.-31-33.pdf>.

³⁴ The Energy Charter Treaty, *supra* note 5, at art. 19.

³⁵ The Energy Charter Treaty, *supra* note 5, at art. 19.

determine where they will strike the balance between the two, rendering Article 19 a rather weak means of ensuring environmental protection, though it remains critical in establishing that environmental considerations by member states are not only acceptable, but encouraged by the ECT.

III. THE LOOMING THREAT OF THE ENERGY CHARTER TREATY

A. *Compensation for Fossil Fuel Companies*

In recent years, fossil fuel companies have been increasingly relying on the Energy Charter Treaty for compensation when countries choose regulatory policies that favor renewable energy. One of the most public of these cases, *Uniper v. Netherlands*, was filed in April 2021, in response to a new Dutch law banning the generation of coal-fired power after 2030, forcing a closure or a change of energy source of the German company Uniper's coal-fired power plant, built in 2016, by 2030.³⁶ The regulation does not permit other methods of reducing emissions, such as carbon capture or clean coal, offering only the alternative of switching to a different fuel source to avoid shutting down.³⁷ The Netherlands passed the new law to phase out coal in pursuit of achieving their promises under the Paris Agreement to limit their contributions to global warming, prohibiting the generation of electricity in a production installation using coal.³⁸ While the content of the arguments presented to the ECT tribunal in this case are private, it appears that Uniper will be arguing its case based on Articles 10 and 13 of the ECT requiring fair and equitable treatment and full compensation for expropriation.³⁹ Under Article 10: Fair and Equitable Treatment, Uniper is likely arguing that closing the plant in 2030, when it only began operating in 2016, breaches the company's legitimate expectations of the greater than 40-year lifespan of the project.⁴⁰ Under Article 13: Expropriation, Uniper has stated that the ban on coal-fired power de facto expropriates the German company's investment, particularly because the decision to invest in the Netherlands was influenced by negotiations with the Dutch government.⁴¹ The decision of the merits of these arguments remains to be decided by the tribunal, but a complete victory for Uniper could cost the Netherlands up to EUR 1 billion in compensation under the ECT.⁴² Such a large sum of money not only immediately makes it more difficult for the Dutch government to pursue, aid, and invest in renewable energy policies, but also sets a dangerous precedent for other fossil fuel companies to begin filing similar suits, potentially giving billions in payouts to fossil fuel corporations when those funds could instead be better used to research and develop renewable energy strategies.

Even without a successful result for Uniper, other fossil fuel companies have already begun to follow suit, with another German company, RWE, filing a case against the

³⁶ Pekka Niemala, Harro van Asselt, Kati Kulovesi & Mikko Rajavuori, *Risky business: Uniper's potential investor-state dispute against the Dutch coal ban*, BLOG OF THE EUROPEAN JOURNAL OF INTERNATIONAL LAW (Mar. 18, 2020), <https://www.ejiltalk.org/risky-business-unipers-potential-investor-state-dispute-against-the-dutch-coal-ban/>.

³⁷ *Id.*

³⁸ *Id.*

³⁹ *Id.*

⁴⁰ *Id.*

⁴¹ *Id.*

⁴² Megan Darby, *'Not appropriate': Uniper seeks compensation for Dutch coal phase-out*, EURACTIV (May 22, 2020), <https://www.euractiv.com/section/energy/news/not-appropriate-uniper-seeks-compensation-for-dutch-coal-phase-out/>.

Netherlands in February 2021, before Uniper even initiated a suit but after their public threats to do so.⁴³ Presumably following a similar line of argumentation to Uniper, RWE seeks EUR 1.4 billion in damages as a result of the new Dutch law to phase out coal.⁴⁴ Though fossil fuel companies have already collected large sums of money in the past, the suits by Uniper and RWE indicate that fossil fuel companies could earn still more in the coming years, as they redirect government funds from pursuing and supporting renewable energy investments to paying out fossil fuel companies.

B. Regulatory Chill for Climate Policy

While actual suits brought under the ECT may certainly weaken climate change progress, the mere threat of such suits can quietly and efficiently achieve the same effect. In 2017, Nicolas Hulot became the Minister of Environment in France, with high levels of public support from environmentalists who believed he would help France meet its promises under the Paris Climate Agreement.⁴⁵ Hulot quickly proposed a law that would ban all fossil fuel extraction on French territory by 2040, with a progressive phase-out as renewal of exploitation permits were banned.⁴⁶ However, the “Hulot law” as it was often referred to, prompted several complaints from large fossil fuel investors, including one from Vermilion, a Canadian oil and gas company.⁴⁷ Vermilion produces almost 75 percent of French oil and has 26 fossil fuel extraction sites in France, and it threatened to sue for EUR 1 billion under the ECT if the first draft of the Hulot law were passed.⁴⁸ Accordingly, the Hulot law was revised, allowing for the renewal of oil exploitation permits in France until 2040 and in certain conditions even after the 2040 deadline.⁴⁹ This phenomenon is referred to as “regulatory chill” as the threat of such large lawsuits halts new climate protective regulation in its tracks. These threats of suits often occur behind closed doors and are little publicized but have an enormously large impact by preventing legislation that would allow countries to meet their promises under the Paris Climate Agreement.

IV. HOW RENEWABLE ENERGY COMPANIES CAN BENEFIT FROM THE ECT

While fossil fuel companies’ suits under the ECT are dominating the news, renewable energy companies have seen some success under the ECT as well, though often with smaller damages awards and only under very particular circumstances. This paper argues that renewable energy companies can benefit more consistently and in a way that allows countries to uphold their commitments under the Paris Climate Agreement using similar arguments that fossil fuel companies are relying on under Articles 10 and 13 of the ECT.

A. How it Has Been Done Before

Renewable energy companies have successfully won suits under the ECT when countries have shifted from more ambitious climate change policy to less ambitious. One such case, *PV Investors v. Spain*, embodies several suits brought against Spain before the

⁴³ *Coal company sues Netherlands for €1.4 billion for coal phase out*, FRIENDS OF THE EARTH EUROPE (Feb. 4, 2021), <https://friendsoftheearth.eu/press-release/coal-company-sues-netherlands-for-1-4-billion/>.

⁴⁴ *Id.*

⁴⁵ *Blocking Climate Change Laws with ISDS Threats*, CORPORATE EUROPE OBSERVATORY, THE TRANSNATIONAL INSTITUTE, AND FRIENDS OF THE EARTH EUROPE/INTERNATIONAL (June 2019), <https://10isdsstories.org/cases/case5/>.

⁴⁶ *Id.*

⁴⁷ *Id.*

⁴⁸ *Id.*

⁴⁹ *Id.*

ECT based on the same climate policy measures. Spain initially implemented policies that subsidized new investments in renewable energy, such as allowing owners of solar plants to sell at a higher rate for the first 25 years and at a reduced rate thereafter.⁵⁰ However, in 2010, Spain implemented policies that reversed those measures, replacing any economic incentives that had previously been granted to renewable energy companies.⁵¹ This shift in policy, which included not only a reduction in subsidies for renewable energy producers but also a seven percent tax on power generators' revenues, caused several renewable energy investors to initiate claims before the ECT based on Article 10, for unfair treatment that violated their legitimate expectations at the time of investment.⁵²

PV Investors claimed they invested EUR 2 billion in solar in Spain in reliance on the economic incentives of Spain's previous regulations as well as public representations that the incentives would remain in place.⁵³ While PV Investors did ultimately win the case, the amount awarded was significantly less than asked for as the tribunal did not find Spain's reversal of climate friendly measures to be arbitrary and unfair, though they did agree that the investors legitimate expectations of receiving the rate of return predicted at the time of investment were frustrated.⁵⁴ Instead of awarding the renewable energy companies the value of their entire initial investment, the tribunal found that the companies at the time of investment could have legitimately expected a seven percent rate of return and therefore compensated them accordingly.⁵⁵

In the case of *PV Investors v. Spain*, Spain enacted a particular climate friendly policy and then revoked it. And while the tribunal did not find that such a revocation was unfair or arbitrary, they did find that the renewable energy companies' legitimate expectations were not met and compensated them accordingly. Other renewable energy companies should apply the same arguments regarding their legitimate expectations not being met when a climate friendly policy is in place and then revoked. Indeed, this paper provides additional arguments that renewable energy companies can apply in situations different from *PV Investors* in which no particular climate friendly policy has yet been enacted but in situations when countries have signed on to broader international agreements regarding climate change.

B. International Climate Agreements

The most significant international climate agreement to date is the Paris Agreement. Under the agreement, all member countries are required to set emissions-reduction targets, called nationally determined contributions (NDCs) to help contribute to the global goal of preventing the global average temperature from rising two degrees Celsius above preindustrial levels.⁵⁶ The EU in its 2020 updated NDC has pledged to "reduce its

⁵⁰ *Climate Change and Investor-State Dispute Settlement Newsletter*, JONES DAY (February 2022), <https://www.jonesday.com/en/insights/2022/02/climate-change-and-investorstate-dispute-settlement/>.

⁵¹ *Id.*

⁵² *Id.*

⁵³ Neil Newing & Johnny Shearman, *Significantly lower award of damages against Spain in latest investor-state arbitration claim over renewable energy tariffs (PV Investors v Spain)*, SIGNATURE LITIGATION (Mar. 25, 2020), <https://www.signaturelitigation.com/significantly-lower-award-of-damages-against-spain-in-latest-investor-state-arbitration-claim-over-renewable-energy-tariffs-pv-investors-v-spain-neil-newing-and-johnny-shearman/>.

⁵⁴ *Id.*

⁵⁵ *Id.*

⁵⁶ Paris Agreement to the United Nations Framework Convention on Climate Change, Dec. 12, 2015, T.I.A.S. No. 16-1104 [The Paris Agreement].

emissions from the sectors covered by this legislation by 43% from 2005 levels by 2030.”⁵⁷ Individual EU member states have pledged to reduce “emissions from sectors outside the EU ETS from 2005 levels by 2030” by a set amount: Belgium by 35%, Germany by 38%, the Netherlands by 36%, etc.⁵⁸ In addition, regarding greenhouse gas emissions and removals from “land use, land use change and forestry” for the periods from 2021 to 2025 and 2026 to 2030, all member states to the EU agreed to ensure that “emissions do not exceed removals.”⁵⁹ Japan, an ECT member and Paris Agreement signatory that is not in the EU, has aimed to “reduce greenhouse gas emissions to net-zero” by 2050, and to “reduce its greenhouse gas emissions by 46 percent in 2030 from 2013 levels.”⁶⁰ To do so, Japan has pledged to “put forward all possible efforts in all areas including by thorough energy efficiency measures, maximum introduction of renewable energy, as well as decarbonization of public sectors and local communities.”⁶¹

The Paris Agreement also promises an aim to reduce global emissions to net-zero, with the amount of emitted greenhouse gas equal to the amount removed from the atmosphere.⁶² The Paris Agreement is a multilateral agreement in which countries are obligated to assess their progress toward their goals every five years. However, the agreement lacks any enforcement mechanism for countries that fail to meet their goals.⁶³ Almost every country is a member to the Paris Agreement, though the United States withdrew from the agreement in 2020 and rejoined in 2021.⁶⁴ Many countries have even submitted stricter pledges to reduce their emissions before the COP26 summit in 2021, like the United States promising to cut emissions by 50 to 52 percent below its 2005 level by 2030, doubling President Barack Obama’s commitment from a few years earlier.⁶⁵ While countries have made specific and concrete promises under the Paris Agreement, the Paris Agreement itself lacks any form of binding enforcement mechanism, instead holding countries accountable only through international norms. Using the ECT to create a binding mechanism for the promises that countries have made under the Paris Agreement would revolutionize the domain of international climate agreements while simultaneously incentivizing renewable energy investments.

In November 2021, more than five years since the Paris Agreement was signed and adopted, nearly 200 countries agreed to adopt the Glasgow Climate Pact.⁶⁶ This pact, agreed to at the 26th UN Climate Change Conference of the Parties (COP26) Summit, had parties explicitly pledging to reduce the use of fossil fuels, though there was no specific

⁵⁷ *Update of the NDC of the European Union and its Member States*, UNFCCC 13 (Dec. 17, 2020), https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/Netherlands%20First/EU_NDC_Submission_December%202020.pdf.

⁵⁸ *Id.*

⁵⁹ *Id.*

⁶⁰ *Id.* at 5. An EU country like the Netherlands was not chosen for displaying sample NDC language because of the structure of the EU and the fact that it is also a signatory, all EU member countries have the same submitted NDC.

⁶¹ *Id.* at 5.

⁶² The Paris Agreement.

⁶³ Lindsay Maizland, *Global Climate Agreements: Successes and Failures*, COUNCIL ON FOREIGN RELATIONS (Nov. 17, 2021), <https://www.cfr.org/backgrounder/paris-global-climate-change-agreements>.

⁶⁴ *Id.*

⁶⁵ *Id.*

⁶⁶ *COP26 Keeps 1.5C Alive and Finalizes Paris Agreement*, UN CLIMATE CHANGE CONFERENCE UK 2021 (Nov. 13, 2021), <https://ukcop26.org/cop26-keeps-1-5c-alive-and-finalises-paris-agreement/>.

timeline implemented.⁶⁷ In addition, the pact encouraged countries to “revisit and strengthen” their original 2030 climate targets while providing more assistance to developing countries to adapt to climate change and transition towards net-zero.⁶⁸ In addition to the Glasgow Climate Pact, COP26 also encouraged a number of other agreements, such as pledges to end deforestation and to reduce methane emissions by 30% from 2020 levels by the end of the decade.⁶⁹ All of these agreements lack mechanisms to enforce whether countries actually enact policy in furtherance of these promises.⁷⁰ Using the ECT to protect renewable energy investments that are made in reliance of these countries’ international promises not only encourages investment by renewable energy companies, but also creates an enforcement mechanism for countries that fail to implement policy in accordance with their promises.

When two treaty agreements conflict, the Vienna Convention on the Law of Treaties (VCLT) Article 30 provides (a) that if a treaty specifies it is subject to another treaty, the other treaty prevails, (b) between parties to one treaty who become parties to a second, the second governs on any point incompatible with the first, and (c) if some parties to the first treaty are not parties to the second, the first prevails and if some parties to the second treaty were not party to the first, the second prevails.⁷¹ In this case, with the Energy Charter Treaty being read to conflict with the Paris Agreement or other climate agreements, the ECT includes a provision stating that if there is any incompatibility with another treaty, the treaty that is most favorable to investors and investments should prevail.⁷² In the context of climate change, the climate agreements could be read to provide more protection to climate investors or investments and therefore prevail over the ECT. However, in all other contexts with a conflicting climate agreement the ECT is the more favorable agreement to investors and thus applies to the dispute.

C. Article 10: Legitimate Expectations

Countries that deviate from publicly pronounced declarations of their policy intentions through international agreements fail to provide their investors with fair and equitable treatment by not protecting the legitimate expectations of investors. Article 10 of the ECT requires countries to provide stable, equitable, favorable, and transparent conditions for investments.⁷³ The application of this standard in investment law is usually fact-specific without regard to the subjective expectations of an individual actor or findings of bad faith.⁷⁴ One ECT tribunal found that a state has only breached the fair and

⁶⁷ *Id.*

⁶⁸ *Id.*

⁶⁹ Olivia Lai, *What is the Glasgow Climate Pact?*, EARTH.ORG (Nov. 15, 2021), <https://earth.org/what-is-the-glasgow-climate-pact/>.

⁷⁰ *Id.*

⁷¹ Christopher J. Borgen, *Resolving Treaty Conflicts*, ST. JOHN’S UNIVERSITY SCHOOL OF LAW 577 (2005), https://scholarship.law.stjohns.edu/cgi/viewcontent.cgi?referer=&httpsredir=1&article=1122&context=faculty_publications.

⁷² The Energy Charter Treaty, *supra* note 5, at art. 16.

⁷³ The Energy Charter Treaty, *supra* note 5, at art. 10.

⁷⁴ *American Manufacturing & Trading, Inc. v. Republic of Zaire*, ICSID case No. ARB/93/1; Sydney Thurman-Baldwin, *Modernizing the Fair and Equitable Treatment Standards in the Energy Charter Treaty*, 28 UNIV. OF MIAMI BUS. L. REV. 296, 299 (2020), <https://repository.law.miami.edu/cgi/viewcontent.cgi?article=1359&context=umbl>.

equitable treatment standards when their acts or omissions are “manifestly unfair or unreasonable, as would shock, or at least surprise a sense of juridical propriety.”⁷⁵

To provide such fair and equitable conditions, countries are accountable for protecting the legitimate expectations of their investors.⁷⁶ Legitimate expectations, as a necessary but not sufficient aspect of meeting the fair and equitable treatment standard, is a slightly easier standard to meet, though it often earns investors slightly smaller sums of money if they are successful.⁷⁷ The rationale for the consideration of legitimate expectations is “that a state cannot induce an investor to make an investment, hereby generating legitimate expectations, to later ignore the commitments that had generated such expectations.”⁷⁸ Since the ECT tribunals have not provided much specific insight on the doctrine of legitimate expectations, interpretations of the standards are derived from international investment law writ-large.⁷⁹

Actions of a public authority that convey an objective understanding that the investor will receive a benefit of some kind when the public authority is then inconsistent with those prior actions are protected by the legitimate expectations doctrine.⁸⁰ Specific legal rights held by investors, such as contractual rights or issued licenses are the most likely to be protected by the legitimate expectations doctrine, though they can be overcome with a strong justification for the government’s actions.⁸¹ However, the strength of the necessary justification for the government’s inconsistency depends on the specificity and formality of their original representation.⁸² An imprecise representation such as an informal comment, particularly from a lower level official, would not generate a strong expectation regarding the stability of future government conduct, and therefore would only require a weak justification for the government inconsistency.⁸³ Notably, legitimate expectations also does not protect mere changes to the policy norm as this would undermine countries’ abilities to pursue regulatory change in the public interest.⁸⁴

Charanne B.V. and Construction Investments S.A.R.L. v. The Kingdom of Spain embodies the conflict in international investment law between the protection of investors and a country’s right to regulate.⁸⁵ Just like *PV Investors*, *Charanne* arose out of Spain’s revocation of incentives for companies to use renewable energy sources for electricity.⁸⁶ Regarding legitimate expectations, the tribunal found that investors that are part of the energy market have a certain level of care expected of them which includes envisioning legislation

⁷⁵ *AES II Award*, ¶ 314.

⁷⁶ *Fair and Equitable Treatment: UNCTAD Series on Issues in International Investment Agreements II*, UNITED NATIONS CONFERENCE ON TRADE AND DEVELOPMENT 90, UNCTAD/DIAE/IA/2011/5 (2012), unctad.org/en/Docs/unctadaddiaia2011d5_en.pdf.

⁷⁷ *PV Investors v. Spain*, PCA Case No. 2012-14.

⁷⁸ *Charanne Award*.

⁷⁹ Thurman-Baldwin, *supra* note 73.

⁸⁰ Farah Ahmed & Adam Perry, *The Coherence of the Doctrine of Legitimate Expectations*, 73 CAMBRIDGE L. J. 61, 67 (2014).

⁸¹ CAROLINE HENCKELS, *LEGITIMATE EXPECTATIONS AND THE RULE OF LAW IN INTERNATIONAL INVESTMENT LAW* 10-11, (Oxford University Press, 2020).

⁸² *Id.*

⁸³ *Id.* at 11-12.

⁸⁴ *Id.* at 11-12.

⁸⁵ Tomás Restrepo, *Modification of Renewable Energy Support Schemes under the Energy Charter Treaty: Eiser and Charanne in the Context of Climate Change*, 8 GOETTINGEN J. OF INT’L L. 101, 110 (2017).

⁸⁶ *Charanne Award*.

changes.⁸⁷ In addition, the tribunal stated that government regulatory changes cannot be capricious or unnecessary.⁸⁸

In *Uniper v. Netherlands*, the fossil fuel investors are presumed to be arguing that the deviation from the past policy norm of favoring coal and fossil fuel energy to a new policy that favors renewable energy violates their legitimate expectations.⁸⁹ This is a particularly weak argument under the legitimate expectations doctrine as countries are expected to be able to change their policies and regulations with time if such action is not arbitrary or in bad faith. Given that 197 countries have signed on to the Paris Agreement acknowledging the current threat of climate change, shifting country policy away from fossil fuels and towards renewable energy is not likely to be deemed arbitrary or bad faith. While it is unclear if there was any specific or formal government commitment to Uniper that would provide them with a stronger basis under Article 10, if they were relying only on vague or informal comments from a government official, the government justification of meeting their climate change policy goals would likely be strong enough to outweigh any legitimate expectations of Uniper. Indeed, according to the Tribunal in *Charanne*, fossil fuel investors may have been expected to have a reasonable level of care regarding the energy sector and a potential to shift toward green energy policies (particularly given public international agreements on the matter).

On the contrary, renewable energy investors ought to argue that their legitimate expectations are harmed when countries fail to enact policies or legislation that is promised in international agreements. As these international agreements are legally binding on countries, they form a piece of the regulatory framework of countries that investors can then rely upon like any other regulation when making investments. In this context, the regulatory framework itself acts as a promise to investors. In *Enron v. Argentine Republic*, a case in which Argentina revoked a previously enacted “Gas Law” which provided favorable conditions for foreign investors in the gas sector, the tribunal held that a key element of the fair and equitable treatment of the investor was a “stable framework for the investment” and that reliance on “conditions established by the regulatory framework” was reasonable.⁹⁰ Here, the regulatory framework includes the legally binding (though unenforceable) promises countries have made under climate agreements, and therefore a failure to follow through on those promises creates an unstable investment environment and harms the investors reliance on the existence of that framework.

While it has been successful in a few different investment tribunals,⁹¹ this argument is not a particularly strong invocation of the legitimate expectations doctrine, as governments’ representations under the Paris Agreement or Glasgow Climate Pact are often not very specific, and therefore may not generate a particularly strong expectation of stability of the future conduct of the government in a climate friendly direction. Some tribunals have emphasized that investors must expect that the regulatory framework can

⁸⁷ *Charanne Award* ¶507.

⁸⁸ *Charanne Award* ¶517.

⁸⁹ Niemala, van Asselt, Kulovesi & Rajavuori, *supra* note 33.

⁹⁰ *Enron Creditors Recovery Corporation (formerly Enron Corporation) and Ponderosa Assets, LP v Argentine Republic*, ICSID Case No ARB/01/3, Award (22 May 2007) para 260.

⁹¹ See e.g., *CMS Gas Transmission Company v. Argentine Republic*, ICSID Case No ARB/01/08, Decision of the Tribunal on Objections to Jurisdiction (17 July 2003) para 274; *Enron Creditors Recovery Corporation (formerly Enron Corporation) and Ponderosa Assets, LP v Argentine Republic*, ICSID Case No ARB/01/3, Award (22 May 2007) para 260; *LG&E Energy Corp, LG&E Capital Corp and LG&E International Inc v. Argentine Republic*, ICSID Case No ARB/02/1, Decision on Liability (3 October 2006) para 125.

change, requiring more evidence from investors that the change was unreasonable.⁹² For example, under the Glasgow Climate Pact, many countries agreed to make clean power the most affordable and reliable option to all countries to meet their power needs efficiently by 2030,⁹³ and under the Paris Agreement individual countries set limits on their greenhouse gas emissions.⁹⁴ While these promises do indicate the government’s intentions to prioritize renewable energy, a tribunal could find that it is unreasonable for an investor to think these promises will be adhered to, particularly given the purposefully unenforceable nature of the agreements. Thus, on the spectrum of specificity, representations made as part of legally-binding, but unenforceable, international agreements appear to fall somewhere in the middle.

However, the formality of the government representation creates a stronger argument that the representation created a legitimate expectation for renewable energy companies even if it was not extremely specific.⁹⁵ A formal decision made by a country is presumed to have a “character of finality.”⁹⁶ Both the Paris Agreement and the Glasgow Climate Pact, as well as other international environmental agreements, are highly public statements of government intention made by the highest levels of authority. They are formally written and signed, and though they lack an enforcement mechanism, they are expected to be adhered to by all involved parties as they are legally binding.⁹⁷ Though government representations made as part of international climate agreements are only somewhat specific, they are highly formal, and as such require a comparable level of justification for any government failure to implement their promises.

Indeed, many investment tribunals have required a finding of “arbitrariness” in the government action or inaction,⁹⁸ which is tied to a discussion of the justifications for the government action.⁹⁹ UNCTAD’s 2012 report on fair and equitable treatment states that arbitrary conduct includes government conduct without legitimate purpose or rational explanation “but that instead rests on prejudice or bias.”¹⁰⁰ Even if the argument is found relatively weak that renewable energy investors’ legitimate expectations were harmed, the governments would still need to provide justification for their lack of action to pursue the goals they agreed to under the international climate agreements.¹⁰¹ Given the current state of climate change and the environment, it will be difficult for a country to justify inaction toward their stated climate goals, particularly when the likely reason for their inaction is a fear of financial loss through suits by fossil fuel companies, as that would be government conduct that “rests on prejudice or bias.”

These arguments generate three possible outcomes of varying success for environmentalists. First, given the lack of both specificity and formality in the inconsistent government representations that the fossil fuel companies are claiming, as well as a lack

⁹² See Michele Potesta, *Legitimate Expectations in Investment Treaty Law: Understanding the Roots and the Limits of a Controversial Concept*, 28 ICSID REVIEW 88, 113-114 (2013).

⁹³ Lai, *supra* note 68.

⁹⁴ Maizland, *supra* note 62.

⁹⁵ Henckels, *supra* note 79, at 11-12.

⁹⁶ Henckels, *supra* note 79, at 12.

⁹⁷ *The Paris Agreement Process and Meetings*, UNFCCC, <https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement>.

⁹⁸ Henckels, *supra* note 79, at 18.

⁹⁹ Henckels, *supra* note 79, at 18.

¹⁰⁰ See UNCTAD, ‘Fair and Equitable Treatment: UNCTAD Series on Issues in International Investment Agreements II’ (2012) UNCTAD/DIAE/IA/2011/5, 78; Henckels, *supra* note 79, at 17.

¹⁰¹ Henckels, *supra* note 79, at 18.

of a strong government justification for any such inconsistency, if the fossil fuel companies are successful in making a legitimate expectations argument, then the renewable energy investors are highly likely to be successful as well. This outcome, though it allows for the compensation of fossil fuel companies, also results in a payout for renewable energy companies and could act as a de facto binding mechanism for international climate agreements if the compensation awarded to renewable energy investors was higher than for fossil fuel investors. Second, if Article 10 is not successfully invoked by renewable energy investors, it will also not be successfully invoked by fossil fuel companies, thereby avoiding large payouts to fossil fuel companies and the possibility of climate change regulatory chill, though admittedly also not compensating renewable energy companies, or creating a de facto mechanism for international climate agreements. Third, and most favorable, the renewable energy companies could be successful in making a legitimate expectations argument, while the fossil fuel companies are unsuccessful. This outcome creates a de facto binding mechanism for countries to adhere to their goals as stated in international climate agreements, while also achieving payouts for renewable energy companies and avoiding compensation for fossil fuel investors.

D. Article 13: Expropriation

Both fossil fuel companies and renewable energy companies are unlikely to successfully win an expropriation argument before the ECT as such arguments often require a higher burden of showing not just harm but a complete destruction of the value of the investment. While this does not make expropriation a useful argument as a binding mechanism for international climate agreements or for compensating renewable energy companies, the difficulty in succeeding in such an argument should prevent fossil fuel companies from profiting off a countries climate-friendly policies, thereby averting more money from being given to fossil fuels and the possibility of climate-friendly regulatory chill. Expropriation is defined as the total or partial confiscation of property by a state.¹⁰² There are two forms of expropriation: direct and indirect. Generally, direct expropriation is the physical taking of property or the deprivation of property rights by a government, while indirect expropriation does not affect the legal title or physical control of the property but deprives the property of its economic use.¹⁰³ Under the ECT, indirect expropriation is referenced through the phrase “a measure or measures having effect equivalent to nationalization or expropriation.”¹⁰⁴ Most tribunals agree that practically any legislative, regulatory or administrative action by the government can amount to a “measure” that could qualify for expropriation, though regulations that are essential to the government, like anti-trust, environmental protection, and land planning are often considered outside the scope of expropriation.¹⁰⁵

Under investment law generally, expropriation cases are often decided based on the effect of the measure on economic value or substantial property interests of the

¹⁰² J. Martin Wagner, *International Investment, Expropriation and Environmental Protection*, 29 GOLDEN GATE U. L. REV. 465, 465 (1999).

¹⁰³ Máté Csernus, *Indirect Expropriation*, JUS MUNDI (Feb. 6, 2022), <https://jusmundi.com/en/document/wiki/en-indirect-expropriation>.

¹⁰⁴ The Energy Charter Treaty, *supra* note 5, at art. 13.

¹⁰⁵ Areta Jez, *Environmental Policy-Making and Tribunal Decision-Making: Assessing the Scope of Regulatory Power in International Investment Arbitration*, PENN LAW: LEGAL SCHOLARSHIP REPOSITORY 989, 1010 (2019), <https://scholarship.law.upenn.edu/cgi/viewcontent.cgi?article=1992&context=jil;Wagner, supra note 102, at 517>.

investor.¹⁰⁶ The ECT tribunal in *Charanne* held that “expected value of cash-flow” is not covered under expropriation.¹⁰⁷ The tribunal found that “investment” under ECT Article 1(6) requires the asset to be “owned or controlled directly or indirectly” to qualify as an investment, and therefore expected revenues, which are not yet owned or controlled, cannot be investments.¹⁰⁸ However, the impact that the decrease in expected returns could have on the current value of the shares of the company can be considered for expropriation, but the decrease must be so significant as to totally destroy the value of the shares.¹⁰⁹ Otherwise, any decrease in a share’s value as the result of a government measure would be compensable.¹¹⁰ Under customary international law, non-discriminatory and proportionate regulatory measures that are adopted in the public interest do not qualify as expropriation and are therefore not compensable.¹¹¹ There are therefore three steps tribunals should follow in determining if there was expropriation that must be compensated: Was there a government measure? Did the measure completely destroy the value of the shares of the company? Was the measure non-discriminatory, proportionate, and adopted in the public interest?

In *Uniper v. Netherlands*, the fossil fuel investor is arguing that the change in Dutch policy has the effect of halving the value of the plant and therefore amounts to expropriation. The policy in question is almost certainly a “measure” as it is legislation that requires the phasing out of fossil fuel plants.¹¹² However, it is also a measure that was enacted for the purposes of environmental protection to comply with the Netherlands stated Paris Agreement goals.¹¹³ As environmental protection is often held by tribunals to be an essential government function it is frequently protected from expropriation claims.¹¹⁴ Indeed, U.S. Free Trade Agreements with Australia, Chile, Central America, Morocco and Singapore have explicitly provided that “non-discriminatory regulatory actions” that are “designed and applied to protect legitimate public welfare objectives, such as public health, safety, and the environment, do not constitute indirect expropriations.”¹¹⁵

Even if the measure is not deemed essential to government function and therefore meets one of the criteria for indirect expropriation, it did not completely destroy the value of the shares of the company as Uniper only claims the measure has the potential to halve the value the company expected to receive.¹¹⁶ Though we lack specific information regarding the value of the shares of the company, arguably retaining half of the value of

¹⁰⁶ *Metalclad v. Mexico* (ICSID Case No. ARB(AF)/97/1, Award, Aug. 30, 2000), ¶111.

¹⁰⁷ *Charanne* Award, ¶459.

¹⁰⁸ *Id.*

¹⁰⁹ Restrepo, *supra* note 85, at 121-122; see also *Técnicas Medioambientales Tecmed S.A. v. The United Mexican States*, Award, ICSID Case No. ARB (AF)/00/2, 29 May 2003, 44, para. 116, available at <http://www.italaw.com/cases/1087#sthash.9Pg82zdi.dpuf>.

¹¹⁰ *Id.* at 122.

¹¹¹ Claudia Müller-Hoff, *Don't Stick to a Fossil Treaty – Pull the Plug on the Energy Charter Treaty*, VÖLKERRECHTSBLOG (Jan. 31, 2022), <https://voelkerrechtsblog.org/dont-stick-to-a-fossil-treaty-pull-the-plug-on-the-energy-charter-treaty/>.

¹¹² Darby, *supra* note 42.

¹¹³ *Id.*

¹¹⁴ Jez, *supra* note 98; see also Wagner, *supra* note 95.

¹¹⁵ *Indirect Expropriation and the Right to Regulate in International Investment Law*, OECD WORKING PAPERS ON INTERNATIONAL INVESTMENT 21 (2004), https://www.oecd.org/daf/inv/internationalinvestmentagreements/WP-2004_4.pdf.

¹¹⁶ Darby, *supra* note 42.

its shares and the ability to operate for more years to come means that it is not completely destroyed,¹¹⁷ especially given that the company retains the capacity to convert the plant to run on a different fuel.¹¹⁸ Finally, the measure was enacted to enable the Netherlands to meet their agreed goal under the Paris Agreement of cutting their greenhouse gas emissions 49% from 1990 levels by 2030.¹¹⁹ This is in the public interest not only of the Dutch people, but of the global public. Given the significant and impending effects of climate change, the tribunal ought to find that implementing a phase-out policy over the next 15 years is a proportionate measure and is non-discriminatory as it effects all non-renewable energy sources and companies, not just fossil fuels or Uniper and was enacted for a good reason. Therefore, Uniper's expropriation arguments under the ECT are not likely to be successful and they are not likely to be compensated for the Dutch phase-out regulation under Article 13.

Renewable energy investors could also make an argument for expropriation, though it must be made in a very particular context and is not as likely to be successful as their Article 10: Fair and Equitable Treatment argument. Renewable energy companies would be most likely to be successful in a context in which a country enacted specific legislation that benefits gas and coal companies with the effect of completely destroying the value of the renewable energy companies while not being in the public interest. However, this is increasingly unlikely to occur as countries are not often enacting legislation that specifically benefits gas and coal companies, so renewable energy companies may have to be more creative with their expropriation arguments. The structure of expropriation claims is such that the investment is made first and then a government measure is enacted that causes the value of that investment to be completely destroyed. Renewable energy investors could try to argue that a lack of a measure is in fact a measure in itself. This would then allow any renewable energy investors that have already invested in a country to argue that if the government decides *not* to take certain regulatory action to protect against climate change, this is, in fact, a measure. The renewable energy investor would still have to show, however, that the value of their shares was completely destroyed by that inaction.

Even if the investors could successfully argue that not taking a measure is in itself a measure, they will likely struggle to show that there was a specific point in time conveying that inaction that corresponds to a complete destruction in value of their shares. This is most likely to occur in a context in which a government announces, for example, that they will not be supporting solar companies even though they had previously been promising that they would, and that this decision to no longer support solar companies has the effect of completely destroying the value of any existing solar investments, for example if they are thereby forced to stop operating. Renewable energy companies could also argue that the inaction on the climate front provides fossil fuel companies an unexpected competitive advantage that prevents the renewable energy companies from competing when they thought they could, and instead were forced out of business. While renewable energy companies likely face great difficulty in winning an expropriation argument unless very specific factual conditions happen to be met, fossil fuel companies are also not likely to win an expropriation claim given the strict requirements that must be met. While Article

¹¹⁷ Restrepo, *supra* note 85, at 112 (arguing that destruction did not exist when there was no interruption of operations, control of its shares, or of its assets and evidencing that there is no precedent for a finding of "partial expropriation").

¹¹⁸ *Id.*

¹¹⁹ The Paris Agreement.

13 is therefore not likely to be very beneficial as a de facto binding mechanism for international agreements or to compensate any renewable energy companies, it is also not likely to be used to compensate fossil fuel companies, which is itself a benefit for the environment.

V. CONCLUSION

Perhaps it is not, as the headlines have read, an option between the ECT “kill[ing] us” or us “kill[ing] it.”¹²⁰ Instead, we can use the ECT to our advantage not only to protect renewable energy investments but also to hold countries accountable to their international climate agreements that have heretofore been unenforceable. Because of the similarity of the texts among investment treaties, the arguments crafted in this paper under Articles 10 and 13 are likely widely applicable to other investment treaties. As such, investor state dispute settlement could be used to hold a wider variety of countries accountable for their promises under international climate change agreements, thereby adding an enforcement mechanism to agreements that have historically lacked one. This would, in turn, require countries to take stronger and more decisive action to reduce their GHG emissions, taking a significant step toward the global goal of mitigating climate change. Using dispute settlement resolution mechanisms of existing investment treaties is a largely unexplored but ripe avenue for protecting the environment and mitigating the impacts of climate change.

¹²⁰ Meredith, *supra* note 1.

CHAPTER 24: FINANCING THE GREEN-TO-BROWN TRANSITION

JOHN BABCOCK*

This paper examines the important role transition finance must play in the effort to reduce global greenhouse gas emissions (GHGs) to reach the goals set under the Paris Agreement. In recent years, green finance has increased, albeit slowly, but has largely been concentrated in zero and near-zero emission technologies. Indeed, these are important projects, however experts caution against focusing solely on established low-emission technologies to the exclusion of emission-intensive sectors that are key to a robust and sustainable global economy. As such, finance must be made available to such carbon-intensive sectors to progressively lower their emissions in line with the Paris Agreement. Consequently, this paper contributes to the normative approaches to transition finance in three ways. First, the paper identifies barriers facing the green finance market, including the lack of an industry-accepted standards and its decentralized governance. Second, it highlights how these issues pose a risk of greenwashing that will undermine the effectiveness and legitimacy of the transition finance market. Third, this paper advocates for the establishment of a “Green Transition Label,” based on principles taken from emerging approaches, to promote private capital investment in and ensure significant progress of the brown-to-green transition.

INTRODUCTION

Climate change has caused substantial and “increasingly irreversible” damage to ecosystems, human settlements, and infrastructure.¹ This harm is and will continue to be diffuse, touching every aspect of life in every corner of the globe.² Therefore, immediate, near-term actions are needed to mitigate the unsustainable use of natural resources, most notably carbon, in order to avoid missing the “brief and rapidly closing window to secure a livable and sustainable future.”³

Further, addressing climate change is integral to achieving the United Nation’s 17 Sustainable Development Goals (SDGs).⁴ None of the 17 SDGS – whether it be ending poverty, providing affordable and clean energy, or building sustainable infrastructure – are possible if the international community does not reduce emissions and limit global temperature increases.⁵ There is a growing recognition that such actions will require massive investments in the global economy to facilitate the transition to a low-carbon, sustainable model.⁶

* Georgetown University Law Center, J.D., 2023. University of North Carolina at Chapel Hill, B.A., 2020. I would like to thank Professor Hillman for her guidance and feedback throughout the drafting process during the Spring 2022 Trade and Climate Change Seminar.

¹ Climate Change 2022: Impacts, Adaptation, and Vulnerability, Sixth Assessment Report for the Intergovernmental Panel on Climate Change (Feb 22, 2022).

² See *id.* (identifying impacts such as increased frequency and intensity of weather extremes, increased drought, sea level rise, and loss in biodiversity in certain ecosystems).

³ See *id.* at SPMD.5.3.

⁴ See *17 Goals*, United Nations Department of Economic and Social Affairs, <https://sdgs.un.org/goals>, (last accessed April 18, 2022).

⁵ See Financing Credible Transitions: How to Ensure the Transition Label has Impact, Climate Bonds Initiative, White Paper, 8 (Sept. 2020).

⁶ *Id.*

Fortunately, the international community has acknowledged the need for action and committed to various collective measures through the Paris Agreement.⁷ In order to meet the over-arching goal to hold the increase in global average temperature to 2°C below pre-industrial levels,⁸ significant financing will be required, especially within less developed countries.⁹ As such, the Paris Agreement calls for making “finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development,”¹⁰ and obligates all parties to enhance the capacity of developing nations to implement the agreement.¹¹ This commitment builds on the United Nations Framework Convention on Climate Change (UNFCCC), signed in 1992, that charged developed countries to “take all practicable steps to promote, *facilitate and finance*, as appropriate, the transfer of, or access to, environmentally sound technologies and know-how to other Parties, particularly developing country Parties”¹² The Paris Agreement identifies two mechanisms for this facilitation and financing of capacity-building in developing countries. First, the Financial Mechanism of the Convention, and its operating entities, is designated as the financial mechanism for the Agreement, and second, developed countries are individually tasked with providing financial resources to developing countries.¹³

The Paris Agreement recognizes that public commitments will not be enough to achieve its 2°C goal, envisioning an important role for private investment. As noted, public capital from Paris Agreement signatories are not sufficient to fuel the necessary green transition. First, public capital has not been delivered in necessary quantities. The Paris Agreement reaffirmed a 2009 international commitment to provide \$100 billion in “new and additional” climate finance by 2020. With that said, only \$78.9 billion was provided in this period, with only \$43.6 billion qualifying as “new and additional.”¹⁴ Second, the political challenges for signatories, including gridlock, the lack of or shifts in political will, and tight fiscal budgets, will hinder their ability to provide the requisite financing.¹⁵ For example, the United States, Canada, and Spain have each reduced overall climate finance levels relative to 2009, largely due to a combination of these factors.¹⁶ To address these challenges, the Paris Agreement seeks to create a robust market for private

7 Paris Agreement expressly commits to:

- (a) Holding the increase in the global average temperature to well below 2°C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5°C above pre-industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change;
- (b) Increasing the ability to adapt to the adverse impacts of climate change and foster climate resilience and low greenhouse gas emissions development, in a manner that does not threaten food production;
- (c) Making finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development.

See Paris Agreement to the United Nations Framework Convention on Climate Change, Dec. 12, 2015, T.I.A.S. No. 16-1104.

⁸ *See id.* at Art. 2.

⁹ *See* Climate Transition Finance Handbook, International Capital Market Association, 2 (Dec. 2020).

¹⁰ *See* Paris Agreement, *supra* 7, at Art. 2 section 1(c).

¹¹ *See* Paris Agreement, *supra* 7, at Art. 11 section 3.

¹² UNFCCC Art. 4 paragraph 5 (1992) (emphasis added).

¹³ *See* Paris Agreement, *supra* 7, at Art. 9.

¹⁴ *See* Ian Mitchell et al, *Is Climate Finance Towards \$100 billion “New and Additional”?*, Center for Global Development, 1 (March 2021), <https://www.cgdev.org/sites/default/files/PP205-Mitchell-Ritchie-Tahmasebi-Climate-Finance.pdf>.

¹⁵ *See* Stephen Kim Park, *Investors as Regulators: Green Bonds and the Governance Challenges of the Sustainable Finance Revolution*, 54 *Stan. J. INT’L L.* 1 (2018).

¹⁶ *See* Mitchell, *supra* 14, at 1.

capital by calling on developed countries to mobilize necessary finances from a variety of sources.¹⁷

The private green finance market has developed into an important source of financing for environmentally-friendly projects, yet further scale up is necessary to achieve the Paris Agreement's goals. The green financial market was essentially created in 2007 with the issuance of the European Investment Bank Climate Awareness Bonds, a concept later replicated by the World Bank and other multilateral banks.¹⁸ Initially, the green bond¹⁹ dominated the green finance market, but the market has diversified in recent years with the introduction of additional instruments: sustainability bonds, social bonds, green loans, and sustainability-linked loan (or ESG-linked loans).

In addition to its diversification, the size of the green finance market has grown significantly. Since 2007, issuances designated for funding climate projects have increased to around \$800 billion outstanding in 2019.²⁰ There are various factors driving this demand for green finance. First, the adoption of the Paris Agreement and the United Nation's SDGs in 2015 marked a recognition of the need for new investments to counteract the effects of climate change.²¹ Second, investors are increasingly aware of their environmental exposure and face mounting pressure from shareholders, government agencies, and nongovernmental organizations to allocate capital towards environmentally-friendly projects.²² Third, there is growing evidence that these investments can deliver financial rewards for investors and shareholders.²³ On the issuer side, these projects are increasingly popular as they attract new investors seeking to differentiate themselves, and the projects signal the sustainability ambitions of the issuer.²⁴ Despite these factors driving growth in the market, significant scale-up will be required to meet the 2°C goal as it is estimated an additional USD 5-7 trillion of climate finance is needed per year, with USD 3 trillion required for developing countries alone.²⁵

The green finance market is largely fragmented, posing a major challenge to the necessary growth. There is no standard definition of what constitutes "green," rather multilateral development and commercial banks, accounting firms, sovereign governments, non-governmental organizations (NGOs), and individual corporations each promulgate their own standards and certifications.²⁶ While there is overlap across definitions, the lack of an industry-wide standard or label has stymied growth and enabled green bonds to finance projects with questionable environmental impacts.²⁷ Many organizations are calling for increased green finance standardization and labelling as a way

¹⁷ See Paris Agreement, *supra* 7, at Art. 9 section 3.

¹⁸ See Financing Credible Transitions, *supra* 5, at 9.

¹⁹ Green Bond is defined as a debt instrument whose proceeds are earmarked for climate-related projects. See *id.*

²⁰ See *id.*

²¹ See Financing Credible Transitions, *supra* 5, at 9.

²² See *Green Finance: Next Driver of Real Growth*, S&P Global, (March 28, 2017), <https://www.spglobal.com/en/research-insights/articles/green-finance-the-next-driver-of-real-growth>.

²³ See *Sustainable Finance*, Boston Consulting Group, (Last access April 17, 2022), <https://www.bcg.com/en-us/capabilities/social-impact-sustainability/how-sustainable-finance-is-shifting-future-of-investing>.

²⁴ See Mathias Lund Larsen, *A Growing Toolbox of Sustainable Finance Instruments*, *Green Finance and Development Center*, (Nov. 22, 2019), <https://greenfdc.org/a-growing-toolbox-of-sustainable-finance-instruments/>.

²⁵ See Financing Credible Transitions, *supra* 5, at 9.

²⁶ See Nathan Bishop, *Green Bond Governance and the Paris Agreement*, 27 N.Y.U. ENVTL. L.J. 377, 379 (2019).

²⁷ See *id.*

to increase access to and liquidity of green finance while ensuring more accurate accounting of global investment.²⁸

In addition to the need for standardization, the green finance market must expand in scope to meet the Paris Agreement's goals. To date, climate finance has been concentrated in projects that are considered 'already green,' like renewable technology projects.²⁹ Of course, these zero or near-zero emitting technologies are important and must be scaled up, however broader action is needed to achieve our environmental goals. Successful global emissions reduction will require the "low-carbonizing" of all industries, particularly high-emitting sectors (e.g. manufacturing, agriculture, construction), in a coordinated and inclusive manner.³⁰ Collectively, industry (both energy-related and direct industrial processes) and agriculture account for around 47% of global CO₂ emissions.³¹ As such, a feasible emission-reduction pathway must be presented to these high-emitting industries that account for large shares of emissions but are vital for the economy.³² Facilitating the implementation of technologies to reduce fugitive methane emissions in refineries,³³ the adaptation of a gas network for hydrogen as an energy carrier,³⁴ or the improvements in energy efficiency in agribusiness or cement production plants³⁵ are all opportunities to align the global economy with the Paris Agreement's goals while not hindering future socio-economic development.

Moreover, a robust transition finance market is an opportunity to include stakeholders who are, at times, absent from climate action efforts. Currently, large GHG emitters are excluded from the green finance market, because they do not qualify as "green."³⁶ This ultimately means insufficient levels of capital are available to help these firms reduce their emissions.³⁷ Additionally, the exclusion of high-emitting industries isolates less developed countries from the sustainability movement, as these nations are concerned over the economic impact of limiting carbon-intensive projects.³⁸ Leaders of these nations point to the century of indiscriminate burning of fossil fuels by western nations that propelled their economic and social development and, understandably, are weary of foreclosing those opportunities for their own countries.³⁹ With this backdrop, the idea of "transition finance" has become of increasing interest as a method to facilitate the progressive reduction of GHG emissions in high-emitting industries and bring all nations, no matter their respective capabilities or emissions status, into the fold.

Currently, there is no general consensus on what constitutes "transition finance," or even the need for a separate definition, but it is important to clearly delineate the type of

²⁸ See *id.* at 379.

²⁹ See Financing Credible Transitions, *supra* 5, at 8.

³⁰ See Japanese Ministry of Economy, Trade, and Industry, *Basic Guidelines on Climate Transition Finance*, 1 (May 2021).

³¹ See *Emissions by Sector*, Our World in Data, <https://ourworldindata.org/emissions-by-sector>, (last accessed March 25, 2022).

³² See Aayush Tandon, *Transition Finance: Investigating the State of Play: A Stocktake of Emerging Approaches and Financial Instruments*, OECD Environment Working Papers No. 179, 9 (Aug. 2021), <https://dx.doi.org/10.1787/68becf35-en>.

³³ See Financing Credible Transitions, *supra* 5, at 7 (Repsol Green Bond 2017).

³⁴ See *id.* (Cadent Transition Bond 2020).

³⁵ See *id.* (EBRD Green Transition Bond 2019).

³⁶ See Financing Credible Transitions, *supra* 5, at 3.

³⁷ See *id.*

³⁸ See Yemi Osinbajo, *The Divestment Delusion*, Foreign Affairs (Aug. 31, 2021).

³⁹ See *id.*

financing discussed here. For the purposes of this paper, “transition finance” refers to finance made available to high-emitting entities to strategically and progressively reduce their GHG emissions to levels in-line with the Paris Agreement goals. This conception of transition finance is broadly inclusive, covering both proceeds and general-use corporate formats. Moreover, entities may borrow to fund specific assets or operating and capital expenditures (OPEX and CAPEX) as long as the expenditures advance the entity’s specific targets of the transition strategy. Ultimately, transition finance is focused on aiding the process of *becoming* green, rather than *being* green, and the global economy will need many more entities and industries to become green if we are to meet the goals of the Paris Agreement.⁴⁰

I. EXISTING BARRIERS IN THE GREEN FINANCE MARKET AND THE RISK OF GREENWASHING

As noted previously, the green finance market has grown tremendously, in both the amount of capital available and the number of financed projects. Despite that growth, it continues to be underfinanced. Additional funding sources, particularly private institutional investors, are critical to meet the Paris Agreement’s goals. This Section identifies existing barriers to bridging the private finance gap and discusses how these barriers create a risk of greenwashing that could undermine the legitimacy and development of the market.⁴¹

A. *Survey of Factors Inhibiting Growth of Transition Finance*

A recent study by the Global Sustainability Institute surveyed policy reports examining large-scale clean investment and conducted extensive interviews with investors and advisors in the green finance market, ultimately, producing a comprehensive list of reported barriers deterring private investment in green finance projects.⁴² The reported barriers can be grouped into three inter-related categories.

First, the lack of an over-arching climate policy framework inhibits further investment.⁴³ This includes issues like the lack of industry-accepted standards or a consistent green taxonomy, as well as the decentralized nature of the green finance market. Currently, there is no uniform criteria to identify which sectors or technologies are eligible to receive financing in the green finance market, nor are there industry-wide guidelines to evaluate the proposed environmental impact and progress towards that impact. As such, investors are hesitant to invest capital in “green” projects, as what constitutes “green” varies from country-to-country and sector-to-sector, and there is no entity administering or evaluating these projects.

Second, the lack of appropriate projects and investment opportunities deters investors from climate-related projects.⁴⁴ Many investors claimed there is a shortage of “shovel ready” projects due to requirements that projects need a certain credit-rating or the

⁴⁰ See OECD Working Paper, *supra* 32, at 18.

⁴¹ This Section does not claim to provide an exhaustive list of barriers, rather it offers barriers that are related to the global certification program.

⁴² See generally Hafner et al, *Closing the Green Finance Gap – a Systems Perspective*, 34 Environmental Innovation and Societal Transitions 26-60 (2020).

⁴³ See *id.* at 32.

⁴⁴ See *id.*

perception that there were limited projects with acceptable risk-return profiles to warrant investment.⁴⁵

Third, internal features of investment institutions constrain investors. There is currently a shortage of sustainability expertise in investment firms.⁴⁶ The relative lack of knowledge and/or technical expertise on green infrastructure investment and evaluating the technology-risk of uncertain technologies are major challenges for those investors interested in climate-related projects.⁴⁷ Additionally, the internal constraints on decision-making within investor companies, the slow uptake of environment, social, governance (ESG) strategies in corporate governance, and the lack of ESG-data were all commonly-identified reasons as barriers to investment.⁴⁸

B. Greenwashing as a Threat to Transition Finance

The barriers identified above, particularly the lack of a consistent taxonomy, create the risk of greenwashing that threatens the growth and sustainability of the transition finance market. Greenwashing refers to the “use of marketing to portray an organization’s products, activities, or policies as environmentally-friendly when they are not.”⁴⁹ These companies use environmental rhetoric to improve their profits and/or brand, even though their projects have neutral or potentially negative environmental impacts.⁵⁰ Moreover, purposeful deception, while concerning, is not necessary for greenwashing to undermine the goals of the transition finance market; the lack of centralized governance and accepted standards enable the funding of projects with questionable environmental impacts.⁵¹

Greenwashing negatively impacts the transition finance market in two major ways. First, the continued financing of projects with dubious environmental impacts threatens the international community’s ability to meet the Paris Agreement’s 2°C goal.⁵² Under the current decentralized framework, green financial instruments are self-designated, without baseline standards, enabling issuers to obtain financing despite neutral, or even negative, environmental impact.⁵³ In fact, green bonds have been used to finance the construction of a parking garage⁵⁴ and new coal-fired power plant.⁵⁵ Clearly, these projects contribute little to the reduction of global GHG emissions, either by replacing high-emitting technologies or facilitating high-emitting industries to progressively lower their emissions.

Second, the financing of these greenwashed projects, without meaningful accountability, subverts the legitimacy of the transition finance market.⁵⁶ Under the current regime – where issuers unilaterally label their projects as “green” without an industry-accepted basis for what that means – there are varying levels of post-issuance

⁴⁵ See *id.* at 31.

⁴⁶ See Finance Sector Skills Shortage Puts ESG in Focus, Acre Resources (May 6, 2021), <https://www.acre.com/blog/2021/05/finance-sector-skills-shortage-puts-esg-in-focus?source=google.com>.

⁴⁷ See *id.*

⁴⁸ See *id.* at 31 (Table 2).

⁴⁹ See Park, *supra* 15, at 39, n.78 (citing Investopedia.com, <https://www.investopedia.com/terms/g/>).

⁵⁰ See *id.* at 11.

⁵¹ See Bishop, *supra* 26, at 290.

⁵² See *id.* at 391.

⁵³ See *id.*

⁵⁴ See *id.* (citing Mike Cherney, ‘Green Bonds’ for a Parking Garage?, WALL ST. J., (Mar. 12, 2015), <https://www.wsj.com/articles/green-bonds-for-a-parking-garage-1426176294>).

⁵⁵ See *id.* (citing David Stanway, *China Coal-Fired Power Plant Issues Green Bonds*, REUTERS (Aug. 4, 2017), <https://www.reuters.com/article/china-power-financing/china-coal-fired-power-plant-issues-green-bonds-idUSL4N1KP3RQ>).

⁵⁶ See *id.*

reporting and monitoring requirements for green financial instruments, undermining the ability of investors to ensure the marketed environmental benefits actually occur.⁵⁷ Further, even with proper post-issuance data, institutional investors often do not have the necessary expertise to effectively analyze the data.⁵⁸ Sustainable investing requires an ability to analyze non-financial ESG information, often rooted in natural sciences, and interpret its financial materiality.⁵⁹ Many investors currently lack this skillset, forcing firms to hire new analysts or outsource this analysis.⁶⁰ Moreover, there are few mechanisms for investor recourse should they discover that the projects actually had neutral or negative environmental impact.⁶¹ Rather, they must rely on peer pressure or reputational damage as enforcement tools.⁶² Cumulatively, the lack of sufficient reporting and monitoring requirements, lack of competency evaluating environmental impacts, and the lack of enforcement mechanisms risk undercutting investor's view of transition finance projects as viable investment opportunities. Ultimately, this would lead to the scaling-down, rather than the necessary scaling-up, of finance for climate-related projects that can reverse rising global GHG emissions.

II. NEED FOR “GREEN TRANSITION LABEL”

As noted above, the progressive lowering of GHG emissions in certain high-emitting, economically-important sectors is necessary to create a Paris Agreement-aligned global economy. Yet, for a variety of reasons the transition finance market is underfinanced. This Section puts forward a framework for a global “Green Transition Label” that aims to mobilize the necessary investments by enabling investors to identify and prioritize transition projects. The Green Transition Label is centered on three core eligibility criteria that clearly demarcate the transition finance market from the general green finance market. Additionally, the label utilizes four pillars of disclosure to ensure credible transition pathways and prevent greenwashing.

The Green Transition Label will be administered by an independent, international organization, remedying the previously-discussed fragmentation challenge. This organization will be responsible for issuing and periodically revising the certification standards, including the eligibility criteria and pillars of disclosure; evaluating prospective issuer's transition strategies and disclosures as part of their application for certification; auditing and inspecting annual reports to maintain certification; and serving as an adjudicatory body for complaints brought by financiers against issuers for failing to meet the environmental goals identified during the certification process.

This Section identifies the core eligibility criteria for which economic activities can borrow under the Green Transition Label, describes the normative pillars upon which the label is based, explains how the eligibility criteria and pillars will solve the previously identified barriers, and addresses potential counter-arguments against the creation of the Green Transition Label.

⁵⁷ See *id.*

⁵⁸ See Hafner et al, *supra* 42, at 31.

⁵⁹ See Finance Sector Skills Shortage, *supra* 46.

⁶⁰ See *id.*

⁶¹ See Bishop, *supra* 20, at 395.

⁶² See Park, *supra* 15, at 20.

A. Core Eligibility Criteria

There are three core eligibility criteria that determine which economic activities are eligible to obtain certification under the Green Transition Label: substitutability, trajectory commitment, and avoiding path dependency.⁶³ These criteria are based on an OECD global survey of emerging transition finance taxonomies and are important for the Green Transition Label for several reasons. They identify specific conditions of the issuer or asset for eligibility in order to prevent greenwashing. Additionally, the criteria ensure that the Green Transition Label does not support industrial activities that do not have a long-term role in the Paris Agreement-aligned global economy. Finally, the criteria distinguish projects under the Green Transition Label from other sustainable financial investments.

First, the economic sector of the issuer or particular asset must not have a viable zero or near-zero emissions alternative.⁶⁴ Second, the issuer must demonstrate a commitment to an emission-reduction trajectory in-line with the Paris Agreement.⁶⁵ The issuer must use the capital raised to finance investments and/or expenditures to upgrade their energy efficiency and lower their emissions, rather than increase output above sustainable levels.⁶⁶ Third, the issuer must commit to avoiding path dependency, meaning that the projects financed must not lock in long-term emissions.⁶⁷ Therefore, should a viable green alternative⁶⁸ become available in the future, its implementation cannot be precluded by the project financed using the Green Transition Label.⁶⁹

B. Disclosure Pillars of the Green Transition Label

The Green Transition Label requires four Pillars of Disclosure by the issuer to obtain a certification, as a means to promote credibility and protect against greenwashing. The Pillars include: (1) Issuer's Climate Transition Strategy; (2) Business Model Environmental Materiality; (3) Science-based Transition Strategy; and (4) Implementation Transparency. These principles are aligned with existing capital market guidelines issued by Japan⁷⁰ and the International Capital Markets Association (ICMA),⁷¹ ensuring international consensus across the transition finance market.

Disclosure under the Green Transition Label will occur in two distinct phases. Pre-issuance of the loan, the prospective issuer must submit a Green Transition Framework Report to obtain certification that identifies the assets that meet the core criteria and provides the requisite information under Pillars 1, 2, and 3.⁷² An independent reviewer, employed or contracted by the administering institution,⁷³ will verify the information and data presented in the Report and confirm it supports the issuer's transition strategy. Post-issuance, the issuer will report annually to the administering institution as to the monitoring and compliance information required under Pillar 4 in order to maintain

⁶³ See OECD Working Paper, *supra* 32, at 16.

⁶⁴ See *id.* at 20.

⁶⁵ See *id.*

⁶⁶ See Subsection D for further discussion on overcapacity concerns and output constraint.

⁶⁷ See OECD Working Paper, *supra* 32, at 16.

⁶⁸ Green in this context meaning zero or near-zero emissions.

⁶⁹ See OECD Working Paper, *supra* 32, at 16.

⁷⁰ See Japanese Guidelines on Climate Transition Finance, *supra* 30.

⁷¹ See Transition Finance Handbook, *supra* 9 (recommendations developed by a working group composed of representatives from over 80 entities participating in capital markets).

⁷² See Climate Bonds Standards V.3, Climate Bonds Initiative, 6 (Dec. 2019).

⁷³ Potential organizations discussed in Section III.

certification. This Section describes the underlying rationale and information to be reported under each Pillar.

1. Issuer's Climate Transition Strategy

The issuer's climate transition strategy is the core of the Green Transition Label certification process and should be a pre-requisite for the issuance of any financing. The Green Transition Label communicates the credibility of the issuer's climate-related commitment and practices, by outlining how the issuer intends to transform its business model to address climate-related risks and reduce its emissions.⁷⁴ Issuers should have considerable discretion in the formulation of their strategy, although it must be guided by the objective of contributing to a Paris Agreement-aligned global economy.⁷⁵

The issuer's climate transition strategy involves extensive disclosures regarding how the issuer will align itself with the Paris Agreement. The transition strategy must include the long-term target to align with the Paris Agreement's 2°C goal, the relevant interim targets along that transition trajectory, disclosures on specific actions to be taken to reach such long-term and interim targets, and any further strategic planning related to the transition, including broader sustainability strategies.⁷⁶ The strategy can identify initiatives related to the de-carbonizing of existing business practices or the phasing out of carbon-intensive practices and introducing new technologies;⁷⁷ examples include fuel conversion that reduces carbon emissions, the introduction of new technologies into the business model, changes in manufacturing processes, and the development of products or services in new fields.⁷⁸ Critically, the strategy should also identify the governance structure responsible for overseeing, managing, and assessing the implementation of the transition.⁷⁹

2. Business Model Environmental Materiality

The issuer's climate transition strategy should focus on transforming the core business activities that are environmentally-material parts of the issuer's business model.⁸⁰ These are activities that are fundamental, rather than incidental, to the issuer's economic success *and* have the greatest current and future environmental impact, most notably GHG emissions.⁸¹ The issuer should consider multiple climate change-related scenarios when identifying such environmentally-material activities.⁸² As part of disclosure under this Pillar, the issuer should discuss the methodology used to identify the environmentally-material business activities, including any climate change-related scenarios used, as well as the impact of the transition on these business activities.⁸³

⁷⁴ See Climate Transition Finance Handbook, *supra* 9, at 3.

⁷⁵ See *id.*

⁷⁶ See Japanese Guidelines on Climate Transition Finance, *supra* 30, at 8.

⁷⁷ See Financing Credible Transitions, *supra* 5, at 18.

⁷⁸ See *id.*

⁷⁹ See *id.*

⁸⁰ See Japanese Guidelines on Climate Transition Finance, *supra* 30, at 10.

⁸¹ See Climate Transition Handbook, *supra* 9, at 4.

⁸² See Japanese Guidelines on Climate Transition Finance, *supra* 30, at 10.

⁸³ See *id.* (defining science-based targets as “GHG reduction targets required for achieving the goals of the Paris Agreement and set . . . taking into account differences in regional characteristics and industries.”); see also Climate Transition Handbook, *supra* 9, at 4.

3. Science-based Transition Strategy

The issuer's climate transition strategy must be rooted in climate science in order to ensure a credible transition. As such, the strategy must be quantitatively measurable and aligned with recognized, sector-specific decarbonization trajectories.⁸⁴ As part of the Green Transition Report, issuers should specifically disclose:⁸⁵

- Short, medium, and long-term GHG reduction targets aligned with the Paris Agreement;
- Baseline GHG emissions levels;
- Climate-change related scenarios and the methodology applied (e.g. Science Based Targets Initiative (SBTi), Sustainable Development Scenario (SDS), industry sector roadmaps, etc.);
- GHG reduction targets covering Scope 1, 2, and 3 of GHG Protocol;⁸⁶ and
- GHG reduction targets formulated in both intensity and absolute terms.⁸⁷

Given the complexity of decarbonization trajectories, issuers may find it useful to obtain expert reviews concerning their science-based targets, climate-change scenarios, and GHG emissions reduction measures.⁸⁸

4. Implementation Transparency

Transparency related to the capital and operation decisions made to deliver the proposed climate transition strategy is critical.⁸⁹ Carbon-intensive industries face pressure to make short-term announcements regarding their climate goals and sustainability efforts, however delivering on said promises over the long-term is challenging.⁹⁰ Therefore, all issuers must report annually for the life of the loan to maintain certification under the Green Transition Label.

The annual reporting covers three areas of concern regarding the project.⁹¹ First, allocation reporting confirms the allocation of the capital to eligible projects and assets. Second, eligibility reporting confirms the characteristics and performance of projects and assets to maintain eligibility under the core criteria. Third, impact reporting identifies the metrics and indicators to reflect the expected and actual impact of the projects. Together, these categories provide comprehensive transparency regarding the project.

The ongoing monitoring requires both quantitative and qualitative reporting regarding the climate transition strategy. Specifically, issuers should disclose:

⁸⁴ See Climate Transition Handbook, *supra* 9, at 5.

⁸⁵ See Climate Transition Handbook, *supra* 9, at 6; see also Japanese Guidelines on Climate Transition Finance, *supra* 30, at 10.

⁸⁶ "Scope 1 emissions cover direct emissions from owned or controlled sources. Scope 2 emissions include indirect emissions from the generation of purchased electricity, steam, heating, or cooling consumed by the company. Scope 3 emissions include all other indirect emissions that occur in the company's value chain." Carbon Trust (date accessed: March 30, 2022). See *Briefing: What are Scope 3 Emissions?*, Carbon Trust (last accessed April 12, 2022), <https://www.carbontrust.com/resources/briefing-what-are-scope-3-emissions>.

⁸⁷ See Climate Transition Handbook, *supra* 9, at 6; see also Japanese Guidelines on Climate Transition Finance, *supra* 30, at 10.

⁸⁸ See Japanese Guidelines on Climate Transition Finance, *supra* 30, at 11.

⁸⁹ See Climate Transition Handbook, *supra* 9, at 7.

⁹⁰ See *id.*

⁹¹ See Climate Bonds Standards V.3, *supra* 73, at 5.

- Details of divestments, governance, and process changes;⁹²
- Percentage of assets, revenues, expenditures, and divestments aligned to the various actions and assets identified in the Green Transition Report;⁹³
- Confirmation that projects and assets continue to meet core eligibility criteria;⁹⁴
- Any deviations between the proposed and actual expenditures with an explanation for the deviation;⁹⁵
- Progress on GHG emission reduction benchmarks with links between expenditures and outcomes, to the extent possible.⁹⁶

Additionally, the Green Transition Label provides enforcement mechanisms to promote accountability should projects underperform. Primarily, the project can be de-certified under the Green Transition Label should it fail to meet its targets or deliver other proposed environmental objectives. Further, the Green Transition Label will utilize financing terms to improve sustainability performance. Penalty mechanisms – coupon step-ups, premium payments, obligations to purchase offsets – can be embedded in the financial instrument to incentivize compliance with key performance indicators (KPIs) linked to the issuer’s climate transition strategy.⁹⁷ Upon review and determination by independent adjudicators of the administering organization, these mechanisms can be triggered, increasing the project’s costs and serving as a remedy for failure to meet the KPIs. Ultimately, monitoring the internal allocation of capital and progress of implementation of the climate transition strategy are the most important tools to protect against greenwashing and ensure the capital is leveraged to transition business operations to align with the Paris Agreement.

C. The Green Transition Label as a Solution to Barriers to Investment

Fundamentally, the Green Transition Label aims to bridge the investment gap by identifying “shovel ready” projects for investment and ensuring sufficient information is provided to investors.⁹⁸ It does so by remedying four of the previously-discussed barriers currently inhibiting growth in the transition finance market: lack of industry-accepted standards or taxonomy; the decentralized governance of the transition finance market; lack of capacity of investors to evaluate environmental risks; and the internal governance challenges of institutional investors regarding ESG.

First, the Green Transition Label offers a consistent taxonomy to evaluate prospective projects. The Green Transition Label establishes a framework of rigorous standards related to eligible economic activities, medium and long-term emission-reduction targets, methodology, and monitoring and compliance obligations. Any prospective issuer will be evaluated against these standards by independent reviewers. This framework resolves inconsistencies and synthesizes various standards across sectors to promote the credibility of the transition finance market.

⁹² See Climate Transition Handbook, *supra* 9, at 7.

⁹³ See *id.*

⁹⁴ See Climate Bonds Standards, *supra* 73, at 19.

⁹⁵ See Japanese Guidelines on Transition Finance, *supra* 30, at 11.

⁹⁶ See Japanese Guidelines on Transition Finance, *supra* 30, at 11; see also Climate Transition Handbook, *supra* 9, at 7.

⁹⁷ See OECD Working Paper, *supra* 32, at 10; see also Financing Credible Transitions, *supra* 5, at 24.

⁹⁸ See Japanese Guidelines on Transition Finance, *supra* 30, at 3.

Second, the Green Transition Label will be administered by an independent, international organization, establishing a unified governance structure.⁹⁹ The organization will perform important functions such as promulgating and revising the specifics of the Green Transition Label requirements, independently evaluating each climate transition strategy with the requisite expertise, and performing the ongoing oversight of implementation. The uniform administration of the Green Transition Label will solve the fragmentation and decentralization challenges that increase transaction costs and enable greenwashing.

Third, the Green Transition Label certification process evaluates the environmental and technological risks, rather than private investors. Conducted by those with expertise in relevant risks, the certification process serves as a screening tool to weed out greenwashed projects and ensure only those with a robust transition strategy, based on science-based targets and pathways, are designated under the Green Transition Label. This reduces the burden on investors performing their due diligence on the environmental attributes of investments, and assures investors that they are not taking on undue environmental risk.¹⁰⁰ Moreover, the ongoing reporting requirements provides investors with assurances that their investments will produce the intended environmental benefits and provides accountability mechanisms should they not.

Fourth, the Green Transition Label offers a marketing tool for institutional investors to promote their ESG credentials. As noted previously, investors face increasing pressure from shareholders, governmental agencies, and nongovernmental organizations to take strong action related to climate change by allocating more capital to sustainable projects. The independent verification process of the Green Transition Label enables these institutions to demonstrate to shareholders, regulators, or other stakeholders that their investments meet rigorous science-based standards and positively contribute to meeting the Paris Agreement goals.¹⁰¹

D. Arguments Against the Green Transition Label

Undoubtedly, there will be opponents who argue against the creation of a Green Transition Label. This Section identifies potential counter-arguments and explains how none outweigh the potential positive impact the Green Transition Label could have on the flow of sustainable finance.

First, some investors warn a separate “transition” label will only add confusion against the more established “green” financial market.¹⁰² They argue these labels are distinctions without real differences as any projects financed under a “green” instrument also are transitioning their business model to greater sustainability.¹⁰³ True, whether an investment is labeled “green” or “transition” is less important than ensuring financing is available for these projects. Nevertheless, the fundamental issue is that transition projects are currently excluded from green capital markets due to their emissions levels.¹⁰⁴ Thus, the central aim

⁹⁹ See Section III for further discussion on possibilities for the administering organization and potential benefits and challenges.

¹⁰⁰ See Climate Bonds Standards, *supra* 73, at 4.

¹⁰¹ See Climate Bonds Standards, *supra* 73, at 4.

¹⁰² See Environmental Finance, *‘Transition’ firms preferring sustainability-linked over transition bonds* (2021), <https://www.environmental-finance.com/content/analysis/transition-firms-preferring-sustainability-linked-over-transition-bonds.html>.

¹⁰³ See *id.*

¹⁰⁴ See Financing Credible Transitions, *supra* 5, at 8.

of the Green Transition Label is to reduce transaction costs to facilitate financial flows into these important projects.

Moreover, there are real differences between “transition” and “green” projects. As outlined in the core criteria, transition finance is intended for industries where no feasible zero or near-zero emissions solutions are available, whereas green finance, by definition, flows towards zero or near-zero emissions technologies. Further, transition finance involves assessment of climate-related and technological risks separate from those in green finance because the central aim of providing financing is to facilitate a progressive reduction in emissions along a science-based pathway. Indeed, there are currently few assessment standards in the green finance market, enabling issuers to leverage green financial instruments for questionable purposes.¹⁰⁵ Without proper monitoring, issuers can use green financial instruments to free up resources to secretly increase capacity for emissions-intensive practices.¹⁰⁶ As such, separate standards for the verification process of any financial instrument are necessary to ensure the effectiveness of the transition. Ultimately, a formal label would help the nascent “transition finance” market scale-up alongside the more established “green” market.¹⁰⁷

Second, transition finance, without proper safeguards, could further distort markets and exacerbate industrial overcapacity issues. The international community has recognized overcapacity – global excess capacity in industrial sectors – as a major structural challenge that must be “urgently addressed.”¹⁰⁸ Overcapacity is caused by over-investment in industrial facilities through subsidies or cheap finance.¹⁰⁹ As a result, these facilities are insulated from market conditions, thereby supplying more units of goods than the market would independently provide.¹¹⁰ To resolve this issue, a coordination mechanism between industry and financial planning must exist to align incentives.¹¹¹

The Green Transition Label can serve as this coordination mechanism. The issuer’s climate transition strategy will require rigorous environmental risk assessments of the issuer’s business model, including contributions to global excess supply, and will include energy efficiency benchmarks for production. Further, output constraints, limiting output to sustainable levels, can be included in the KPIs within the financial instrument. As discussed previously, non-compliance with these KPIs will trigger penalty mechanisms that increase costs for the issuer. Conversely, financial incentives can also be embedded that reward the issuer should they reduce their output below these levels. Finally, any safe harbor under the Green Transition Label for countervailing subsidy determinations will be stripped should projects exceed the identified output constraints.¹¹² Ultimately, the

¹⁰⁵ See Bishop, *supra* 26, at 391.

¹⁰⁶ See Marcelo Giugle, Pros and Cons of Green Finance, World Bank Group (Sep. 2018), <https://www.worldbank.org/en/news/opinion/2018/10/10/the-pros-and-cons-of-green-bonds>.

¹⁰⁷ See *id.*

¹⁰⁸ Joint Statement, Group of Seven Ise-Shima Leaders’ Declaration, (May 27, 2016), <https://www.govinfo.gov/content/pkg/DCPD-201600358/html/DCPD-201600358.htm>.

¹⁰⁹ See Overcapacity in Steel: China’s Role in a Global Problem, Duke Center on Globalization, Governance and Competitiveness, 2 (Sept. 2016), https://aamweb.s3.amazonaws.com/uploads/resources/OvercapacityReport2016_R3.pdf.

¹¹⁰ *Id.*

¹¹¹ See Climate Bonds Initiative, *Transition Finance in China: Latest Development and Future Outlook*, (Feb 17, 2022), https://www.climatebonds.net/files/reports/cbi_transition_china_eng_pdf.pdf.

¹¹² Discussion of countervailing subsidies and duties are beyond the scope of this paper but are worthy of consideration.

Green Transition Label will align the financial and industrial incentives of issuers, resolving capacity concerns.

Third, the Green Transition Label cannot be considered a prohibited nor actionable subsidy under the World Trade Organization (WTO) Agreement on Subsidies and Countervailing Measures (SCM Agreement). The SCM Agreement defines subsidies as a “financial contribution by a government or any public body within the territory of a Member which confers a benefit.”¹¹³ Based on this definition, the SCM Agreement applies only financial contributions of national governments, sub-national governments, or public bodies such as state-owned companies.¹¹⁴ The Green Transition Label does not fall under this definition as no government or public body is involved in providing such a benefit. Rather, the Green Transition Label promotes transactions between private parties – the issuer and institutional investors. The administering organization merely certifies that such transactions meet environmental standards and enforces the underlying financial instruments, implicating no WTO-inconsistent subsidies.

Fourth, it may be argued that the Green Transition Label constitutes a technical regulation, standard, or conformity assessment procedure, subject to the avoidance of unnecessary barriers to trade provision of the WTO’s Technical Barriers to Trade (TBT) Agreement.¹¹⁵ The TBT Agreement defines a technical regulation as a “document which lays down product characteristics . . . including applicable administrative provisions, with which compliance is mandatory.”¹¹⁶ However, the Green Transition Label does not qualify under this definition as the verification process is completely voluntary for issuers. There is no requirement for issuers to obtain certification in order to receive financing. Rather, this certification framework is an opportunity for issuers to demonstrate their commitment to sustainability and for investors to receive assurances regarding the credibility of their investments. Thus, the Green Transition Label is not a technical regulation as defined under the TBT Agreement.

Alternatively, the Green Transition Label likely qualifies as a standard under the TBT Agreement. A standard is a “document approved by a recognized body, that provides, for common and repeated use, guidelines or characteristics for products . . . with which compliance is not mandatory.”¹¹⁷ Relatedly, if the Green Transition Label is a standard under the TBT Agreement, the certification process would qualify as a conformity assessment procedure. A conformity assessment procedure is defined as “any procedure used, directly or indirectly, to determine that relevant requirements in technical regulations or standards are fulfilled” which can include “verification and assurance of conformity” or “registration, accreditation, and approval.”¹¹⁸

However, the Green Transition Label would not violate the unnecessary barrier to trade provisions of the TBT Agreement. Under these provisions, any standard or conformity assessment procedure must not be more trade-restrictive than necessary to fulfill a legitimate objective.¹¹⁹ Here, the Green Transition Label advances two recognized

¹¹³ See SCM Agreement, Article 1.1.

¹¹⁴ See World Trade Organization, Subsidies and Countervailing Measures: Overview, (last accessed April 22, 2022), https://www.wto.org/english/tratop_e/scm_e/subs_e.htm.

¹¹⁵ See Agreement on Technical Barriers to Trade, April 1994, Uruguay Round of Multilateral Trade Negotiations.

¹¹⁶ See *id.* at Annex I #1.

¹¹⁷ See *id.* at Annex 1 #2.

¹¹⁸ See *id.* at Annex I #3.

¹¹⁹ See *id.* at Articles 5.1., 5.2 (Conformity assessment procedures); Annex 3, para. E (Standards).

legitimate objectives under the TBT Agreement: the prevention of deceptive practices and protection of the environment.¹²⁰ The core eligibility criteria and Pillars of Disclosure ensure that issuers cannot mislead investors about their environmental commitment or strategy to achieve decarbonization. Further, increasing the flow of finance to assist high-emitting entities along their emissions pathway reduces GHG emissions, curbs the rise in global average temperature, and protects the environment. Moreover, TBT cases under the WTO Appellate Body indicate any restrictions imposed by Green Transition Label can be argued to be proportional to the objective as the standardization and monitoring requirements make a “material contribution” to the objective.¹²¹ Finally, the Green Transition Label, as a recognized international standard, likely falls within an enumerated safe haven under the TBT Agreement, giving it a presumption of not being unnecessarily restrictive.¹²²

Finally, there is a concern regarding the burden the Green Transition Label certification process would place on prospective issuers. As discussed above, the verification under the proposed standards involves extensive strategic planning and disclosure regarding the transition strategy. Certainly, the time, effort, and money required to compile the Green Transition Framework Report and report annually may be prohibitively expensive for some firms, particularly smaller firms or those in developing countries without access to the same technical expertise. With that said, many firms already compile annual reports, sustainability reports, or other disclosure filings with regulators, thus the Green Transition Report can be folded into these existing frameworks.¹²³ Moreover, the Green Transition Label will integrate requirements imposed by various international standards into one user-friendly certification process, reducing the overall burden on applicants. Finally, the Green Transition Label is a *voluntary* initiative for issuers to demonstrate climate integrity, effective management of proceeds, and transparency in implementation.¹²⁴ It will not, and indeed is not intended to, capture all prospective issuers, but rather is focused on facilitating the mobilization of capital and ensuring credible transition strategies for certified issuers.

In sum, opponents to the Green Transition Label will raise various objections against its development and implementation, none providing a dispositive case against its creation. Indeed, there may be stakeholders who find the additional label confusing or its requirements too burdensome, but these individual concerns are far outweighed by the global need for a science-based, transparent certification system to mobilize private capital in the fight against climate change.

III. ADMINISTERING BODIES FOR THE GREEN TRANSITION LABEL

As noted, the current fragmented and decentralized structure of the transition finance market leads to a lack of accountability and greenwashing. The proposed Green Transition Label remedies these challenges through a single organization promulgating standards, reviewing Green Transition Reports, monitoring compliance with transition strategies,

¹²⁰ See *id.* at Art. 2.2.

¹²¹ See *US – Clove Cigarettes*; see also WTO TBT to Trade p.19 https://www.wto.org/english/res_e/publications_e/tbttotrade_e.pdf.

¹²² See TBT Agreement, *supra* 110, at Art. 2.5; see also World Trade Organization, WTO Agreement Series: Technical Barriers to Trade, 20 (last accessed April 22, 2022), https://www.wto.org/english/res_e/publications_e/tbttotrade_e.pdf.

¹²³ See Climate Transition Handbook, *supra* 9, at 6-7.

¹²⁴ See Climate Bonds Standards, *supra* 73, at 4.

and holding non-compliant issuers accountable. Performing these responsibilities requires significant technical expertise and legitimacy to effectively implement the Green Transition Label.

This Section identifies three potential governance structures for the administration of the Green Transition Label – a supranational organization, a government-led consortium, and an international non-governmental organization (IGO) – discusses the benefits and challenges of each option, and ultimately, argues that a supranational organization, particularly the Organization for Economic Cooperation and Development (OECD), is the most logical choice.

A. Supranational Organization

A supranational organization is the best forum for the Green Transition Label as its development and administration will require coordinated, multilateral action. As a threshold matter, the creation of a new institution to administer the Green Transition Label, while theoretically attractive, is unrealistic and unnecessary. The negotiation of a new treaty to establish this organization would require significant political will, both domestic and international, and poses the risk of certain nations holding out to extract more favorable terms.¹²⁵ As such, negotiations would take years to complete¹²⁶ and recent IPCC reports indicate the world simply does not have years to wait.¹²⁷

Therefore, the best option for the swift development and implementation of a global certification system is for the Green Transition Label to be set within an existing supranational organization. Institutions like the OECD, UNFCCC, International Monetary Fund (IMF), European Bank for Reconstruction and Development (EBRD) or other multilateral development banks (MDBs), already work in the project finance space, reducing the start-up time. Further, these institutions have experience with similar initiatives, like the OECD and United States Department of State's Blue Dot Network¹²⁸ or the EBRD's Green Transition Bond Framework.¹²⁹ Moreover, these institutions will provide the Green Transition Label with greater legitimacy given their broad membership. Under this backdrop, the question becomes which organization is best equipped to administer the Green Transition Label and why.

The OECD is the most logical and practical choice to administer the Green Transition Label. Undoubtedly, the Green Transition Label fits squarely within the OECD's mission to work with governments, policy-makers, and citizens to establish evidence-based international standards and find solutions to a range of social, economic and environmental challenges.¹³⁰ Further, the OECD has the technical expertise and

¹²⁵ See David Howard, *The Need for a Supranational Organization in Foreign Investment*, Notre Dame Journal of International & Comparative Law, Vol. 8: Iss. 2, Article 4 (2018), <https://scholarship.law.nd.edu/ndjicil/vol8/iss2/4>.

¹²⁶ For a look at the negotiations period for U.S. trade agreements, see *How Long Does it Take to Conclude a Trade Agreement with the United States?*, Peterson Institute of International Economics, <https://www.piie.com/blogs/trade-investment-policy-watch/how-long-does-it-take-conclude-trade-agreement-us>, (July 21, 2016).

¹²⁷ See generally IPCC Report (2022), *supra* 1.

¹²⁸ See *OECD and the Blue Dot Network*, Organization for Economic Cooperation and Development, <https://www.oecd.org/corporate/oecd-and-the-blue-dot-network.htm> (last accessed April 12, 2022).

¹²⁹ See *Green Transition Bond Framework*, EBRD, <https://www.ebrd.com/work-with-us/sri/green-bond-issuance.html> (last accessed April 25, 2022).

¹³⁰ See *About*, Organization for Economic Cooperation and Development, <https://www.oecd.org/about/> (last accessed April 12, 2022).

legitimacy in international capital markets. Finally, OECD's *Trust in Business Initiative* – a “global multi-stakeholder community of c-suite leaders from the private sector, government, academia, and civil society” that champions internationally-recognized standards¹³¹ – is an existing platform to take on the Green Transition Label.

The OECD's limited membership, relative to other supranational organizations, does not outweigh these benefits. The purpose of the Green Transition Label is to signal to investors the credibility of the transition finance project in order to mobilize capital flows. The overwhelming majority of capital is generated in OECD-member states,¹³² ensuring that Green Transition Label's intended audience – institutional investors – would be included within the program's scope. Therefore, the limited participation does not negate the value of the OECD's international legitimacy and financial expertise in administering the Green Transition Label.

Moreover, the OECD's *Trust in Business Initiative* has already engaged with sustainable-standards-setting for project finance through its Blue Dot Network. In 2019, the United States, Australia, and Japan announced a partnership with the OECD on an initiative to develop a global certification mechanism for sustainable infrastructure projects.¹³³ Financed by the three nations, the *Trust in Business Initiative* convened stakeholders and provided the technical support to develop and release a proposal for a global certification framework for infrastructure investment in March 2022.¹³⁴ Outlining a general prototype for the Blue Dot Network, the proposal includes: a set of essential requirements derived from international standards; a scoring system that evaluates compliance with these requirements; and a review process for verifying project alignment and performance.¹³⁵ This prototype is set to be piloted on various infrastructure projects across different regions and sectors.¹³⁶ The proposal did not yet promulgate the essential requirements for quality infrastructure projects,¹³⁷ therefore, the Blue Dot Network broadening its scope and adopting this Paper's approach to transition finance would be the fastest way to implement this framework.

Alternatively, the UNFCCC presents an international framework in which to develop the Green Transition Label. The Green Transition Label would gain legitimacy from the UNFCCC's near-universal membership¹³⁸ and would align with the treaty's ultimate objective of “stabilization of greenhouse gas concentrations in the atmosphere at a level

¹³¹ See *OECD Trust in Business Initiative*, Organization for Economic Cooperation and Development, <https://www.oecd.org/daf/ca/trust-business> (last accessed April 12, 2022).

¹³² The United States, the United Kingdom, and Japan represent 80% of global institutional equity holdings, and 78% of money invested in public equity markets are from advanced economies. See De La Cruz, et al., *Owners of the World's Listed Companies*, OECD Capital Market Series, (2019), www.oecd.org/corporate/Owners-of-the-Worlds-Listed-Companies.htm.

¹³³ See Media Note, U.S. Department of State, Welcoming the Inaugural Meeting of the Blue Dot Network Executive Consultation Group (June 7, 2019), <https://www.state.gov/welcoming-the-inaugural-meeting-of-the-blue-dot-network-executive-consultation-group/>.

¹³⁴ See *Blue Dot Network: a Proposal for a Global Certification Framework for Quality Infrastructure*, Organization for Economic Cooperation and Development, <https://www.oecd.org/corporate/Towards-a-global-certification-framework-for-quality-infrastructure-investment.htm> (last accessed April 12, 2022).

¹³⁵ See Press Release, OECD Proposes a Prototype for the Blue Dot Network to Operationalize Quality Infrastructure Projects (March 21, 2022), <https://www.oecd.org/daf/the-oecd-proposes-a-prototype-for-the-blue-dot-network-to-operationalise-quality-infrastructure-projects.htm>.

¹³⁶ *Id.*

¹³⁷ See generally Proposal, *supra* 126.

¹³⁸ See Parties, UNFCCC, <https://unfccc.int/process/parties-non-party-stakeholders/parties-convention-and-observer-states> (last accessed April 25, 2022).

that would prevent dangerous anthropogenic interference with the climate system.”¹³⁹ Additionally the UNFCCC’s financial mechanisms – including the Green Climate Fund (GCF)¹⁴⁰ and Private Sector Initiative (PSI)¹⁴¹ – and its Standing Committee on Finance (SCF)¹⁴² provide an existing organizational structure working to mobilize climate finance for mitigation and adaptation projects. Despite these advantages, the UNFCCC is impracticable. Procedurally, the creation of the Green Transition Label under the UNFCCC would likely require negotiations for a separate treaty or a decision issued by the Conference of the Parties (COP).¹⁴³ The transaction costs associated with such negotiations and the parties’ lack of political will for binding commitments make both of these options unlikely.¹⁴⁴ More generally, such a treaty or COP Decision would relate to state action, whereas the Green Transition Label, ultimately, is concerned with transactions between private individuals. Given these political and logistical constraints, the UNFCCC is not the best avenue for the Green Transition Label.

The IMF, or other MDBs, are other potential fora to administer the Green Transition Label. The IMF and other MDBs do have competency and technical expertise in evaluating projects for their financial, technological, and environmental risks. Further, these institutions, particularly the IMF, benefit from broader participation from their member-states. Nonetheless, there are apparent drawbacks from setting the Green Transition Label within one of these financial institutions. First, these financial institutions are subject to stricter legal constraints, under their founding charters, on what activities they can undertake. In fact, only the EBRD’s charter¹⁴⁵ contains any language related to “green” investments or sustainable financing, posing a practical challenge for any other institution – the IMF,¹⁴⁶ Inter-American Development Bank,¹⁴⁷ Asian Development Bank,¹⁴⁸ or African Development Bank¹⁴⁹ – to develop or administer the Green Transition Label. Additionally, these institutions, apart from the IMF, are more geographically-limited in scope, when the Green Transition Label must be global in scope to have its intended impact. As such, the IMF or other MDBs are potential institutions to administer the Green Transition Label, but their legal constraints make them less practical options than the OECD.

¹³⁹ See UNFCCC, *supra* 12, art. 7.2.

¹⁴⁰ See *Who We Are: About the Fund*, GREEN CLIMATE FUND, <https://www.greenclimate.fund/who-we-are/about-the-fund> (last accessed April 25, 2022).

¹⁴¹ See *Adaptation Private Sector Initiative*, UNFCCC, <https://unfccc.int/topics/resilience/resources/adaptation-private-sector>, (last access April 25, 2022).

¹⁴² See *Introduction to Climate Finance*, UNFCCC, <https://unfccc.int/topics/climate-finance/the-big-picture/introduction-to-climate-finance>, (last accessed April 25, 2022).

¹⁴³ See Bishop, *supra* 26, at 406-07.

¹⁴⁴ *Id.*

¹⁴⁵ See Agreement Establishing the European Bank for Reconstruction and Development (1990).

¹⁴⁶ IMF Articles of Agreement <https://www.imf.org/external/pubs/ft/aa/pdf/aa.pdf>.

¹⁴⁷ Agreement Establishing the Inter-American Development Bank, <https://idbdocs.iadb.org/wsdocs/getdocument.aspx?docnum=781584>.

¹⁴⁸ Agreement Establishing the Asian Development Bank, [adb.org/sites/default/files/institutional-document/32120/charter.pdf](https://www.adb.org/sites/default/files/institutional-document/32120/charter.pdf).

¹⁴⁹ Agreement Establishing the African Development Bank, https://www.afdb.org/fileadmin/uploads/afdb/Documents/Legal-Documents/Agreement_establishing_the_African_development_bank_-_2016_edition.pdf.

B. Government-led Consortium

Alternatively, a collaboration of key finance-issuing countries (i.e. the United States, Japan, European Union nations, Australia) could collaborate to develop the Green Transition Label framework and oversee its implementation. Coordinated initiatives like the Blue Dot Network or PowerAfrica¹⁵⁰ are powerful mechanisms to demonstrate national commitment to an issue and lend credibility to the promulgated standards.

There are a number of limitations to such an approach. First, there would inherently be less participation given it would involve the partnership of only a select few nations, whereas a supranational organization has much broader membership. Second, formation of the consortium would likely be slower given domestic political constraints. Third, the involvement of any European nation will raise questions as to whether such collaboration falls under the exclusive or shared competences, further muddying these nations' ability to participate.¹⁵¹ Fourth, and most importantly, the consortium would still require a partnership with another entity to provide the necessary technical support. For example, the Blue Dot Network, led by the United States, Japan, and Australia, partnered with the OECD to convene stakeholders and provide the technical expertise to develop the quality infrastructure investment standards. Therefore, it is most practical and efficient to have the Green Transition Label developed and administered by a supranational organization, rather than a consortium of governments.

C. International Non-Governmental Organization

Finally, the Green Transition Label could be administered by an international non-governmental organization (IGO). There are various organizations already working in the green finance space that could provide the technical support required to develop the global standards. For example, the Climate Bonds Initiative (CBI) seeks to mobilize capital for climate action by providing market intelligence to investors and governments regarding the green bond and green infrastructure markets.¹⁵² The CBI issues and operates the Green Bond Taxonomy, a standards and certification scheme for labelling climate-aligned bonds.¹⁵³ The experience the CBI, and similar organizations, already have in evaluating green investments highlights the technical expertise they would bring to administering the Green Transition Label. Further, IGOs are international in scope, enabling global consensus and reach. The expertise, independence, and global scope of these organizations make them a viable option.

There are notable challenges to the IGO approach. Most significantly, there would be a loss in legitimacy in any standards issued given it would not be a state-led or state-recognized process. Further, questions regarding accountability and enforcement remain given the absence of any national or supranational entity. Finally, an IGO could face difficulties scaling up such an operation with limited resources compared to a government. Ultimately, an IGO could be a useful partner in the development of the technical

¹⁵⁰ See *About Us*, United States Agency for Int'l Development, <https://www.usaid.gov/powerafrica/aboutus> (last accessed April 12, 2022).

¹⁵¹ See *Areas of EU Action*, European Commission, https://ec.europa.eu/info/about-european-commission/what-european-commission-does/law/areas-eu-action_en (last accessed April 12, 2022).

¹⁵² See *About*, Green Bonds Initiative, <https://www.climatebonds.net/> (last accessed April 12, 2022).

¹⁵³ *Id.* ("The Climate Bonds Standard and Certification Scheme is a FairTrade-like labeling scheme for bonds. It is designed as an easy-to-use tool for investors and governments that assists them in prioritising investments that truly contribute to addressing climate change. The Standard is a public good resource for the market.").

requirements of the Green Transition Label, with the actual implementation and enforcement carried out by a supranational organization.

CONCLUSION

Simply put, the world will not meet the Paris Agreement's 2°C goal without fundamental transformations across all sectors of the economy, including emission-intensive industries like manufacturing and agriculture. These transformations will require the mobilization of massive amounts of capital to finance the transitions to sustainability. Despite growth in the market, climate finance remains severely underfinanced, which threatens meaningful progress in the fight against climate change. Investment must be scaled up and broadened. Financiers through the so-called transition finance market can provide high-emitting sectors with the capital needed to progressively lower their emissions in line with the Paris Agreement.

However, certain macro- and micro-features of the transition finance market currently inhibit its growth. The lack of industry-accepted standards, decentralized governance of the green finance market, and the lack of institutional competency in evaluating climate-related risks currently hinder the mobilization of the necessary capital into these transition projects. Ultimately, these barriers create a significant risk of greenwashed transition finance projects that will undermine the legitimacy as a viable investment and further limit the growth of the market.

Therefore, the global investment community should coalesce around the idea of a Green Transition Label. The Label has three core eligibility criteria – substitutability, emission pathway commitment, and the avoidance of path dependency – that will clearly demarcate transition finance projects from other forms of sustainable investing. Further, the Green Transition Label requires extensive pre- and post-issuance disclosures on the financed assets, the science-based targets, the actions to be taken to reach these targets, and performance indicators. This comprehensive reporting scheme reduces transaction costs and ensures credible transition pathway by providing investors with sufficient information regarding the climate attributes of the investments.

The Green Transition Label will be administered under an independent, international governance structure. This organization will be responsible for issuing and periodically revising the certification standards; evaluating prospective issuer's transition strategies and disclosures as part of their Green Transition Report; auditing and inspecting annual reports to maintain issuer's certification; and serving as an adjudicatory body for complaints brought by financiers against issuers for failing to meet the benchmarks identified in the Green Transition Report. While supranational organizations, government-led consortiums, or international non-governmental organizations are each viable options for such a governance structure, a supranational organization represents the practical choice. Specifically, the OECD is the best choice to develop and administer the Green Transition Label due to its technical expertise and experience in similar standards-setting initiatives.

Ultimately, the development of a Green Transition Label is critical to catalyze the necessary climate investments. The certification framework is a way for issuers to demonstrate their commitment to emissions reduction and serves as a signal to investors and other stakeholders that a project complies with international standards. This will provide the consistency, legitimacy, and accountability necessary to mobilize capital markets in financing the brown-to-green transition.

PART VI

WTO LITIGATION AND DEFENSES

As more countries contemplate trade measures imposed in the name of fighting climate change, more issues are raised as to whether such measures are compatible with the World Trade Organization's (WTO) basic rules and significantly for this Part, whether, even if not compliant, such measures fit under one or more of the WTO's general exceptions. Throughout this book, the issue of compatibility with specific WTO provisions – particularly the disciplines on subsidies, on technical barriers to trade, and on the imposition of border measures – have been discussed as they have arisen. Each of those chapters has focused, among other things, on the substantive disciplines that govern when countries can treat “dirty” goods or “dirty producers” or even “dirty” countries differently than they treat “green” ones and when they can favor their own producers based on the relative “greenness” of their domestic economy or the existence of domestic carbon prices or regulations.

Underpinning virtually all such discussions of whether climate measures are compatible with WTO rules are a few key concepts: whether governments may discriminate between products based on “process or production methods” (PPMs) that do not affect the physical properties of the products, such that goods made in a greener way can be treated more favorably; whether climate change measures can fit through the narrow window of the General Agreement on Tariffs and Trade (GATT) Article XX's exception for environmental measures which do not result in “arbitrary or unjustifiable discrimination between countries where the same conditions prevail, or a “disguised restriction on international trade;” and whether climate change can be said to constitute a threat to the essential security of one or more countries such that climate change measures can be justified under the GATT's Article XXI security exception. And looming over all such issues is the larger question of whether the WTO rules still matter in light of the ongoing impasse over the appointment of members to the WTO's Appellate Body. The lack of an Appellate Body allows countries to block the adoption of any panel decisions that might help draw needed lines separating genuine climate measures from protectionist or purely discriminatory ones.

Process or Production Methods – Treating Green-Made Goods Differently

Virtually every challenge to environmental measures, whether at the WTO or under regional trade agreements (RTAs), includes the notion of comparing ‘dirty’ goods with ‘green’ goods in order to determine whether the measure at issue illegally discriminated against the ‘dirty’ goods. Making that comparison inherently involves examining the greenhouse gases (GHGs) embedded in the good but often also includes the broader assessment of whether the process involved to make the good, the PPM, was itself ‘dirty.’ While process or production methods can be quite broadly defined to refer to *any* activity that is undertaken in the process of bringing a good to market, including everything from extraction of the raw materials all the way to transport and trading practices, in the context of climate change, the focus is generally on those activities included in the measurement

of the amount of greenhouse gases embedded in the traded good.¹ If domestic regulations require the inclusion of GHGs burned to produce the energy used in making the product, then the question arises as to whether, for example, steel made using only renewable energy may be treated better than steel made using coal-fired power.

Among the many difficulties faced in determining whether governments can develop policies that charge a higher tariff or impose stricter import requirements on products made with a production process that emits more GHGs than others is that nowhere within the WTO agreements is there an explicit reference to the legality or illegality of most PPMs. As a result, there are limited common understandings flowing from the body of case-by-case WTO decisions on when PPMs can be used to find that one product is not “like” another, such that some measure of discrimination is permitted. From as far back as the GATT’s 1970 *Report on Border Tax Adjustment* listing three product criteria for consideration in determining product ‘likeness’ – a product’s properties, end uses and consumer tastes and habits – many have claimed that likeness could be defined on the basis of PPMs alone.² More recent cases suggest the possibility that a shift in consumer tastes away from “dirty” high-GHG goods could form the basis to permit policies that discriminate in favor of low-GHG goods without violating WTO norms.

The Chapeau of Article XX

Regardless of the trade-related climate measures implemented, the most likely way to justify them is through the invocation of Article XX of the GATT. The basic tenants of the WTO’s General Exception, Article XX of the GATT, are spelled out in a number of the chapters of this book, including especially Chapter 3’s discussion of climate clubs, Chapter 4’s elucidation on including transport emissions in carbon pricing initiatives, Chapter 6’s framing of a green steel deal, and Chapter 8’s outline of a WTO-compatible regime for trade in water. All of these chapters, along with the differing assessments of Article XX’s flexibilities adopted by the U.S., China and the EU that are set forth in this Part’s Chapter 25, “A New Trade Triangle: The U.S., the EU, and China and the Inflation Reduction Act,” focus on the most commonly invoked environmental exceptions: XX(b) and XX(g). Those two paragraphs permit the adoption of policy measures necessary to protect human, animal or plant life or health or the conservation of exhaustible natural resources and are discussed in detail in the above-noted chapters.

Consideration of whether a climate change measure can be justified under one of the General Exceptions of Article XX rarely turns on whether it fits neatly under the most common paragraph (b) or (g) provisions or any other paragraphs. That has traditionally been the easy part. What is much more difficult is proving that a climate measure is also consistent with the introductory paragraph or ‘chapeau’ of the Article XX.³ The difficulty of such a proof – that a climate measure is not being applied in a manner that would constitute “a means of arbitrary or unjustifiable discrimination between countries where the same conditions prevail” and is not “a disguised restriction on international trade” –

¹ Potts, J. (2008). *The Legality of PPMs under the GATT: Challenges and Opportunities for Sustainable Trade Policy*, International Institute for Sustainable Development. Available at https://www.iisd.org/system/files/publications/ppms_gatt.pdf

² *Id.* at 13.

³ Examples of the rare instances in which the Appellate Body found that a measure fit through the narrow opening of the chapeau include European Communities - Measures Affecting Asbestos and Asbestos-Containing Products (*EC-Asbestos*) and United States - Import Prohibition of Certain Shrimp and Shrimp Products to Article 21.5 of the Dispute Settlement Understanding (*Shrimp-Turtle*).

has made a number of governments much more cautious in adopting ambitious climate change policies. The chapters noted above provide a needed note of optimism that genuine climate change measures will pass muster under the chapeau, while providing some guidance on designing policies most likely to be viewed as WTO compliant.

Climate Change as a Threat to Essential Security?

A decade ago, there was little talk of justifying climate change measures under the GATT's security exception, Article XXI. But the increasing recognition that climate change presents the largest global threat to humanity, with effects ranging from acute shortages of food, water and energy to major shifts in migration patterns, to military ports around the world becoming unusable, means a growing understanding of the threat that climate change presents to global infrastructure and security. When findings by everyone from the U.S. Department of Defense to the United Nations (UN) Security Council that climate change threatens global stability and security are coupled with recent WTO decisions interpreting the previously-unchallenged Article XXI, the outcome was – and continues to be – a renewed interest in exploring the link between national security and climate measures. Two chapters in this Part (Chapter 26, “Climate Change as a Security Threat” and Chapter 27, “Where Climate Change, National Security and International Trade Meet”) provide a careful assessment of whether climate change could fit within the exception for measures taken in a time of an “emergency in international relations,” while a third, Chapter 28 (“The Potential Role of Article XXI(c) of GATT to Fight Climate Change”), looks at the implications of a UN Security Council resolution that would allow justification for climate measures taken “in pursuance of its obligations under the United Nations Charter for the maintenance of international peace and security.” All three chapters explore the opportunities to move farther and faster on climate change under the guise of the broad exception to the rules provided by Article XXI, while sounding strong notes of caution over the few guardrails that would remain in place should the world determine that climate change itself is such a threat to every country's essential security that all countries can be excused from adhering to their basic trade rule obligations and the unforeseeable consequences it could bring to the international order.

Implications from the Current Stalemate Over the Appellate Body

All of the discussions about how to justify trade measures that might otherwise violate basic trade norms and whether challenges could or should be brought to those measures that are perceived to fall more on the side of protectionism than on the side of climate mitigation or adaptation presume that countries care about the WTO's rules and about abiding by them. Some fear that the absence of a functioning Appellate Body and the ability of parties to block the adoption of a panel decision condemning their measures as a violation of their WTO obligations through ‘appealing into the void,’ means that big and powerful countries like the United States will no longer work to ensure their trade-related climate policies are consistent with the basic rules.

But this book and the work of Georgetown Law students in thinking through the many legal questions that lie at the intersection of trade law, international law and climate change policy is an optimistic one, that understands that even if the Appellate Body is currently non-functional, the rules are still in place, the panel system continues to function, and there is some hope of restoration of a binding dispute settlement system. The development of a temporary alternative to the Appellate Body in the form of the Multi-Party Interim Appeal Arbitration Arrangement (MPIA) allows its member countries to

obtain a binding (on them) determination reviewing a panel's finding. And the growing use of dispute settlement processes contained within RTAs such as the United States-Mexico-Canada Agreement (USMCA, successor to the NAFTA), various EU RTAs, and the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) means that many countries are availing themselves of the right to have their trade disputes resolved through a rules-based system.

The unprecedented challenge of climate change and the need for an ambitious global response may also give impetus to the efforts currently underway in Geneva to fulfill the pledge made at the 12th Ministerial Conference in 2021, to have “a fully and well-functioning dispute settlement system accessible to all Members by 2024.” Despite the skepticism, there is hope that countries understand that the urgency of the need to fight climate change means there is no time for long-running disputes and that the world needs an accepted arbiter drawing lines between genuine climate measures and impermissible protections for domestic producers or overlaying broad claims of threats to essential security. Avoiding disputes over trade-related climate measures and quickly settling those that arise is the surest way to give all policymakers the guidance they need to design their climate measures in a manner that avoids trade retaliation while supporting sound climate policies both at home and abroad. How to do that is the message of the chapters in this Part VI.

CHAPTER 25: A NEW TRADE TRIANGLE: THE U.S., THE EU, AND CHINA AND THE INFLATION REDUCTION ACT

PENG CHAO*

INTRODUCTION

In August 2022, President Biden signed into law the Inflation Reduction Act (IRA). IRA is considered the most crucial piece of climate legislation ever passed in America. With the most considerable climate funding, it raised \$739 billion in revenue and \$369 billion's investments.¹ The IRA was designed to foster US-made clean energy technologies like Electric Vehicles (EVs), putting the U.S. on a path to 40% emission reduction by 2030,² while simultaneously relieving the dependency on the Chinese supply chain on renewables.

This climate masterpiece, however, was born with disputes. Competitors like China have criticized the IRA's tax credit for incentivizing local content, violating the World Trade Organization (WTO) law.³ Things became more complicated when allies like the EU declared the same thing.⁴ The U.S. has not hesitated to engage with the EU to address the tensions, who share the same concern about China's monopoly. Some problems have been relieved, but not all.

China could raise a WTO lawsuit now, but it could be waiting for the appropriate moment, like when a substantial crack appears between the U.S. and the EU during IRA negotiations. The EU may hold a similar viewpoint before the next move.

Despite all the conflicts, the U.S., the EU, and China share the same ambition of leading global renewables, and the IRA makes it more straightforward for all. After the enactment of the IRA, the U.S., the EU, and China, the three giants in renewable trade, will inevitably find themselves in a trade triangle of cooperation and competition. WTO law would be a crucial "weapon" in the race.

The immediate question, then, is whether the IRA violates the WTO law. Surprisingly, this question has attracted little in-depth analysis to date, yet it goes to the heart of WTO law's core principle. This article, however, will provide that analysis.

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¹ *Summary of the Energy Security and Climate Change Investments in the Inflation Reduction Act of 2022*, Senate Democratic Majority, (July 27, 2022), https://www.democrats.senate.gov/imo/media/doc/summary_of_the_energy_security_and_climate_change_investments_in_the_inflation_reduction_act_of_2022.pdf.

² John Larsen, *A Turning Point for US Climate Progress: Assessing the Climate and Clean Energy Provisions in the Inflation Reduction Act*, Rhodium Group (Aug. 12, 2022), <https://rhg.com/research/climate-clean-energy-inflation-reduction-act/>.

³ Jorge Valero, *EU Is Assessing If US Inflation Act in Breach of WTO Rules*, Bloomberg (Sep.10, 2022), <https://www.bloomberg.com/news/articles/2022-09-10/eu-is-assessing-if-us-inflation-act-in-breach-of-wto-rules>.

⁴ *EU response to the US Inflation Reduction Act: one round of political group's leaders*, European Parliament Multimedia Centre, https://multimedia.europarl.europa.eu/en/video/key-debate-eu-response-to-the-us-inflation-reduction-act-meeps-debate-part-1_I234795.

This article focuses on Electric Vehicles (EVs), a significant renewables component. It briefly summarizes the primary conflicts with IRA and how it forms a trade triangle between the U.S., the EU, and China on the contentious requirements. Then it examines whether the IRA violates WTO law, focusing specifically on the National Treatments and the General Exception under General Agreement on Tariffs and Trade (GATT 1994).⁵ The following section analyzes the way forward for the U.S., the EU, and China in the trade triangle in both the short term and the long term. Ultimately, the article concludes with the implication of another triangle, formed by trade, energy security, and climate change in tandem with a hypothesis of WTO's role in this global triangle.

This article undertakes a detailed case-law examination of National Treatment and the exceptions under WTO law, and the application of IRA. It proves climate change cooperation is becoming more challenging when more countries are weaponizing trade and competing for energy security. While the US, the EU, and China must balance each other in the IRA triangle, the world must balance trade, energy security, and climate change. And WTO should engage with its distinct strengths.

I. IRA AND A NEW TRADE TRIANGLE OF RENEWABLES

The IRA has formed a new trade triangle between the U.S., the EU, and China on renewables, especially with the domestic content requirements.

A. IRA's Domestic Content Requirements

The IRA's majority conditions for applying tax credits will take effect in 2023, highlighting domestic content requirements, especially for electric vehicles (EVs). Among others, a maximum \$7,500 tax credit is available for EVs meeting critical minerals and manufacturing requirements. To be qualified for the tax credit, several conditions are required. First, 40% of the value of the critical minerals in the battery must be mined in the U.S. or in countries with a U.S. free trade agreement (FTA) or recycled in North America. The 40% will rise annually to 80% by 2026. Meanwhile, 50% of the value of the battery must be manufactured or assembled in North America. The 50% will rise over time until 100% by 2028. Furthermore, the final assembly of electric vehicle models must occur in North America to be eligible for the tax credit.⁶

Domestic content requirements are designed to exclude some countries, especially China.

B. The U.S. and China on the IRA

According to International Energy Agency's (IEA) 2022 report, China dominates the value chain of clean energy and refines 73 percent of the world's cobalt, 68 percent of nickel, 59 percent of lithium, and 40 percent of copper, which are critical minerals for an EV battery.⁷

⁵ National Treatment is also required in the Agreement on Trade-Related Investment Measures (TRIMs Agreement) and the Agreement on Subsidies and Countervailing Measures (SCM Agreement). Specifically, the SCM Agreement specifically names tax credits as an example of a subsidy, and an IRA's tax credits could be claimed as actionable subsidies or even as prohibited subsidies. But this article focuses on GATT. *General Agreement on Tariffs and Trade*, opened for signature 15 April 1994, 1867, UNTS 3 (entered into force 1 January 1995), Art III:4 (GATT).

⁶ Inflation Reduction Act, H.R. 5376, 117th Cong. § 13401 (2021).

⁷ William Alan Reinsch, *An Electric Debate: Local Content Requirements and Trade Considerations*, Center for Strategic and International Studies (Jan. 12, 2023), <https://www.csis.org/analysis/electric-debate-local-content-requirements-and-trade-considerations>.

Around 40 percent of an EV's value is in its battery, and the EV world is likely to be defined by battery cost. In the same vein, the countries that dominate battery manufacturing will likely win a large share of the EV market.⁸ IEA states that China produces 76% of EV batteries globally, and the production capacity in 2021 is 655 GWh. The US's number is 7% and 57 GWh.⁹

1. IRA to China: Foreign Entity of List

For the US, the need to reorient from dependence on China, improve diversity in the supply chain and stimulate the country's domestic manufacturing ecosystem has become a bipartisan agreement in Washington. Accordingly, the IRA is designed to cut Chinese suppliers out of U.S. clean energy supply chains.

The IRA expressly excludes any vehicle placed in service after December 31, 2024, if the critical minerals contained in the battery were extracted, processed, or recycled by a foreign entity of concern and any vehicle placed in service after December 31, 2023, if the components contained in the battery were manufactured or assembled by a foreign entity of concern. It is not a surprise that China is on the concern list.¹⁰

Furthermore, on March 9, 2023, U.S. Senator Marco Rubio introduced the *Restricting Electric Vehicle Outlays from Kleptomaniac Enemies (REVOKE) Act of 2023* to further restrict Chinese-related companies from benefiting from the IRA tax credit,¹¹ although there is no significant update.

2. China's Response to IRA: in Violation of the WTO law

The IRA is suspected of violating the WTO rules, and China will adopt measures to safeguard its legitimate rights when necessary, the Chinese commerce ministry announced after the IRA was published.¹²

Later, during the WTO's Subsidies and Countervailing Measures Committee meeting in October 2022, China submitted a report stating that the IRA contains provisions inconsistent with some of the core WTO principles like National Treatment.¹³ The next committee meeting is scheduled to take place in May 2023.¹⁴

During the Trade Policy Review ("TPR") session on the US's trade policy in WTO in December 2022, China inquired about whether the enactment of the IRA alters the US's established stance of criticizing other WTO members' industrial subsidies as they create market distortions, unfair competition, and harm the interests of other members, while

⁸ Harry Dempsey, *Chinese battery makers set to dominate Europe's car industry*, Financial Times (Dec. 6, 2022), <https://www.ft.com/content/d407772c-4a76-4e59-9bb0-998b3f22383b>.

⁹ *Global Supply Chains of EV Batteries*, International Energy Agency <https://www.iea.org/reports/global-supply-chains-of-ev-batteries>.

¹⁰ Inflation Reduction Act, H.R. 5376, 117th Cong. § 13401 (2021).

¹¹ Press Release, *Rubio Introduces Bill To Block Subsidies To Chinese Battery Companies*, Marco Rubio U.S. Senator for Florida (March 09, 2023), <https://www.rubio.senate.gov/public/index.cfm/2023/3/rubio-introduces-bill-to-block-subsidies-to-chinese-battery-companies>

¹² Beijing Newsroom, *China says U.S. EV subsidy rules suspected of violating WTO rules*, Reuters (Sept. 22, 2022), <https://www.reuters.com/business/autos-transportation/china-says-us-ev-subsidy-rules-suspected-violating-wto-rules-2022-09-22/>.

¹³ Editorials, *Rethink rule-breaking Inflation Reduction Act: China Daily editorial*, Chinadaily (Nov. 28, 2022) <https://global.chinadaily.com.cn/a/202211/28/WS6384a7bca31057c47eba17e4.html>.

¹⁴ *Members still falling behind on subsidy notifications, committee hears*, World Trade Organization (Oct. 22, 2022) https://www.wto.org/english/news_e/news22_e/scm_25oct22_e.htm.

also reflecting the non-market development model.¹⁵ The U.S. answered that “The United States intends to administer the Act in a manner that is consistent with U.S. law and with U.S. commitments under the WTO Agreements.” This is not the first time China has resorted to the WTO to challenge the US’ incentives for renewables. As early as 2018, China filed its claim the *United States — Certain Measures Related to Renewable Energy* against a series of renewable incentives provided by the states of Washington, California, Michigan, etc.¹⁶ The legal basis¹⁷ is similar in that China alleged the U.S. subsidizes the use of domestic over imported goods, which is against Article III:4 of National Treatment in the GATT 1994. The WTO panel found that ten incentives were inconsistent with the U.S.’ national treatment obligations¹⁸.

But the IRA is facing more complicated situations as more than ten members have raised concerns about it in the Trade Promotion Authority (TPA)¹⁹, including some of the United States trade allies like Australia, Canada, the U.K., and especially the EU.

C. *The U.S. and the EU on the IRA*

The IRA has a tailored foreign entity of concern list that includes China rather than the EU. But the IRA’s domestic content requirements may have similar impacts on the EU, even unintentionally.

1. IRA to the EU: Friendly Fire

After the IRA was published, the EU expressed concern about its discriminatory elements, particularly its requirements for domestic content. South Korea echoed²⁰ these concerns. Specifically, in the “EU response to the U.S. Inflation Reduction Act,” the European Parliament officially stated that the IRA gives subsidies and tax credits to companies that manufacture local parts or products in the U.S. from 1 January 2023 to the detriment of European manufacturers and in potential breach of WTO rules.²¹

The EU’s concern is not unfounded. Volkswagen ID.4, Audi e-Tron, and Porsche Taycan were among the top ten electric vehicles sold in the U.S. in 2022.²² Almost all are assembled in the EU for the U.S. market and will lose eligibility for the \$7,500 credit under

¹⁵ Trade Policy Review Body, Trade Policy Review on US Minutes of The Meeting, WTO (March 14, 2023), <https://docs.wto.org/dol2fe/Pages/SS/directdoc.aspx?filename=q:/WT/TPR/M434A1.pdf&Open=True>
Trade Policy Review Body, Trade Policy Review on US Minutes of The Meeting, WTO (March 14, 2023), <https://docs.wto.org/dol2fe/Pages/SS/directdoc.aspx?filename=q:/WT/TPR/M434A1.pdf&Open=True>

Measures Related to Renewable Energy, n 16, p 3. <https://docs.wto.org/dol2fe/Pages/SS/directdoc.aspx?filename=q:/WT/DS/563-1.pdf&Open=True>.

¹⁸ https://docs.wto.org/dol2fe/Pages/FE_Search/FE_S_S009-DP.aspx?language=E&CatalogueIdList=255231,255232&CurrentCatalogueIdIndex=0&FullTextHash=&HasEnglishRecord=True&HasFrenchRecord=True&HasSpanishRecord=True

¹⁹ The members which raised concern on IRA: Argentina, Australia, Brazil, Canada, China, Columbia, EU, India, Norway, Russia, UK <https://docs.wto.org/dol2fe/Pages/SS/directdoc.aspx?filename=q:/WT/TPR/M434A1.pdf&Open=True>

²⁰ Valdis Dombrovskis, *EU Is Assessing If US Inflation Act in Breach of WTO Rules*, Bloomberg (Oct. 10, 2022), <https://www.bloomberg.com/news/articles/2022-09-10/eu-is-assessing-if-us-inflation-act-in-breach-of-wto-rules?leadSource=verify%20wall>.

²¹ *EU response to the US Inflation Reduction Act: one round of political group's leaders*, European Parliament Multimedia Centre, https://multimedia.europarl.europa.eu/en/video/key-debate-eu-response-to-the-us-inflation-reduction-act-meps-debate-part-1_I234795.

²² Brooke Dunn, *The Inflation Reduction Act Sparks Trade Disputes: What Next*, American Affairs Journal (Nov. 20, 2022), <https://americanaffairsjournal.org/2022/11/the-inflation-reduction-act-sparks-trade-disputes-what-next/>.

the IRA beginning January 1, 2023. In September 2022, Tesla decided to pause the battery cells factory plan in Germany and switch back to the U.S. for the tax credits²³.

2. EU's Response to IRA: An Ongoing Review Process

The EU acted swiftly on the IRA. In October, the EU and the U.S. established a high-level U.S.-EU Task Force on the IRA.²⁴ In December, the US-EU Trade and Technology Council (TTC) was held, and French President Emmanuel Macron visited Washington, DC, to further discuss issues, including the IRA.

After the visit, U.S. President Joe Biden committed to making "tweaks" to the package "that can fundamentally make it easier for European countries to participate and/or be their own."²⁵ Soon after Biden's statement, the U.S. Treasury published a white paper of guidance on the IRA with a broader definition of FTA countries to provide a possible exemption for the EU.²⁶ Another new guidance also provided a separate tax credit for clean commercial vehicles,²⁷ which heralds the EU companies' available credits without changing established or foreseen business models like leasing cars to consumers through dealerships.²⁸

The EU welcomed the new schemes but reiterated its intent to continue to seek similar, non-discriminatory treatment of EU clean vehicle producers under the IRA.²⁹ Meanwhile, the EU called on all country members to strengthen the EU's own public investment and be the global leader in renewable energy.³⁰ In February 2023, the EU announced "The Green Deal Industrial Plan" to put the EU's net-zero industry in the lead,³¹ and a Critical Raw Materials Act is under adoption to increase and diversity the EU's own critical raw material supply³².

²³ Rebecca Elliott, *Tesla Shifts Battery Strategy as It Seeks U.S. Tax Credits*, The Wall Street Journal (Sept. 14, 2022), <https://www.wsj.com/articles/tesla-shifts-battery-strategy-as-it-seeks-u-s-tax-credits-11663178393>.

²⁴ *Press corner*, European Commission https://ec.europa.eu/commission/presscorner/detail/en/STATEMENT_22_6402.

²⁵ Leigh Thomas, *Explainer: Why the U.S. Inflation Reduction Act has Europe up in arms*, Reuters (Dec. 5, 2022), <https://www.reuters.com/markets/why-us-inflation-reduction-act-has-europe-up-arms-2022-12-05/>.

²⁶ The White Paper states, "Treasury and the IRS expect to propose that the Secretary may identify additional free trade agreements for purposes of the requirement of the critical minerals going forward and will evaluate any newly negotiated agreements for proposed inclusion during the pendency of the rulemaking process or inclusion after finalization of the rulemaking."

Hanlon, *Anticipated Direction of Forthcoming Proposed Guidance on Critical Mineral and Battery Component Value Calculations for the New Clean Vehicle Credit*, (Dec. 29, 2022), <https://home.treasury.gov/system/files/136/30DWhite-Paper.pdf>.

²⁷ Internal Revenue Service, *Section 45W Commercial Clean Vehicles and Incremental Cost for 2023*, (Dec. 29, 2022), <https://www.irs.gov/pub/irs-drop/n-23-09.pdf>.

²⁸ Doug Palmer, *Biden admin bows slightly to European pressure in trade clash*, POLITICO (Dec. 29, 2022), <https://www.politico.com/news/2022/12/29/u-s-treasury-signals-some-flexibility-on-ev-tax-credit-00075783>.

²⁹ EU welcomes access to U.S. subsidy scheme for commercial vehicles, European Commission (Dec. 29, 2022), https://ec.europa.eu/commission/presscorner/detail/en/IP_22_7869.

³⁰ Speech by President von der Leyen at the European Parliament Plenary on the preparation of the European Council meeting of 15 December 2022, European Commission (Dec. 14, 2022), https://ec.europa.eu/commission/presscorner/detail/da/speech_22_7727.

³¹ https://ec.europa.eu/commission/presscorner/detail/en/ip_23_510

³² https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/13597-European-Critical-Raw-Materials-Act_en

D. China-EU on IRA

The combustion engine story between China and the EU is complicated, and the IRA makes it more so.

1. IRA to EU and China: A New Automobile Manufacturer Leader

Europe has been a global hub of combustion engine production for decades. However, as the world shifts to EVs, China is evolving into the battery heartland and overtaking traditional automotive leaders like the EU and the U.S. Meanwhile, the EU is expected to be the second largest EV market, and China is expected to have the largest production capacity there, out producing by 50% the runner-up South Korea. The U.S. ranks fifth.³³

2. EU and China on IRA: “de-risk” rather than “decouple”

The IRA raises the question of whether the EU will limit China’s investment. The presence of Chinese brands on European roads in any significant number may also strengthen political support for additional restrictions.³⁴ But the EU seems to take a different approach to China, compared to the US. Rather than pushing for “decoupling” (reducing the reliance on goods exported by China) Before the visit to China in April 2023, the French President and EU Commission President emphasized their desire to “de-risk” ties with China, including reducing reliance on China for key inputs³⁵, which means to reduce the reliance on the goods exported by China but with low risk on the supply chain.

Among the trade tension between the U.S. and the EU on the IRA, President Xi Jinping stressed to the EU that China’s supersized market remains open to the EU. Both parties should oppose decoupling and jointly oppose politicization and weaponization of trade and technology and hopes that the EU would reject interference and provide Chinese companies with a fair and transparent business environment.³⁶

E. Summary

IRA creates a trade triangle between the U.S., the EU, and China.

In front of China, on the one hand, the EU admitted that it shares the same concern, vision, and willingness with the U.S. to reduce the supply chain independence of China as the IRA is targeting.³⁷ On the other hand, it is burdensome, if not impossible, for both the U.S. and the EU to establish an EV supply chain without China, at least in the short term, given the “monopoly that China has.”³⁸

³⁴ Stephen Wilmot, *China’s EV Brands Could Hit Speed Bumps in Europe*, The Wall Street Journal <https://www.wsj.com/articles/chinas-ev-brands-could-hit-speed-bumps-in-europe-11664373512>.

³⁵ <https://www.reuters.com/world/europe/between-reset-de-risk-eu-leaders-pay-rare-visit-china-2023-04-04/>

³⁶ Stuart Lau, *Seizing on EU tensions with US, Xi tells Europe to keep investing in China*, (Dec. 1, 2022), <https://www.politico.eu/article/seizing-europe-tensions-with-united-states-china-president-xi-jinping-said-keep-investing/>.

³⁷ Khushboo Razdan, *Biden signals to Macron openness to Inflation Reduction Act ‘tweaks’ to cut reliance on China*, South China Morning Post (Dec. 2, 2022), <https://www.scmp.com/news/china/article/3201759/biden-signals-macron-openness-tweaks-inflation-reduction-act-cut-reliance-china>.

³⁸ Speech by President von der Leyen at the European Parliament Plenary on the preparation of the European Council meeting of 15 December 2022, European Commission (Dec. 14, 2022), https://ec.europa.eu/commission/presscorner/detail/da/speech_22_7727.

With the enactment of the IRA, on the one hand, the U.S. is determined to revive its renewable energy industry to win the geo-economic conflict with China, and the EU is not the focus. On the other hand, if the EU cannot prove to be a firm ally in the U.S.' attempt to compete with China, they could suffer from collateral damage.³⁹

In front of the EVs industry, on the one hand, the U.S. and the EU jointly stated to cooperate for renewable development and cut emissions.⁴⁰ On the other hand, the U.S. and the EU desire to lead the global EV sector and out-compete each other.

So, there is a silver lining for China to see the EU closer to China if the U.S. fails to resolve the EU's concern about the IRA. However, China will face a dilemma, and even its investment in the EU could face more stringent scrutiny if the U.S. successfully comforts its partner.

Hence, the EU could be a make-or-break for both parties in the EV race between the U.S. and China after the passage of the IRA. But the EU will not be satisfied to be a chess piece and may join the race by itself.

WTO law could be a "weapon" in the race, especially when both China and the EU consider that the IRA does not comply with WTO law.

II. IRA AND WTO LAW

One of the main allegations of IRA is the National Treatment principle.

A. *National Treatment in GATT 1994: Three Elements*

Article III:4 of GATT establishes the principle, specifying that imported products "shall be accorded treatment no less favorable than that accorded to like products of national origin in respect of all laws, regulations, and requirements affecting their internal sale, offering for sale, purchase, transportation, distribution or use."⁴¹

National Treatment prevents WTO members from favoring domestically produced goods over imports. Per prima facie, The IRA Act's preservation of EV assembly for Canada and Mexico and the requirement of the critical mineral for 20 other U.S. free trade agreement nations in 14 FTAs – but not for all WTO Members – would likely face a challenge at the WTO.⁴²

In *Korea-Various Measures on Beef*, the panel articulated three elements of violating national treatment. The Appellate Body later confirmed it: first, the imported and domestic products at issue are "like products;" second, the measure at issue is a "law, regulation, or requirement affecting their internal sale, offering for sale, purchase,

³⁹ The White House, *Joint Statement between the United States and the European Commission on European Energy Security*, The White House (Mar. 25, 2022), <https://www.whitehouse.gov/briefing-room/statements-releases/2022/03/25/joint-statement-between-the-united-states-and-the-european-commission-on-european-energy-security/>.

⁴¹ This principle is also embodied in Article 3.1(b) of the SCM Agreement and Article 2 of the TRIMs Agreement. But as mentioned above, this article focuses on GATT. *General Agreement on Tariffs and Trade*, opened for signature 15 April 1994, 1867, UNTS 3 (entered into force 1 January 1995), Art III:4 (GATT).

⁴² Tori Smith, *Comments on Credits for Clean Vehicles in the Inflation Reduction Act*, American Action Forum (Oct. 24, 2022), <https://www.americanactionforum.org/comments-for-record/comments-on-credits-for-clean-vehicles-in-the-inflation-reduction-act/>.

transportation, distribution, or use;" and third, the imported products are accorded "less favorable" treatment than that accorded to like domestic products.⁴³

1. First Element: Criteria and Evidence of "Like Product"

In *EC-Asbestos*, the Appellate Body suggested that "likeness" is not only similar characteristics and qualities but also a competitive or substitute relationship between and among the products. It also acknowledged that analyzing the "likeness" of products should be done case-by-case, depending on all the relevant evidence.⁴⁴

In IRA's case, China could demonstrate that a BYD Qin is a like product of a Tesla Model Y by presenting the similarities in physical characteristics, end uses, and consumers' tastes and habits (acceleration, top speed, torque, power, efficiency, battery capacity, etc.). Also, China could argue that BYD's EV could be a substitute for Tesla with a more competitive price. The EU could do the same by comparing the similarities between Audi e-Tron and Tesla Model 3.

2. Second Element: Affecting Internal Sale, Offering for Sale, Purchase, Transportation, Distribution, or Use

Various disputes demonstrate how imported goods are "affected" by local laws, regulations, or requirements. In *India – Autos*, the panel found that "indigenization" requirements to a minimum percentage of domestically produced parts incentivized automobile producers to purchase Indian parts and components rather than imported ones. Therefore, the incentives "affected" the internal sale, offering for sale, and purchase of imported parts and components in the Indian market.⁴⁵

The IRA seems to contain similar "indigenization" requirements to be qualified for the tax credit. It requires at least 40 percent of crucial minerals to be mined domestically or in FTA countries, Canada, or Mexico. It also requires a minimum of 50 percent of battery manufacture or assembly in North America. In this case, IRA's "indigenization" is not identical as in *India – Autos* but still could "affect" internal sales, offering for sale, and purchase of imported Chinese EVs and EU EVs, which contain batteries produced out of the US.

Moreover, the Appellate Body in *US – FSC* demonstrated how imported goods' use is affected under a value ceiling. It found that the rule that a manufacturer's use of imported input products always counts against the 50 percent ceiling in the fair market value affected the internal use of imported products because it incentivized a manufacturer not to use them.⁴⁶

Since the IRA requests a specific percent value in domestic elements of the battery as the tax credit prerequisite, it is also likely to put a value ceiling for imported components

⁴³ *Korea — Various Measures on Beef*, n 133, at [39]. [https://docs.wto.org/dol2fe/Pages/FE_Search/FE_S_S006.aspx?Query=\(@Symbol=%20wt/ds161/ab/r*%20not%20rw*\)&Language=ENGLISH&Context=FomerScriptedSearch&languageUIChanged=true#](https://docs.wto.org/dol2fe/Pages/FE_Search/FE_S_S006.aspx?Query=(@Symbol=%20wt/ds161/ab/r*%20not%20rw*)&Language=ENGLISH&Context=FomerScriptedSearch&languageUIChanged=true#)

⁴⁴ *EC-Asbestos*, n 93, p [1].

[https://docs.wto.org/dol2fe/Pages/FE_Search/FE_S_S006.aspx?Query=\(@Symbol=%20wt/ds135/ab/r*%20not%20rw*\)&Language=ENGLISH&Context=FomerScriptedSearch&languageUIChanged=true#](https://docs.wto.org/dol2fe/Pages/FE_Search/FE_S_S006.aspx?Query=(@Symbol=%20wt/ds135/ab/r*%20not%20rw*)&Language=ENGLISH&Context=FomerScriptedSearch&languageUIChanged=true#)

⁴⁵ *India-Autos*, n 8, p [1]. [https://docs.wto.org/dol2fe/Pages/FE_Search/FE_S_S006.aspx?Query=\(@Symbol=%20wt/ds146/ab/r*%20not%20rw*\)&Language=ENGLISH&Context=FomerScriptedSearch&languageUIChanged=true#](https://docs.wto.org/dol2fe/Pages/FE_Search/FE_S_S006.aspx?Query=(@Symbol=%20wt/ds146/ab/r*%20not%20rw*)&Language=ENGLISH&Context=FomerScriptedSearch&languageUIChanged=true#)

⁴⁶ *US-FSC*, n 212, at [66]. [https://docs.wto.org/dol2fe/Pages/FE_Search/FE_S_S006.aspx?Query=\(@Symbol=%20\(wt/ds108/ab/rw%20or%20wt/ds108/ab/rw/*\)&Language=ENGLISH&Context=FomerScriptedSearch&languageUIChanged=true#](https://docs.wto.org/dol2fe/Pages/FE_Search/FE_S_S006.aspx?Query=(@Symbol=%20(wt/ds108/ab/rw%20or%20wt/ds108/ab/rw/*)&Language=ENGLISH&Context=FomerScriptedSearch&languageUIChanged=true#)

like *US – FSC*. For example, 50% of the value of the battery must be manufactured or assembled in North America. The 50% will rise over time until 100% by 2028⁴⁷. In this case, the value ceiling for imported batteries is 50% starting from 2023 and will decrease yearly. Such a ceiling could affect the internal use of imported batteries because a manufacturer is not encouraged to use them.

In short, WTO members like the EU could argue that IRA’s tax credit pushes the customers to Tesla rather than Audi, obtaining the \$7,500 tax credit. China may even allege that the IRA incentivized Tesla to purchase batteries using domestically mined graphite rather than from China. As a result, it could affect the internal sale, purchase, transportation, distribution, or use of Chinese graphite. Even for Tesla, the local content requirement could be a headache as “only mainland China could provide the quantity of graphite it needs in flake or powder form to manufacture its batteries in the U.S.”⁴⁸

3. Third Element: No Less Favorable

In *Korea – Various Measures on the Beef* case, after deciding on three elements of violating national treatment, the panel and Appellate body focused on “treatment no less favorable” as if it was the only disputed item. The panel stated a “long-settled” legal standard imposed by “less favorable treatment.” First, “Article III:4 requires that a member accord to imported products ‘effective equality of opportunities’ with like domestic products...to avoid protectionism in the application of internal tax and regulatory measures.” It further stated that “Whether or not imported products are treated ‘less favorably’ than like domestic products should be assessed by examining whether a measure modifies the ‘conditions of the competition in the relevant market to the detriment of imported products.’”⁴⁹

In this case, Korea established a dual retail system to differentiate between local and imported beef. The stores selling imported beef faced restrictions on volumes, price, and commercial disadvantages. Fundamentally, imported beef was prevented from being sold under the same conditions as domestic beef. The Appellate Body also noted that Korea reduced the competitive opportunity by restricting consumer access and treated imported beef less favorably than local ones.⁵⁰

By the same token, the IRA’s tax credit for EVs seems to differentiate between domestically mined and assembled batteries and EU or Chinese batteries. It especially imposes restrictions on using critical minerals from the Foreign Entity List, including China. Like *Korea – Various Measures on the Beef*, the IRA’s domestic content requirements will likely modify the competition condition by applying tax credits for batteries with local content and discouraging EU or Chinese batteries or EVs from being sold under the same conditions as the U.S. batteries. Hence, the IRA seems to treat these foreign companies less favorably than the U.S. companies.

⁴⁷ Inflation Reduction Act, H.R. 5376, 117th Cong. § 13401 (2021).

⁴⁸ Lora Kolodny, *Tesla says it needs graphite from China for batteries, requests tariff waiver*, CNBC (Dec. 2, 2021), <https://www.cnbc.com/2021/12/02/tesla-seeks-tariff-exemption-for-graphite-from-china-for-batteries.html>.

⁴⁹ *Korea – Various Measures on Beef*, n 130, at [38]. [https://docs.wto.org/dol2fe/Pages/FE_Search/FE_S_S006.aspx?Query=\(@Symbol=%20wt/ds161/ab/r*%20not%20rw*\)&Language=ENGLISH&Context=FormerScriptedSearch&languageUIChanged=true#](https://docs.wto.org/dol2fe/Pages/FE_Search/FE_S_S006.aspx?Query=(@Symbol=%20wt/ds161/ab/r*%20not%20rw*)&Language=ENGLISH&Context=FormerScriptedSearch&languageUIChanged=true#)

⁵⁰ *Korea – Various Measures on Beef*, n 147, at [45]. [https://docs.wto.org/dol2fe/Pages/FE_Search/FE_S_S006.aspx?Query=\(@Symbol=%20wt/ds161/ab/r*%20not%20rw*\)&Language=ENGLISH&Context=FormerScriptedSearch&languageUIChanged=true#](https://docs.wto.org/dol2fe/Pages/FE_Search/FE_S_S006.aspx?Query=(@Symbol=%20wt/ds161/ab/r*%20not%20rw*)&Language=ENGLISH&Context=FormerScriptedSearch&languageUIChanged=true#)

Furthermore, *US – FSC* found that examining whether a measure involves “less favorable treatment” of imported products need not be based on the “actual effects” of contested measures in the marketplace.⁵¹ Hence, even though only one-fifth of the 2022 and 2023 models will qualify for the \$7500 tax credit in 2023, and the short term, getting rid of Chinese input is challenging, China is still eligible to complain in front of the WTO.⁵²

4. A Precedence of IRA in WTO

India filed a recent case against the U.S. renewable incentives in 2019. In the *US – Renewable Energy* case, financial incentives were granted under various solar panel programs by several States (Washington, California, Montana, Connecticut, Michigan, Delaware, and Minnesota) for the purchase, installation, and use of “made-in-state” renewable energy systems. The panel reasoned how related products had violated national treatment. The panel decided that the measures at issue (i) distinguished solely based on the origin; (ii) fell within the scope of the phrase “laws, regulations, and requirements;” (iii) affected the internal sale, offering for sale, purchase, transportation, distribution or use of the relevant products; and (iv) offered financial incentives for the use of domestic products but not for the use of imported products and modified the conditions of competition to the detriment of imported products, thus according to less favorable treatment to such products. The measure was, therefore, inconsistent with Art. III:4.⁵³

The case seems to have no essential impact on the U.S. First. Unlike the EU or China, India appears to have limited trading interests in renewable energy technology. Also, most of the alleged measures are moribund.⁵⁴

However, IRA could be a different case. If the made-in-U.S. incentives in the IRA face similar challenges as the “made-in-state” policy did, China, or even the EU, which has a more powerful position in the supply chain, could take coercive measures to counteract the IRA’s domestic content implementation, like retaliating against the U.S. EV manufacturers.

B. The U.S.’ Possible Arguments: Environmental Exceptions in GATT

Article XX of GATT also provides broad protection for countries to adopt exceptional policies inconsistent with GATT disciplines. Among others, it allows necessary policies to protect human, animal, or plant life or health (paragraph (b)) or relating to the conservation of exhaustible natural resources (paragraph (g)).⁵⁵

This General Exceptions article consists of a two-tier analysis.

⁵¹ *US-FSC*, n 44, at [14]. [https://docs.wto.org/dol2fe/Pages/FE_Search/FE_S_S006.aspx?Query=@Symbol=%20\(wt/ds108/ab/rw%20or%20wt/ds108/ab/rw/*\)&Language=ENGLISH&Context=FomerScriptedSearch&languageUIChanged=true#](https://docs.wto.org/dol2fe/Pages/FE_Search/FE_S_S006.aspx?Query=@Symbol=%20(wt/ds108/ab/rw%20or%20wt/ds108/ab/rw/*)&Language=ENGLISH&Context=FomerScriptedSearch&languageUIChanged=true#)

⁵² *Treasury Releases Initial Information on Electric Vehicle Tax Credit Under Newly Enacted Inflation Reduction Act*, U.S. Department of Treasury (Aug. 16, 2022), <https://home.treasury.gov/news/press-releases/jy0923>.

⁵³ *US-Renewable Energy*, n 339, at [92]. <https://docs.wto.org/dol2fe/Pages/SS/directdoc.aspx?filename=q:/WT/DS/510R.pdf&Open=True>

⁵⁴ Tom Miles, *India wins U.S. solar case at WTO, but impact disputed*, Reuters (June 27, 2019), <https://www.reuters.com/article/us-usa-trade-india-wto/india-wins-u-s-solar-case-at-wto-but-impact-disputed-idUSKCN1TS2B0>.

⁵⁵ *General Agreement on Tariffs and Trade*, opened for signature 15 April 1994, 1867, UNTS 3 (entered into force 1 January 1995), Art XX (GATT).

1. First Layer (1): Exceptions of Article XX(b) in GATT

First, the measure must fall under at least one of the exceptions in Article XX and the most likely in this case are XX(b) or Article XX(g).

Regarding article XX(b), the Appellate Body has used a process of weighing and balancing several factors to determine whether a measure is "necessary" to protect human, animal, or plant life or health, including the contribution made by the environmental measure to the policy objective, the significance of the common interests or values protected by the measure, and the impact of the measure on international trade. If this analysis leads to the preliminary conclusion that the measure is required, this conclusion must be validated by comparing the measure with other alternatives that would be less trade-restrictive while still contributing equally to the achievement of the desired goal.⁵⁶

In *EC – Asbestos*, the Appellate Body concluded, after weighing and balancing in a holistic process, that there was no reasonably viable alternative to a trade prohibition on toxic asbestos. The measure was targeted to accomplish the level of health protection selected by France and was deemed "both vital and important in the highest degree." The Appellate Body made the point that the more significant or essential the common interests or values pursued, the more necessary actions intended to accomplish those purposes.⁵⁷

The U.S. may argue that the IRA's local content is "necessary" to promote the domestic renewable industry, cut emissions and fight climate change. Hence it is essentially designed to protect human, animal, and plant life and health. This argument is possible as the Appellate Body tends to broaden the scope to be covered. Furthermore, the U.S. may need to prove that tax credit on local content is "both vital and important in the highest degree" to achieve such a goal without other less trade-restrictive alternatives. However, the U.S. may also argue the nuance as Chinese lithium is not as toxic as asbestos, while the underlying case giving rise to this claim involved a trade prohibition on a toxic substance harmful to humans.

2. First Layer (2): Exceptions of Article XX(g) in GATT

Regarding article XX(g), for a measure to be "relating" to the conservation of natural resources, a substantial relationship between the measure and the protection of exhaustible natural resources needs to be established. In the words of the Appellate Body, a member must confirm that the means (i.e., the chosen measure) is "reasonably related" to the ends (i.e., the stated policy goal of conservation of exhaustible natural resources). Moreover, to be justified under Article XX(g), a measure affecting imports must be applied "in conjunction with restrictions on domestic production or consumption" (the even-handedness requirement).

In the *US – Gasoline* case, the United States adopted a measure regulating gasoline's composition and emission effects to reduce air pollution in the United States. The Appellate Body found that clean air is also an exhaustible natural resource, and the restrictive measure was "primarily aimed at" the policy goal of conservation of clean air. Moreover, no restrictions on domestically produced products are imposed at all, and all limitations are placed upon imported products alone. In that case, the measure is "naked

⁵⁶ *WTO rules and environmental policies: GATT exceptions*, World Trade Organization (Aug. 16, 2022), https://www.wto.org/english/tratop_e/envir_e/envt_rules_exceptions_e.htm.

⁵⁷ *EC-Asbestos*, n 172, at [62].

[https://docs.wto.org/dol2fe/Pages/FE_Search/FE_S_S006.aspx?Query=\(@Symbol=%20wt/ds135/ab/r%20not%20rw*\)&Language=ENGLISH&Context=FomerScriptedSearch&languageUIChanged=true#](https://docs.wto.org/dol2fe/Pages/FE_Search/FE_S_S006.aspx?Query=(@Symbol=%20wt/ds135/ab/r%20not%20rw*)&Language=ENGLISH&Context=FomerScriptedSearch&languageUIChanged=true#)

discrimination” for protecting locally produced goods rather than a design for conserving goals. In this case, the measure met the “even-handedness” requirement, affecting both imported and domestic products.⁵⁸

The IRA could be a different case under article XX(g). As stated in the *US – Gasoline* case, the minimum percentage of local content for the tax credit only restricts imported batteries and EVs from countries like the EU and China. In other words, the measure could be “naked discrimination” for protecting U.S.-produced goods rather than designed for protecting the climate with an “even-handedness” requirement.

3. Second Layer: The “Chapeau” of Article XX in GATT

After examining whether the policy falls within Article XX(b) or Article XX(g), the next step of the two-layer analysis requires that the measure satisfies the requirements of the introductory paragraph (the “chapeau” of Article XX), i.e., that it would not constitute “a means of arbitrary or unjustifiable discrimination between countries where the same conditions prevail,” and is not “a disguised restriction on international trade.”⁵⁹

In *Brazil – Retreaded Tyres*, the Appellate Body found that whether the application of a measure results in arbitrary or unjustifiable discrimination should focus on the cause or rationale given for the discrimination. It clearly stated that “from the point of view of the protection of human life or health, there is no difference between, on the one hand, a retreaded tire produced in the European Communities and, on the other hand, a retreaded tire produced in Brazil from a casing imported from the European Communities, prohibiting imported retreaded tires while allowing the importation of used tires through court injunctions must be regarded as constituting arbitrary discrimination.”⁶⁰

Similarly, the U.S. may need to justify the rationale under the IRA under the “chapeau.” For example, it may demonstrate that under a broader definition of protecting the environment, a battery with lithium mined in the U.S. differs from the one mined in China. Otherwise, the IRA could result in arbitrary discrimination.

In the *US – Shrimp turtle* case, the Appellate Body concluded that the multilateral trade system is based on multilateral cooperation. The environmental exception does not allow the members to establish policy regardless of the requirement chapeau to protect the multilateral trade system from abusing Article XX.⁶¹

Doubtless, the IRA has a far-sighted scheme to address environmental concerns. However, it seems to focus on pursuing a relatively “privileged” trade system within North America and FTA partners rather than defending the multilateral trade system as the U.S. has been doing for decades.

4. The Role of International Coordination and Cooperation in the Exceptions

The Appellate Body further deliberated the necessity of international coordination and collaboration when applying Article XX.

⁵⁸ *US-Gasoline*, n 2, at [21]. https://www.wto.org/english/tratop_e/dispu_e/2-9.pdf

⁵⁹ *WTO rules and environmental policies: GATT exceptions*, World Trade Organization (Aug. 16, 2022), https://www.wto.org/english/tratop_e/envir_e/envt_rules_exceptions_e.htm.

⁶⁰ *Brazil – Retreaded Tyres*, n 40, at [17]. <https://docs.wto.org/dol2fe/Pages/SS/directdoc.aspx?filename=Q:/WT/DS/332ABR.pdf&Open=True>

⁶¹ *US- Shrimp Turtle*, n 124, at 357. <https://docs.wto.org/dol2fe/Pages/SS/directdoc.aspx?filename=Q:/WT/DS/58ABR.pdf&Open=True>

In the *US – Gasoline* decision, the Appellate Body found that the U.S. should pursue cooperative arrangements with affected countries to mitigate the administrative problems caused by the U.S.’ arbitrary discrimination on foreign refiners, as it had not done so or, “if it had, not to the point where it encountered governments that were unwilling to cooperate.”⁶² Moreover, in the *US – Shrimp turtle* case, the U.S. was found to impose a unilaterally determined conservation measure through restrictions on trade. The Appellate Body further decided that the U.S. “treated WTO members differently” by adopting a cooperative approach regarding protecting sea turtles with some members but not others. In the end, the measure constituted unjustifiable discrimination among WTO members.⁶³

At least the U.S. is cooperating with allies like the EU and Korea on implementing the domestic content requirements of the IRA now. But China could still argue that it is additional proof that the U.S. treats WTO members differently by adopting a cooperative approach with allies but not with others, literally, China.

C. Free Trade Agreement Exceptions

The U.S. may also contend that GATT permits prioritizing FTA countries. However, Article XXIV of GATT empowers WTO members to offer perks to free trade partners, but not at the expense of other contracting parties. In *Turkey – Textiles*, the Appellate Body stated that the purpose of the free trade agreement is to facilitate trade between constituent members and not to raise barriers to trade with other WTO members.⁶⁴

D. Summary

To employ article XX of GATT as an exception for national treatment, the U.S. would have to justify that the EV tax credit is “necessary to the protection of plant and animal life” or “relating to the conservation of exhaustible natural resources.” Furthermore, the EV tax credit must conform with Article XX, that the tax credit does not lead to arbitrary discrimination in countries other than FTA and North America partners.

III. WAY FORWARD FOR THE TRADE TRIANGLE

The IRA’s domestic content provisions will bring storms of claims under WTO law and push all parties to rethink global renewable energy cooperation and competition further.

A. U.S.’ Possible Next Steps

The U.S. could take short-term and long-term action to respond to the tension with the EU and confront China’s geo-economic challenge.

1. Short Term: To Implement IRA with the EU

The U.S. must resolve the conflict with the EU on the IRA in the short term. The recent shift to a Republican-controlled Congress makes modifying the IRA through legislation daunting. But it is plausible to work administratively on the implementation guidance, as the Treasury is doing now. One priority is to work closely with allies’ task forces to lessen or eliminate the discrimination in IRA. The final legislative text of the

⁶² *US-Gasoline*, n 2, at [27]. https://www.wto.org/english/tratop_e/dispu_e/2-9.pdf

⁶³ *US- Shrimp Turtle*, n 119, at [35]. <https://docs.wto.org/dol2fe/Pages/SS/directdoc.aspx?filename=Q:/WT/DS/58ABR.pdf&Open=True>

⁶⁴ *Turkey-Textiles*, n 22, at [6]. <https://docs.wto.org/dol2fe/Pages/SS/directdoc.aspx?filename=Q:/WT/DS/34ABR.pdf&Open=True>

IRA was passed without the allies' input, but a late consultation is preferable to no consultation.⁶⁵ For instance, the U.S. may include the EU in the safelist along with FTA countries in exchange for the EU lowering tariffs for the U.S. exporters. Japan has paved a pathway by signing on Critical Minerals Agreement with the U.S. in March 2023. Following the agreement, EVs that use critical minerals that have been collected or processed in Japan will be eligible for tax credits under IRA⁶⁶.

There are already proposals to benefit more allies in the IRA. Senator Raphael Warnock (D-Ga.) has suggested flexibility in the EV tax credit implementation, given that a new \$5.5 billion Hyundai factory just began construction outside Savannah in Georgia. He also proposed the Affordable Electric Vehicles for America Act, extending the phase-in-period for the Inflation Reduction Act's EV sourcing and manufacturing requirements.⁶⁷

2. Long Term: Free Trade Agreement with the EU

In the long run, the U.S. may reevaluate a free trade agreement with the EU, given China's dominance in the renewable supply chain.

First, both the U.S. and the EU share similar supply chain concerns. The U.S. and the EU are all heavily reliant on China's battery. Especially, China is likely to be one of the largest battery manufacturers and EV producers in the EU.

Second, the U.S. and the EU are in a positive momentum of bilateral trade. Since Russia invaded Ukraine, transatlantic trade and investments have boomed. Trade in goods and services across the Atlantic is over 40 percent higher than between the EU and China. EU investment in the U.S. is also much more significant than in China.⁶⁸

Third, China will approach the EU if the U.S. pushes the EU further. For example, if the U.S. fails to accommodate the EU's request under IRA and tilts the transatlantic route, it is unsurprising that the EU would welcome more Chinese renewable investment. The EU could join a consultation brought by China against the IRA under WTO law.

Hence, the IRA could be a chance for the U.S. to pick up Transatlantic Trade and Investment Partnership (TTIP), the investment and trade agreement negotiated between the U.S. and the EU starting in 2013 and ending in 2016 without conclusion. However, since the Trade Promotion Authority approved by Congress to define the scope of trade agreement negotiation has expired after 2021. It has become increasingly difficult for the U.S. to sign a FTA without Congress' green light.

3. Extreme Action: To Exit the WTO

In the worst case that WTO and countries like China and the EU impose pressure to amend or invalidate the IRA, calls for exiting the WTO may arise again. U.S. Rep. Peter

⁶⁵ Max Bergmann, *How to Avoid a Transatlantic Trade War over Climate*, Center for Strategic and International Studies (Jan. 19, 2023), <https://www.csis.org/analysis/how-avoid-transatlantic-trade-war-over-climate>.

⁶⁶ <https://ustr.gov/sites/default/files/2023-03/US%20Japan%20Critical%20Minerals%20Agreement%202023%2003%2028.pdf>

⁶⁷ *Senator Reverend Warnock Introduces Bill to Ensure Georgia Car Buyers, Automakers Fully Benefit from Cost-Cutting Tax Credits* » Reverend Raphael Warnock, Reverend Raphael Warnock (Sept. 29, 2022), <https://www.warnock.senate.gov/newsroom/press-releases/senator-reverend-warnock-introduces-bill-to-ensure-georgia-car-buyers-automakers-fully-benefit-from-cost-cutting-tax-credits/>.

⁶⁸ Tobias Gehrke, *A united front: How the US and the EU can move beyond trade tensions to counter China*, (Dec. 20, 2022), <https://ecfr.eu/article/a-united-front-how-the-us-and-the-eu-can-move-beyond-trade-tensions-to-counter-china/>.

Defazio has introduced legislation to push for withdrawal,⁶⁹ and even without congressional action, the president could possibly withdraw from the WTO.

WTO Laws appear to support a unilateral withdrawal. Article XV in Marrakesh Agreement requires only six months prior notice,⁷⁰ and the U.S. Constitution is silent on who has the power to withdraw while granting the president comprehensive foreign affairs powers.⁷¹ For example, President Donald Trump withdrew from NAFTA without congressional action, which DOJ has endorsed.⁷²

President Trump threatened to withdraw from WTO too, but now it seems politically unlikely. President Biden's administration has emphasized its commitment to WTO, although President Trump's approach has not been completely reversed as the tariff measures against China have not been officially modified, and the nomination of an Appellate Body is still remote.⁷³ The U.S. may prepare for a new dispute if withdrawal is not an option.

B. EU's Possible Next Steps

Similarly, the EU's immediate move could be urging the IRA for more benevolent provisions on EU firms. The prospective long-term action could also be sitting with the U.S. to rethink a free trade agreement. Apart from this, the EU can do its own homework.

1. Short Term: Exploring Flexibility Under the IRA

The IRA regulations do not prohibit a foreign manufacturer from establishing a supply chain that complies with the rules and whose products might thus benefit from the tax credit. Businesses are already heading this way. To fulfill the requirements for the tax credit, Kia, for instance, has declared to produce EVs in the U.S. starting in 2024. Although it is still unclear whether foreign businesses could pursue such a strategy that will eventually allow them to seize the full tax credit, the EU, together with Korea, could persuade the U.S. to adopt a standard that can be met more quickly and easily for allies' companies in the U.S.⁷⁴

2. Long Term: EU to Create Its Own "IRA"

In 2022, as a response to Russia's invasion of Ukraine, European Commission proposed the REPowerEU plan to end reliance on Russian fossil fuels before 2030. The EU President Ursula von der Leyen has announced that the IRA forces the EU to reflect on how to adjust state aid rules like REPowerEU to adapt to new global competition. New rules should allow European companies to benefit from subsidies to accelerate the transition to renewables and counteract the impact of the IRA. She further emphasized

⁶⁹ Keith Johnson, U.S. *Effort to Depart WTO Gathers Momentum*, (May 27, 2020), <https://foreignpolicy.com/2020/05/27/world-trade-organization-united-states-departure-china/>.

⁷⁰ *Wto*, Marrakesh agreement https://www.wto.org/english/docs_e/legal_e/04-wto_e.htm.

⁷¹ *The Constitution of the United States: A Transcription*, National Archives (Nov. 4, 2015), <https://www.archives.gov/founding-docs/constitution-transcript>.

⁷² Brandon J Murrill, *The President's Authority to Withdraw the United States from the North American Free Trade Agreement (NAFTA) Without Further Congressional Action*, (Mar. 5, 2019), <https://sgp.fas.org/crs/row/R45557.pdf>.

⁷³ Marc Busch, *The World Trade Organization's gift to Joe Biden*, The Hill (Dec. 23, 2022), https://thehill.com/opinion/international/3783263-the-world-trade-organizations-gift-to-joe-biden/rg/english/tratop_e/envir_e/envt_rules_exceptions_e.htm.

⁷⁴ William Alan Reinsch, *An Electric Debate: Local Content Requirements and Trade Considerations*, Center for Strategic and International Studies (Jan. 12, 2023), <https://www.csis.org/analysis/electric-debate-local-content-requirements-and-trade-considerations>.

that member states must subsidize the companies to entice them to continue investing in the EU rather than the U.S.⁷⁵

The EU may also take a lesson from the IRA. It is neither feasible nor desirable to phase China out entirely and quickly of the supply chains, and allies' support can hasten the process. Therefore, the EU may open the market to embrace partners and simultaneously reduce Chinese elements more flexibly, gradually, and progressively.

3. Extreme Action: To Retaliate in WTO

In the worst scenario, the EU could pursue a WTO dispute against the IRA if the U.S. thoroughly fails to satisfy the EU's requirement. It is likely for the EU to resort to the WTO when facing discriminatory legislation as in the old days. It is unlikely to happen now, however.

First, Europe and the U.S. collaborate on more significant matters, including the Russia-Ukraine war. When it comes to China, they may also attempt to work together. And the global picture might be sufficient for both parties to decide to put this matter to rest.

Second, although WTO dispute panels are still issuing judgments, the Appellate Body remains defunct as the U.S. still needs to sign off on necessary appointments to establish a quorum. A panel decision, which could take years, may remain the same for the EU.

Third, the EU and the U.S. cooperate closely in addressing climate change, and the IRA is a bill to achieve this goal. It is doubtful that the EU would impede a greener U.S. for several tax credits disputes.

Still, extreme action is possible as the EU has threatened a counter-subsidy package as an immediate response to the IRA.⁷⁶ The move will also be influenced by how China strategizes.

C. China's Possible Next Steps

The market will still pursue China, at least for a while, notwithstanding the IRA. For example, the U.S. imports of goods from China almost hit a record in 2022, although ex-President Donald Trump launched a trade war against China in 2018. The trade data serves as a reminder that rhetoric and even policy do not always reflect the functioning of the economy.⁷⁷

By the same token, China provides the cheapest EV with adequate production capacity compared to the U.S. and the EU.⁷⁸ It takes time for the U.S. EV producers to abandon China completely, which could be longer than the IRA's crafted timeline.

⁷⁵Speech by President von der Leyen at the European Parliament Plenary on the preparation of the European Council meeting of 15 December 2022, European Commission (Dec. 14, 2022), https://ec.europa.eu/commission/presscorner/detail/da/speech_22_7727.

⁷⁶Tobias Gehrke, *A united front: How the US and the EU can move beyond trade tensions to counter China*, (Dec. 20, 2022), <https://ecfr.eu/article/a-united-front-how-the-us-and-the-eu-can-move-beyond-trade-tensions-to-counter-china/>.

⁷⁷Shawn Donnan, *This Could Be a Record Year for US-China Trade*, Bloomberg (Dec. 3, 2022), <https://www.bloomberg.com/news/newsletters/2022-12-03/a-record-year-for-us-china-trade-new-economy-saturday>.

⁷⁸Joseph White, *China has a 10,000 euro cost advantage in small EVs, auto supplier says*, Reuters (Jan. 5, 2023), <https://www.reuters.com/business/autos-transportation/china-has-10000-euro-cost-advantage-small-evs-auto-supplier-says-2023-01-05/#:~:text=While%20the%20average%20price%20of,which%20provides%20analysis%20on%20industry>

Apart from this, China has its own homework to do to sustain its “monopoly” in the global supply chain of EVs.

1. Short Term: To counteract the IRA domestically

To start with, China could extend its incentives⁷⁹ to more domestic EV manufacturers, especially foreign ones. IRA may force some companies to quit China to satisfy the battery requirements for exporting to the U.S. These companies could increase domestic sales and export to other countries rather than chasing IRA’s tax credit to export to the U.S. if China could offer comparable incentives⁸⁰ to the EU companies, like Germany’s Audi, which have been expanding in China⁸¹ will be among the crucial targets, especially if the U.S. and the EU is unable to reach amicable agreements on the disputes on IRA.

Import incentives are achievable within China’s trade and industrial framework. Although China has recently terminated the decades-long national EV subsidy,⁸² it extended the purchase tax exemption for some models.⁸³ There are few imported EVs or wholly-foreign-owned-enterprise EVs listed, and China can incorporate more to sweeten the foreign investors or exporters.

Moreover, China could take the IRA to the WTO dispute resolution unit. This is a typical approach to win a victory in hand, even when the WTO’s appellate body is not functioning and a “victory” could be unenforceable. The most recent WTO dispute is DS615, launched by China against the U.S. measures on semiconductor export restriction in 2022, which indicates that the WTO dispute resolution unit is still considered a forum for China to resolve trade disputes.⁸⁴

IRA will be a trickier issue, however. China will watch the moves of the EU and other nations like Korea, which are all impacted by the IRA. China will get a head start in the case if the U.S. allies can join the consultation after failing to be exempted or compensated by the U.S.

2. Long Term: To Boost Renewable Investment Globally

In the long run, China shall be geared for a ban on Chinese batteries and EVs. the strategic importance of critical minerals, shall be escalated to new heights at a national level.

⁷⁹ China has been promoting its EV industry for more than a decade with consumer incentives and subsidies to producers, and the consumer incentives ended in 2022. The subsidies to producers have been restricted to domestic producers for a long time.

⁸⁰ Chad P Bown, *Why US allies are upset over electric vehicle subsidies in the Inflation Reduction Act*, PIIE (Dec. 2, 2022), <https://www.piie.com/blogs/realtime-economics/why-us-allies-are-upset-over-electric-vehicle-subsidies-inflation>.

⁸¹ *Audi on course to capitalize on increasing demand in China*, Chinadaily.com.cn <https://www.chinadaily.com.cn/a/202209/28/WS6333b792a310fd2b29e7a36d.html>.

⁸² Notice of the Ministry of Finance, the Ministry of Industry and Information Technology, the Ministry of Science and Technology and the Development and Reform Commission on the promotion and application of financial subsidy policies for new energy vehicles in 2022 (translated from Chinese) (财政部 工业和信息化部 科技部 发展改革委关于 2022 年新能源汽车推广应用财政补贴政策的通知), Ministry of Finance of China (Jan. 16, 2022), http://www.mof.gov.cn/gkml/caizhengwengao/wg2022/wg202203/202206/t20220623_3820629.htm.

⁸³ Announcement on Continuing the Vehicle Purchase Tax Exemption Policy for New Energy Vehicle (translated from Chinese) (关于延续新能源汽车免征车辆购置税政策的公告), Central Government of China, http://www.gov.cn/zhengce/zhengceku/2022-09/26/content_5712586.htm.

⁸⁴ *United States — Measures on Certain Semiconductor and other Products, and Related Services and Technologies*, <https://docs.wto.org/dol2fe/Pages/SS/directdoc.aspx?filename=q:/WT/DS/615-1.pdf&Open=True>

First, internally, China could dig deeper into domestic mines as it is doing now. In December 2022, China State Council published *Strategic Planning Outline for Expanding Domestic Demand (2022-2035)*, highlighting the significance of “carry[ing] out the status quo investigation and potential evaluation of strategic mineral resources, actively carry[ing] out prospecting in the deep and peripheral areas of existing mines, and extend[ing] the service life of mines.”⁸⁵

Second, externally, China could boost the outbound investment in critical minerals in the U.S.’ FTA countries, even pushing for Mexico to satisfy IRA’s friend-shoring and nearshoring requirements.⁸⁶ China has made enormous investments in the extraction, processing, and refinement of critical minerals worldwide, including in the U.S. FTA nations like Australia. For example, Tianqi Lithium produced Australia’s first battery-grade lithium hydroxide for an EV battery. This company is a US\$1.4 billion joint venture established by China and Australia.⁸⁷ It is unknown whether the IRA forbids or allows the U.S. EV producers to use the lithium provided by Tianqi from Australia, an FTA partner.

Third, specifically in the U.S., China could still explore direct investment opportunities. The Committee on Foreign Investment in the United States (CFIUS) would be stringent in reviewing Chinese investment, but the door is still open, at least in theory. Although one of the biggest Chinese EV producers, BYD is rethinking the initial plan of investing in the U.S. after the IRA, which illustrates that there is no direct pressure to divest. An alternative for China is to be the shareholders of battery producers or EV producers in the U.S. or other IRA-friendly countries.

3. Extreme Action: Another “Trade War,” But for Renewables

In the worst case, China might retaliate by reducing or even cutting off the U.S. components from EV imports. But it is unlikely to occur now, given China’s sweeping position in the chain of battery components. An alternative, however, might be to forbid importing the U.S. EVs that do not contain Chinese components under IRA. A more severe response might be putting pressure on Tesla, which owns a mega factory in China, and possibly even compel it to close. Again, this is unlikely to happen now.

D. Summary

The IRA has a domino effect on the triangle of the U.S., the EU, and China, even globally. Each party’s next move will depend on how the others interact and its capacity and strength in the EV supply chain. The world of EVs would possibly rebalance after the IRA’s provisions are implemented. Moreover, the IRA will bring a challenge to WTO law. The law might be “weaponized” to accuse each other’s incentives of violating WTO

⁸⁵ The Central Committee of the Communist Party of China and the State Council issued the "Strategic Planning Outline for Expansion of Domestic Demand (2022-2035)" (translated from Chinese) (中共中央 国务院印发《扩大内需战略规划纲要（2022－2035年）》), Central Government of China (Dec. 14, 2022), http://www.gov.cn/zhengce/2022-12/14/content_5732067.htm.

⁸⁶ Canada could be difficult, according to recent news.

Andy Home, *Column: Canada slams the door on China in critical minerals race*, Reuters (Nov. 7, 2022), <https://www.reuters.com/markets/commodities/canada-slams-door-china-critical-minerals-race-2022-11-07/>.

⁸⁷ Kandy Wong, *China-Australia lithium tie-up highlights symbiotic bond, ‘mutual respect’ amid green energy drive*, South China Morning Post (Jan. 2, 2023), <https://www.scmp.com/economy/global-economy/article/3205076/china-australia-lithium-tie-highlights-symbiotic-bond-mutual-respect-amid-green-energy-drive>.

law to prevent the development of the counterparty's EV industry in the global EV race. But the WTO process should be more than that.

IV. ANOTHER TRIANGLE: TRADE, ENERGY SECURITY, AND CLIMATE CHANGE

The IRA could spark a spiral into trade protectionism worldwide. Indonesia has banned nickel exports; Argentina, Bolivia, and Chile may soon work on an OPEC-style forum to control the output of their lithium mines. President Biden's administration is concerned about the risk of relying on China for the components of batteries as Europe did for Russian gas before the war, indicating a similarity of energy security issues between fossil fuel and renewables.

The IRA has highlighted another triangle formed by trade, energy security, and climate change, having been faced by each country. But some countries are playing a zero-sum game and exerting trade protectionism in this triangle.

A. *A Zero-sum Game in the Triangle*

One underlying issue of trade protectionism is the extra economic costs of climate change. According to *The Economist*, it would cost between \$3.1 trillion and \$4.6 trillion to replicate all investments made by companies worldwide in renewables. Reindustrialization will increase the price of renewables, hurting the poor the most. The cost of weaning America and the rest of the globe off carbon will increase as countries duplicate or even triplicate green supply chains.⁸⁸

Also, a zero-sum policy will stimulate competition and trade disputes, making it harder to solve problems that demand global collaboration, like addressing the complexities of climate change.⁸⁹

B. *WTO in the Triangle*

Nobody can deny the breakthrough in climate policies made by the IRA. Given the urgency of climate change, controversial action is better than no action. The pressing topic is balancing trade, energy security, and climate change.

But global warming will not wait for the balance. When the most significant emitters like China, the U.S., and the EU are fighting against each other on the EV tax credits, most undeveloped countries do not even have access to a single EV.

Fighting against climate change is challenging, especially regarding trade protectionism. The WTO's 2022 World Trade Report declares that "uncoordinated climate actions could also hamper decarbonization efforts by raising uncertainty and discouraging much-needed investment."⁹⁰

It is time to rethink trade.

1. Redefine "National Treatment"

WTO law could be adapted to the challenge of climate change. Climate change and WTO law have clashed. The local content mandate of the Inflation Reduction Act may go against WTO guidelines, but it encourages the U.S. to produce environmentally friendly

⁸⁸ *The destructive new logic that threatens globalization*, *The Economist* (Jan. 12, 2023), <https://www.economist.com/leaders/2023/01/12/the-destructive-new-logic-that-threatens-globalisation>.

⁸⁹ *Id.*

⁹⁰ *COP27 Reaches Breakthrough Agreement on New "Loss and Damage" Fund for Vulnerable Countries*, World Trade Organization https://www.wto.org/english/res_e/booksp_e/wtr22_e/wtr22_e.pdf.

electric vehicles. However, it does not imply that the WTO should be ignored. A new era of protectionism might start if every nation adopts its own IRA.

The principle of national treatment, which requires foreign and domestic producers to be treated equally, may need to be redefined in light of the challenges posed by climate change. A new definition of the national treatment principle may be necessary in view of the difficulties presented by climate change, which calls for equitable treatment of domestic and foreign producers. One possible approach is to consider climate change as an inherent exception in Article XX of WTO rules, which could allow members to publish IRA and promote their domestic EV industry with the local content requirement (LCR). However, several conditions shall be met. First, the member shall demonstrate a close alignment of the LCR with its national net-zero targets and prove that the LCR is a necessity to achieve its targets. Second, the member shall set a sunset date for the LCR policy. Third, the member shall donate a portion of renewables produced under the LCR to undeveloped countries and reduce tariffs for other renewable products.

2. Weaponize and Monetize WTO's decision.

As the Climate Change Conference (COP27) highlighted, one pressing task is to establish pragmatic measures to support vulnerable countries from climate change. A new fund has been successfully formed after decades-long disputes in 2022.⁹¹ WTO could contribute something similar.

Enormous oil and gas deposits used to be the source of conflict, but in the future, renewable energy sources will witness a scramble in WTO, just like the IRA. When the Appellate Body finds the respondent violating the WTO law in climate change-related cases, it may monetize a specific portion of the ruling as a penalty called "Trade Contribution for Climate Change" for the respondent. In tandem with the penalty, the complainant could still retaliate as WTO law allows if the responder disobeys the ruling.

In this case, the WTO would collect money from WTO lawbreakers and set up a fund to assist poor countries with climate change challenges. The measure will safeguard the doctrine of WTO law and substantially advance WTO's mission of contributing to cutting emissions.

Nevertheless, the priority in this matter is to restore the Appellate Body first, which will be another topic.

C. Summary

When the U.S., the EU, and China form a triangle on the IRA, another "Impossible Trinity" materializes. Balancing trade, energy security, and climate change is increasingly daunting for each country. However, the world needs to be taken care of from a global perspective. International organizations and forums like WTO could carry out the mission or facilitate a greener world through more up-to-date trade rules. When the countries are "weaponizing" WTO law for their interest, WTO could weaponize itself to restore a multilateral trade order and facilitate climate change collaboration.

⁹¹ COP27 Reaches Breakthrough Agreement on New "Loss and Damage" Fund for Vulnerable Countries, United Nations Climate Change (Nov. 20, 2022), <https://unfccc.int/news/cop27-reaches-breakthrough-agreement-on-new-loss-and-damage-fund-for-vulnerable-countries>.

V. CONCLUSION

The IRA forms or strengthens more than a triangle. EVs' tax credit in IRA vividly illustrates that the U.S., the EU, and China will find themselves in a "mission impossible" of balancing trade, energy security, and climate change.

The whole world could be a frontline of a new round of trade conflict between the U.S. and China. The IRA could provoke a choice for each country to make in the renewable supply chain: the U.S. or China. The EU may face the same choice.

The IRA has impacted the transatlantic trade honeymoon brought by the Russia-Ukraine war. But it is likely to be an interlude rather than a verse if the U.S. adequately addresses the ally's concern. However, the EU is not counting everything on the U.S. or China as it is establishing its own renewable plan like REPowerEU.

Coordinating with China for a fast energy transition between the EU and China is almost as crucial as pivoting from China for industry independence. It is foreseeable that the EU could adopt its own "IRA" in the near term.

Meanwhile, WTO law would inevitably be a "weapon" in this race for global renewable leadership. IRA would have to undergo the National Treatment assessment and present new justifications for the General Exceptions. The broader hypothesis of WTO's mission in climate change raised in this article, perhaps not ultimately resolved, are worthy of further analysis.

The discussion in this article has practical relevance for the U.S., the EU, and China. EU and China may need to invoke Article III of GATT, and the U.S. may respond in Article XX. Furthermore, as elaborated in this article, each country needs a holistic view of its renewable policy and others, especially in a triangle of trade, energy security, and climate change.

CHAPTER 26: CLIMATE CHANGE AS A SECURITY THREAT: ARTICLE XXI IMPLICATIONS

A. HOPE SHEILS*

Climate change is a national security risk. Combating climate change will require the deployment of many different policies to limit global greenhouse gas emissions, and trade tools are a key part addressing climate change at scale and at appropriate speed. While it seems that some of these trade tools may conflict with existing trade agreements, framing climate change-fighting policies as national security may grant more latitude in the way these measures can be legally applied. This paper explores how, by framing climate policies as national security policies, those challenged under the General Agreement on Tariffs and Trade (GATT 1994) could fall under the Article XXI Exceptions for National Security. This paper examines this possibility in light of recent invocations of Article XXI before the WTO and explores ways that the exception could be applied that are both sustainable both for the planet and for the global trade system.

INTRODUCTION

Climate change has long been framed as an environmental disaster, but this framing is not enough. It needs to be expanded. As we grapple with increasing extreme weather events, drought, wildfires, and more, it is increasingly clear that climate change poses not only ecological risks, but also risks to the economy and to national security.

This is not just a question of rhetoric. The way we frame climate measures is not a quibbling of semantics but an issue of legal significance. Approaching climate change as the national security risk it is may open new legal avenues and tools with which governments can approach climate-change-mitigating measures, especially in international trade. For example, many international trade agreements have carve-out exceptions for potentially trade-restrictive measures that are made in the interest of national security. In the General Agreement on Tariffs and Trade (the GATT 1994), that measure is Article XXI—a measure that has long slumbered without use but has been invoked increasingly in the face of rising economic nationalism. In fact, policy makers have a number of legal grounds to be big and bold on taking action, given that it will genuinely address climate change—and those grounds include but are not restricted to Article XXI of the GATT 1994.

This paper analyzes the applicability of Article XXI of the GATT 1994 to actions made to fight climate change. In doing so, this paper will first summarize current research and policy statements on the state of climate change and of how it poses national security risks. Second, this paper will examine several of the tools at our disposal for fighting climate change – tools that may be stymied by current interpretations of climate change as a solely environmental issue within international agreements. Next, focusing on the GATT 1994, this paper focuses on how the General Exceptions in Article XX have been applied to trade measures made to protect the environment. Noting some of the pitfalls of the Article XX Exceptions – namely, that they are so seldom successfully used to justify

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trade measures – this paper will next analyze the national security exception in Article XXI of the GATT 1994. This section will examine current applications of Article XXI, and answer the question of whether the national security exception could be invoked for measures taken to fight climate change. The answer is a likely yes, but that widespread invocation of Article XXI will require guardrails so as to not be overly permissive and allow for actions made only *in the guise* of fighting climate change. After examining some of those guardrails, the final section looks into further implications of this strategy.

Ultimately, climate change is a national security threat, and there is a robust, albeit relatively untested, set of exceptions in WTO law for national security measures that we can apply in the fight against climate change.

I. CLIMATE CHANGE AS A NATIONAL SECURITY RISK

Climate change is a national security risk. An entire paper can be written establishing this fact (many have),¹ but this paper takes it as a premise that climate change poses a significant national security risk, and this section will cite and summarize some of the many sources that establish this fact.

Today, despite a political climate within the United States that has debated the existence and anthropogenic nature of climate change, the scientific community, the public, and the Department of Defense are in agreement that climate change is real and that it is caused by humans.² Climate change also poses a national security risk. In its 2021 Climate Risk Analysis, the Pentagon outlined the severity of the expected impact of climate change on national security:

To keep the nation secure, we must tackle the existential threat of climate change. The unprecedented scale of wildfires, floods, droughts, typhoons, and other extreme weather events of recent months and years have damaged our installations and bases, constrained force readiness and operations, and contributed to instability around the world...the Department of Defense (DoD) is integrating climate change considerations at a strategic level.³

The U.S. Director of National Intelligence (DNI) predicts that by 2040, climate change will lead to increased strain on military readiness, high strain on energy and food systems, and challenges with trade, including competition with China over key minerals and clean energy technologies.⁴ More broadly, the DNI cites three categories of risk that are no doubt related to international trade, including: increased geopolitical tension over climate responses (as the Biden White House puts it: “increased geopolitical tension as

¹ See, e.g. Richard A. Matthew, *Is Climate Change a National Security Issue?*, ISSUES IN SCI. & TECH. (Mar. 1, 2011); <https://news.harvard.edu/gazette/story/2021/11/how-climate-change-will-impact-national->

² Samantha Gross, *Republicans in Congress are out of step with the American public on climate*, BROOKINGS (May 10, 2021) (accessed Apr. 4, 2022) <https://www.brookings.edu/blog/planetpolicy/2021/05/10/republicans-in-congress-are-out-of-step-with-the-american-public-on-climate/>; Mark P. Nevitt, *Is Climate Change a National Security Emergency?* 55 UC DAVIS L. REV. 591-656 (2021) (available at: https://lawreview.law.ucdavis.edu/issues/55/2/articles/files/55-2_Nevitt.pdf).

³ DEP'T OF DEFENSE, CLIMATE RISK ANALYSIS, (Oct. 2021). <https://media.defense.gov/2021/Oct/21/2002877353/-1/-1/0/DOD-CLIMATE-RISK-ANALYSIS-FINAL.PDF> [hereinafter *Pentagon Report*].

⁴ NAT'L DEFENSE COUNCIL, CLIMATE CHANGE AND INTERNATIONAL RESPONSES INCREASING CHALLENGES TO U.S. NATIONAL SECURITY THROUGH 2040 (2021) https://www.dni.gov/files/ODNI/documents/assessments/NIE_Climate_Change_and_National_Security.pdf (accessed April 3, 2021) [hereinafter *National Intelligence Report*].

countries argue over who would be doing more, and how quickly, and compete in the ensuing energy transition”), cross-border geopolitical flashpoints as countries take steps to ensure their interests against the physical effects of climate change, and climate effects straining country-level stability.⁵

The anticipated risks are wide-ranging. Countries like Algeria and Iraq will face lost revenues from fossil fuels while their region faces increased heat and drought. Drought and resulting food shortages can lead to violent unrest and conflict. Simultaneously, melting ice caps in the Arctic Ocean will lead to more competition for minerals, fish, and trade routes. Tens of millions of people are expected to be climate migrants by 2050.⁶ Further, climate change poses a direct threat to homes, infrastructure, and military infrastructure – the latter making climate change a direct threat to national security. Climate change threatens us all.⁷

II. HOW TRADE-BASED CLIMATE CHANGE-FIGHTING POLICIES COULD BE STYMIED BY EXISTING TRADE LAW

The best time to start fighting climate change was decades ago, but the second best time is now. As it seems unlikely that the world will meet the goals set in the 2015 Paris Climate Accord,⁸ the need for action to reduce carbon emissions (by 45% less than we were in 2010, according to the 2018 IPCC report) and adequately sequester carbon is even more pressing. The 2022 IPCC report shows the dire need for action to fight climate change.⁹

There are many ways to fight climate change. And because climate is such a broad-based problem, we need to attack it with many different tools. This approach includes using trade tools, and there are many trade tools that we can deploy to reduce greenhouse gas emissions and move towards a sustainable planet. Some of these climate-change fighting policies – particularly those that may be most likely to pass in the United States – face compatibility issues with WTO rules, including the provisions of the GATT 1994.

To survey this problem, this section first outlines the relevant provisions of the GATT 1994, then outlines several different carbon-fighting policies that may be stymied by the existing trade structure – namely, Carbon Border Adjustment Mechanisms, measures prioritizing products with greener processes and production methods, and Eco-labeling.

⁵ THE WHITE HOUSE, FACT SHEET: PRIORITIZING CLIMATE IN FOREIGN POLICY AND NATIONAL SECURITY (Oct. 21, 2021) <https://www.whitehouse.gov/briefing-room/statements-releases/2021/10/21/fact-sheet-prioritizing-climate-in-foreign-policy-and-national-security/>.

⁶ Interestingly, the U.S. Intelligence report anticipates that countries like China and India that have large populations and a heavy use of fossil fuels will ‘heavily determine’ how quickly global temperatures rise. See Christopher Flavelle et al. *Climate Change Poses a Widening Threat to National Security*, THE N.Y. TIMES, (Oct. 21, 2021) (accessed May 15, 2022) <https://www.nytimes.com/2021/10/21/climate/climate-change-national-security.html>.

⁷ *Id.* See also THE WHITE HOUSE, FINDINGS FROM SELECT FEDERAL REPORTS: THE NATIONAL SECURITY IMPLICATIONS OF A CHANGING CLIMATE (May 2015) (accessed Apr. 1, 2022) https://obamawhitehouse.archives.gov/sites/default/files/docs/National_Security_Implications_of_Changing_Climate_Final_051915.pdf; (showing concern from the Obama White House about the national security risks of climate change; Andrew Revkin, *Trump’s defense chief cites climate change as national security challenge*, SCIENCE (Mar. 14, 2017) (Accessed Apr. 1, 2022) <https://www.science.org/content/article/trump-s-defense-chief-cites-climate-change-national-security-challenge>.

⁸ *National Intelligence Report*, See also Christopher Flavelle, *supra* Note 6, at 1.

⁹ *Climate Change 2022: Impacts, Adaptation and vulnerability: Summary for Policymakers*, INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE (2022) https://www.ipcc.ch/report/ar6/wg2/downloads/report/IPCC_AR6_WGII_SummaryForPolicymakers.pdf.

A. Relevant Measure in the GATT 1994

The GATT 1994 is a key international agreement incorporated into the Marrakesh Agreement that established the World Trade Organization in 1994. The GATT 1994 is an update from the original General Agreement on Tariffs and Trade that was made after the Second World War. Both then and now, the GATTs' purpose is to promote international trade by reducing trade barriers. To this end, the agreement includes several key provisions to provide for the substantial reduction of tariffs and other trade barriers and the elimination of preferences, on a reciprocal and mutually advantageous basis.¹⁰

The agreement itself is composed of thirty-eight articles addressing this purpose. Specific provisions of the GATT 1994 include Article I most-favored nation treatment, which requires that countries do not discriminate between trading partners,¹¹ Articles II, VI and XVI, which establish tariff schedules, norms against dumping of goods and provide for antidumping or countervailing duties against unfair trade practices of another member, and Article III (National treatment), which requires non-discriminatory treatment between domestic and imported products.¹²

There are many trade-related measures that can be taken to fight climate change. A non-exhaustive list of these measures includes: Carbon Border Adjustment Mechanisms, antidumping or countervailing duties (against carbon-intensive alternatives), tariffs on carbon and import bans or quantity limits on carbon intensive goods.¹³ Some of these measures may disrupt – or even reduce – trade, making them run afoul of existing trade agreements. The following sections will explain how.

B. Carbon Border Adjustment Mechanisms

While many economists recommend carbon taxes or carbon cap-and-trade mechanisms as an effective and efficient way to fight climate change, their applications will not necessarily be uniform across different countries. However, if domestic industry is being taxed with a domestic carbon tax based on the carbon used in production but foreign imports are not, the resulting discrepancy can create an unfair advantage for imports.

Carbon Border Adjustment Mechanisms (CBAMs) are a solution to this problem, by which imported goods are taxed for their carbon content to meet the same level of taxation as domestic goods, with the possible deduction of similar carbon payments from the imported goods' country of origin. CBAMs can also account for the amount of fossil fuels that go into transporting a product – thus, products from further away would ultimately be taxed more (unless they are shipped in a more carbon efficient or neutral way). This adjustment would even the playing field, and is arguably exactly within the meaning and purpose of the GATT 1994 – to have trade be reciprocal and mutually

¹⁰ J. Michael Goodson *Law Library Research Guides: GATT/WTO*, DUKE UNIV. (accessed May 2022) <https://law.duke.edu/lib/research-guides/gatt/>.

¹¹ *Understanding the WTO: Basics: Principles of the trading system*, WORLD TRADE ORG. (accessed May 19, 2022) https://www.wto.org/english/thewto_e/whatis_e/tif_e/fact2_e.htm.

¹² Sherzod Shadikhodjev, *National Treatment under GATT Article III:2 and its Applicability in the Context of Korea's FTAs*, 12 J. OF INT'L ECON. STUD., 65 (2008) (available at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2914737); Marrakesh Agreement Establishing the World Trade Organization, Apr. 15, 1994 1867 U.N.T.S. [hereinafter *GATT 1994*] (Article III) (analytical index here: https://www.wto.org/english/thewto_e/whatis_e/tif_e/fact2_e.htm).

¹³ Rafael Leal-Arcas, *Unilateral Trade-related Climate Change Measures*, 13 J. WORLD INV. & TRADE 875 (2012).

advantageous. Indeed, GATT Article II:2(a) permits taxes that are “a charge equivalent to an internal tax...in respect of the like product.”¹⁴

However, in their operation, CBAMs do tax goods differently based on their country of origin or manufacturing processes. This may not be compatible with the obligations outlined in Articles I (General Most-Favored Nation Treatment, as a carbon border adjustment that accounts for different exporters’ internal regulations or distance from the importing country would tax the same products from different countries differently, despite most-favored-nation status) and Article III (national treatment, as CBAMs may tax imports at a rate higher than domestic product due to transportation emissions).

C. Other Climate Policies Stymied by the GATT 1994

With CBAMs as an example, it is easy to see how well-meaning policies for the purpose of saving the earth from climate change may run into compatibility issues with the GATT 1994. Import restrictions or quantity limits on carbon-intensive goods or fossil fuels likely violate Article I (which mandates most favored nation treatment) and Article XI (which bans quantitative restrictions). Antidumping or countervailing duties against climate-antagonizing goods that are subsidized by their producing countries could be considered incompatible with Articles I (again, MFN), VI, and XVI (tariff schedules, anti-dumping and countervailing duties), III (national treatment) and XI (limiting quantitative restrictions). According to the Peterson Institute for International Economics, additional or punitive tariffs for countries not in compliance with carbon-reduction agreements (a stick, instead of a carrot, for enforcing these agreements) would likely run afoul of Articles I, III, and XI.¹⁵

While domestic measures, if applied the same to imported goods, are likely to be compatible with international law, this principle in practice becomes foggier when the action deviates from simple tariffs and subsidies. For example, a carbon tax by product, if it treats domestically-produced goods the same as imports, would likely be compatible with international law. However, a cap and trade system or carbon performance regulations have more ambiguous standing when applied to imports or exports, because the caps may be interpreted as discriminatory.¹⁶ Another solution would be applying subsidies to encourage the use of environmentally-friendly technologies, but that approach also faces trade law hurdles.¹⁷

D. Like Products Treatment & the Processes and Production Methods Debate

Trade measures that differentiate based on the climate impact of particular goods may also run afoul of trade obligations, based on the definition of “like products.” Whether and how countries regulate the trade of products based on their Processes and Production Methods (PPMs) is not clear under the GATT. If the definition of a “like product” does not evaluate identical products differently based on the carbon used in their production

¹⁴ *GATT 1994*, (Art. 2) (analytical index here: https://www.wto.org/english/res_e/publications_e/ai17_e/gatt1994_art2_gatt47.pdf).

¹⁵ Gary Clyde Hufbauer, *Which proposed climate policies are compatible with WTO rules?* PETERSON INST. FOR INT’L ECON. (26 Oct. 2021) <https://www.piie.com/research/piie-charts/which-proposed-climate-policies-are-compatible-wto-rules>.

¹⁶ *Id.*

¹⁷ See, e.g. Request for Consultations by the United States, *China—Measures concerning wind power equipment*, WTO Doc. WT.DS419/1 (Jan. 6, 2011).

(e.g. clean versus non-clean coal, green steel vs. non-green steel), then trade policies that differentiate on those grounds may run afoul many different provisions of the GATT.

Many different articles of the GATT 1994 hinge on the definition of “like products,” including Article I (regarding most-favored nation treatment, that “any advantage...granted by any contracting party to any product originating in or destined for any other country shall be accorded...to the *like product* originating or destined for the territories of all other contracting parties”) [emphasis added], Article III (regarding national treatment, that “the products of the territory of any contracting party imported into the territory of any other contracting party shall be accorded treatment no less favorable than that accorded to *like products* of national origin”) [emphasis added], Article VI (which defines “dumping” duties by comparison like products),¹⁸ and Article IX (which requires that contracting parties “accord to the products of territories of other contracting parties treatment with regard to marking no less favorable than the treatment accorded to *like products* of any third country,”) [emphasis added].¹⁹ Restrictions on carbon-heavy exports are incompatible with the obligations of Article XIII “unless the importation of the *like product* of all third countries or the exportation of the *like product* to all third countries is similarly prohibited or restricted.”²⁰

This issue also arises under Article XI General Elimination of Quantitative Restrictions, as quantitative restrictions – which no doubt would be part of some comprehensive policies made to quantitatively restrict carbon footprints – are permitted where they consist of “import restrictions...necessary to the enforcement of governmental measures which operate [either] to restrict the quantities of like domestic product permitted to be marketed or produced...[or] to remove a temporary surplus of like domestic product,” among other things.²¹

How does the international community interpret what it means to be “like products”? Are goods that are identical in form and function but are produced in ways that have different carbon footprints to be considered “like product” for the purposes of the GATT? There is an ongoing debate as to whether identical processes are “like” products – currently, in WTO disputes, this is analyzed on a case-by-case basis.²² For many of these environmental impacts, the jury is still out on whether carbon footprint is enough to distinguish otherwise “like” products.²³ For policymakers, this ambiguity poses an obstacle to enacting trade measures that choose less-carbon-intensive products over others.

E. Marking Requirements

Another group of proposed measures that would help combat climate change are labeling requirements. Requiring sellers to label on their goods the water footprint or greenhouse gas footprint may help sway consumers to make climate-friendly consumption

¹⁸ *GATT 1994* (Article VI (1)(a) and (1)(b)(i)).

¹⁹ *GATT 1994* (Article IX.1).

²⁰ *GATT 1994* (Article XIII(1)).

²¹ Article XI(2)(c)(i) and (ii).

²² *WTO rules and environmental policies: Key GATT disciplines*, WORLD TRADE ORG. https://www.wto.org/english/tratop_e/envir_e/envt_rules_gatt_e.htm; Appellate Body Report, *European Communities – Measures Affecting Asbestos and Asbestos-Containing Products*, WTO Doc. WT/DS135/AB/R (Mar. 12, 2001).

²³ Chris Fisher, *Who's Afraid of PPMs?* (European Commission, Working paper May 31, 2001) https://trade.ec.europa.eu/doclib/docs/2005/april/tradoc_122187.pdf; Steve Charnovitz, *The Law of Environmental “PPMs” in the WTO: Debunking the Myth of Illegality*, 27 *YALE J. OF INT'L L.* 59, 59-110 (2002).

choices. Similarly, such marking requirements would require producers to analyze the impact of their goods, and such a numerated impact is easier to regulate. Depending on what constitutes a “like product,” such marking requirements based on carbon footprint may run afoul of Article IX (wherein contracting parties must “accord to the products of territories of other contracting parties treatment with regard to marking no less favorable than the treatment accorded to like products of any third country.”)²⁴

This very issue has arisen – albeit not for climate-related labeling requirements – before a WTO panel in *United States-Origin Marking Requirements* (DS597). In that case, Hong Kong challenged a notice from U.S. Customs and Border Patrol that goods produced in Hong Kong must be marked to indicate that their origin is “China,” specifically challenging the application of Section 304 of the Tariff Act of 1930 and 19 C.F.R. Part 134 under Article IX.²⁵ This argument was rejected by a WTO panel in December of 2022,²⁶ but has been subsequently appealed “into the void” of the defunct WTO Appellate Body by the United States.²⁷

Ultimately, and importantly, many measures that could fight climate change are not fully compatible with existing trade law – *unless* they can fit within one of the exceptions outlined in existing trade agreements.²⁸

III. ARTICLE XX – GENERAL EXCEPTIONS AND THE CHAPEAU’S FIREWALL

The GATT 1994 already has a potential solution for these issues: Article XX, the General Exceptions. However, in order to assert an environmental purpose for an otherwise trade-restrictive measure, a country does not just need to show that such an action is “necessary to protect human, animal, or plant life and health” (Article XX(b)) or “relat[es] to the conservation of natural resources if such measures are made effective in conjunction with restriction on domestic production or consumption” (Article XX(g)).²⁹ They also must clear the “chapeau” of Article XX.³⁰

The chapeau of Article XX requires that, for an incompatible measure to fit within the exclusion and be permitted under international law, it cannot cause “arbitrary or unjustifiable discrimination between countries where the same conditions prevail” or “disguised restrictions on international trade.” While Article XX of the GATT was not formulated with exceptions for issues like climate change in mind, it is not clear that any of these hurdles could get past the chapeau of the GATT.³¹

²⁴ *GATT 1994*, Article IX.1.

²⁵ Request for Consultations by Hong Kong, China, *United States – Origin Marking Requirement*, WTO Doc. WT/597/1 (Nov. 3, 2020). Notably, the U.S. First Written Submission in this dispute focuses heavily on the role of the Article XXI exception. This is further discussed in the XXI Application section of this paper.

²⁶ Report of the Panel, *United States—Origin Marking Requirement*, WTO Doc. WT/DS597/R (Dec. 21, 2022).

²⁷ Notification of an Appeal by the United States Under Article 16 of the Understanding on Rules and Procedures Governing the Settlement of Disputes (DSU), *United States—Origin Marking Requirement*, WTO Doc. WT/DS597/9 (Jan. 30, 2023) <https://docs.wto.org/dol2fe/Pages/SS/directdoc.aspx?filename=q:/WT/DS/597-9.pdf&Open=True>.

²⁸ Gary Clyde Hufbauer, *Which proposed climate policies are compatible with WTO rules?* PIIE Oct. 26, 2021. <https://www.piie.com/research/piie-charts/which-proposed-climate-policies-are-compatible-wto-rules>.

²⁹ Article XX(g) exceptions to GATT 1994 obligations include exhaustible resources like clean air and soil. Appellate Body Report, *US—Shrimp*, ¶ 128-131, WT/O Doc. WT/DS58/AB/R.

³⁰ *WTO rules and environmental Policies: GATT exceptions*, WTO, (accessed Apr. 1, 2022) https://www.wto.org/english/tratop_e/envir_e/envt_rules_exceptions_e.htm.

³¹ See also: similar issues with subsidies measures, as seen in *Canada-FIT* (DS426) (also discussed below).

There are many cases in which Article XX exceptions were unable to pass the chapeau test of Article XX – that is, panels have found that despite being legitimately tied to an objective and being necessary (and, where paragraph XX(g) is being asserted, is being paired with reductions in domestic production), panels or the appellate body of the WTO have still found that such measures posed “arbitrary or unjustifiable discrimination between countries where the same conditions prevail” or a “disguised restriction on trade.”³² Indeed, of forty-four attempts to use the GATT Article XX or GATS Article XIV “General Exception,” only two have ever succeeded.³³

This history may cause some to seriously question whether Article XX could appropriately be applied to climate-related measures, notwithstanding the current Appellate Body Crisis (that there are not enough members on the Appellate Body of the World Trade Organization Dispute Settlement System to continue its work). However, scholars have also made the case that recent years have seen a strong “environmental turn” in Article XX jurisprudence, a turn that makes it increasingly likely that a climate measure will be sustained under Article XX.³⁴

Beyond Article XX, there are many other environmental exceptions available in numerous other multilateral trade agreements – exceptions that could be leveraged for purposes of tackling climate change.³⁵ Such exceptions include Article XIV of the General Agreement on Trade in Services (GATS), which is similar to Article XX of the GATT 1994. Similarly, the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) includes exceptions in Arts 27.2 and 27.3 of Section 5 making it possible for members to make certain inventions ineligible for patenting if they “protect human, animal or plant life or health, to avoid serious harm to the environment.” As a third potential environmental exclusion, the preamble to the Agreement on Agriculture iterates a commitment to reform agriculture in ways that protect the environment (and the exclusion of “green box” policies), which is a soft law implication of the availability of such an exception.³⁶

Because climate change is a national security threat, an additional exception may apply – the Article XXI National Security Exception to the GATT 1994.

³² See generally *US-Gasoline* (DS 2), *Brazil-Retreaded Tyres* (DS 332), *US-Shrimp* (DS-58).

³³ Public Citizen, “Only One of 44 Attempts to Use the GATT Article XX/GATS Article XIV “General Exception” Has Ever Succeeded: Replicating the WTO Exception Construct Will Not Provide for an Effective TPP General Exception,” PUBLIC CITIZEN, Aug. 2015. https://www.citizen.org/wp-content/uploads/general-exception_4.pdf. It is also worth noting that several of these disputes – notably, *US-Gasoline* (DS2) and *US-Shrimp* (DS58) – in which parties had invoked the Article XX exception, appellate bodies found that they did not satisfy the chapeau of Article XX despite being for internal domestic consumption and for environmental measures. The Appellate Body in *US-Shrimp* found, in part, that the U.S. restrictions on imported tuna fished without turtle exclusion devices (TEDs) was coercive, as it forced that technological change on fishing industries that had not been using TEDs before. A CBAM measure, which is practically meant to extend the economically coercive tool (i.e. the Carbon trading system) to countries outside of carbon-trading agreement – and could be considered equally coercive under the *US-Shrimp* logic

³⁴ Christopher Tran, *Using GATT, Art XX to Justify Climate Change Measures in Claims Under the WTO Agreements*, 27 ENV'T AND PLAN. L. J. 346 (2010) (available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1676105); Michael Hertel, *Climate-Change-Related Trade Measures and Article XX: Defining Discrimination in Light of the Principle of Common but Differentiated Responsibilities*, (2011), 45, J. OF WORLD TRADE, 653-678, <https://kluwerlawonline.com/journalarticle/Journal+of+World+Trade/45.3/TRAD2011023>.

³⁵ See, e.g. WTO, “WTO rules and environmental policies: Other Relevant WTO Texts”: https://www.wto.org/english/tratop_e/envir_e/issu3_e.htm.

³⁶ *Id.*

A. *XX v. XXI: Room for Opportunity?*

There are several ways in which evoking the Article XXI exception may be more successful with panels than Article XX. For one, there is no chapeau clause banning arbitrary or unreasonable discrimination in Article XXI, unlike Article XX. One benefit to justifying unilateral trade measures with national security is that it would not face that legal hurdle.

Second, there is no notice requirement in the text of Article XXI. Parties do not need to tell other countries before they take a trade-related action if it is for national security. However, parties have adopted a further understanding that, with the exception of XXI(a), parties need to be informed to the fullest extent possible of trade measures taken under Article XXI.³⁷ In contrast, the chapeau of Article XX prohibits “arbitrary” discrimination, and part of that analysis includes a consideration of notice.³⁸

Because climate change is a national security threat, because existing WTO law conflicts with many potential climate-fighting measures, and because there is a robust, if relatively untested, set of exceptions in WTO law for national security measures, there may very well be an opportunity to assert national security reasons for taking strong action against climate change.³⁹

IV. ARTICLE XXI – OPPORTUNITIES IN THE NATIONAL SECURITY EXCEPTION

Given the additional legal barrier involved in justifying climate-change fighting measures through the “General Exceptions” of Article XX and given the tangible national security risks posed by climate change, it is worth examining whether Article XXI can be invoked for climate change-fighting measures. We now stand at an interesting inflection point for the invocation of the Article XXI General Exception. After decades of slumber – arguably, from as long ago as the 1947 GATT – the exception is now waking up. Recent Panel decisions and parties’ justifications shed significant light on how to interpret the language of the agreement, as well as how it can be used to justify measures fighting climate change.

In order to understand how Article XXI may relate to climate-fighting measures, this section will first outline the text, founding context, and historical use of the National Security Exception. To understand how it may be applied today, this paper will then introduce several recent cases in which the exception was raised in order to analyze how they can help inform our understanding of Article XXI applications. Then, this section looks into what such applications may mean for disputes and the WTO system and suggests potential guardrails for its sustainable use.

³⁷ ANALYTICAL INDEX OF THE GATT – ARTICLE XXI – SECURITY EXCEPTIONS ,605-6 (available at https://www.wto.org/english/res_e/booksp_e/gatt_ai_e/art21_e.pdf).

³⁸ ANALYTICAL INDEX OF THE GATT – ARTICLE XX – GENERAL EXCEPTIONS, ¶ 198 (citing *US – Shrimp*) (available at https://www.wto.org/english/res_e/publications_e/ai17_e/gatt1994_art20_jur.pdf).

³⁹ See Elizabeth Trujillo, *An Introduction to Trade and National Security: New Concepts of National Security in a Time of Economic Uncertainty*, 30 DUKE J. OF COMP. & INT’L L. 2011, 2020. <https://scholarship.law.duke.edu/cgi/viewcontent.cgi?article=1560&context=djcl>.

A. Article XXI Text, Founding Context, and Historical Use

Article XXI of the GATT 1994 reads as follows:

Nothing in this Agreement shall be construed:

- (a) *to require any contracting party to furnish any information the disclosure of which it considers contrary to its essential security interests; or*
- (b) *to prevent any contracting party from taking any action which it considers necessary for the protection of its essential security interests;*
 - (i) *relating to fissionable materials or the materials from which they are derived*
 - (ii) *relating to the traffic in arms, ammunition and implements of war and to such traffic in other goods and materials as is carried on directly or indirectly for the purpose of supplying a military establishment*
 - (iii) *taken in time of war or other emergency in international relations; or*
- (c) *to prevent any contracting party from taking any action in pursuance of its obligations under the United Nations Charter for the maintenance of international peace and security.*⁴⁰

The text of Article XXI lacks a qualifying chapeau in the manner of that in Article XX. While measures under Article XX must both meet the exception outlined *and* not be applied in a manner that is a means of “arbitrary or unjustifiable discrimination between countries where the same conditions prevail” or a “disguised restriction on international trade” – there is no such second requirement under Article XXI. As such, once it is shown that a measure meets one of the enumerated exceptions in Article XXI, it is not clear what limits – if any – can be applied to those measures.

The discussions at the time of the negotiations for Article XXI of the GATT shed some light on the intended parameters of this provision. The sections that are now Article XX and Article XXI were initially combined, but were split with the intention for the (eventual) Article XX provisions to relate to the commercial policy chapter of the draft Charter of the International Trade Organization, and the (eventual) Article XXI provisions were meant to be exceptions to the Charter as a whole. The reasoning for this, in July 1947, was that “some latitude must be granted for security as opposed to commercial purposes.” This wholesale exception interpretation supports the inference that Article XXI has fewer limitations. It is, for the most part, not bound by the rest of the charter.

The original conception of Article XXI was of an exception that was not limitless, and member interpretations and interactions were meant to refine the Article further. The July 1947 discussions also stated that “the spirit in which Members of the Organization would interpret these provisions was the only guarantee against abuse,” and that the terms of the Article were subject to the provisions of what would become Article XXIII(2) – that is, they would be up to the dispute resolution among the contracting parties (and ultimately the Dispute Settlement System).⁴¹ There is evidence that in those evaluations –

⁴⁰ *GATT 1994*.

⁴¹ *GATT 1994*; MULTILATERAL TRADE NEGOTIATIONS, THE URUGUAY ROUND, NEGOTIATING GROUP ON GATT ARTICLES, ARTICLE XXI NOTE BY THE SECRETARIAT, WTO Doc. MTN.GNG/NG7/W/16, at 2 (available at <https://docs.wto.org/gattdocs/q/UR/GNGNG07/W16.PDF#page=2>). Representatives that year also disputed whether the judgment of such an article (a national security exception and thus a so far “political question”) was appropriate for an economic organization to evaluate: “he believed that an economic measure taken for political reasons was not properly speaking an economic measure but a political measure and as such was not within the competence of the Organization” and “the Organization should be an

specifically in regard to what is now Article XXI(c), “it had surely been the general intention that the principles of the [U.N.] Charter should be the guiding ones for the [Contracting Parties]” resolving disputes.⁴² It is worth noting, however, that these conversations and decisions took place in the 1940s, long before our understanding of climate change began.

Scholars have long noted the ambiguity of Article XXI.⁴³ What does it mean, for something to be “consider[ed] necessary,” for it to be an “essential security interest,” a “time of war” or an “emergency in international relations”? Further, if individual countries can take any action to protect “essential interests” that “it considers necessary,” does that mean, as the Trump Administration asserted in *United States – Certain Measures on Steel and Aluminum Tariffs* (DS548), that Article XXI is not subject to WTO Panel review?⁴⁴

Historical examples of Article XXI invocation do not inform this analysis very fully, because, despite its many invocations,⁴⁵ most of the disputes in which it was invoked were ultimately resolved informally through diplomacy.⁴⁶ Recent cases and examples are helpful for understanding how Article XXI may successfully be invoked.

B. The Article XXI Renaissance

In recent years – amid increased economic nationalism and trade protectionism – the National Security Exception has made a comeback. While none of these cases involved measures for climate change, they do shed insight on how such a justification may be used. This paper will outline and focus on three of these recent cases, namely: *Russia – Traffic in Transit* (DS 512) (hereinafter *Russia-Traffic*), *United States – Certain Measures on Steel and Aluminum Products* (DS544, 547, 548, 552, 554, 556 and 564) (hereinafter *US-Steel*), and *United States-Origin Marking Requirement* (DS 597) (hereinafter *US-Origin Marking*).⁴⁷

economic organization and therefore not judge any measure employed in connection with a political dispute when that political dispute was within the jurisdiction of the United Nations.” *Id.* at 4.

⁴² *Id.* at 4.

⁴³ Peter Lindsay, *The Ambiguity of Gatt Article XXI: Subtle Success or Rampant Failure?*, 52 DUKE L. J. 1277 (available at <https://www.jstor.org/stable/1373171>).

⁴⁴ Opening Statement of the United States at the First Substantive Meeting of the Panel, *United States – Certain Measures on Steel and Aluminum Products* (DS556) (Nov. 12, 2019) https://ustr.gov/sites/default/files/enforcement/WTO/US.Pnl.Mtg1.Open.Stmt.%28As%20Delivered%29.fin_2.pdf.

⁴⁵ For example, the National Security exception was invoked in each of the following: a 1949 dispute settlement case involving Czechoslovakia and U.S. export licensing controls; in the 1960s, Ghana’s boycott of Portuguese goods; in the 1970s, a Swedish import quota on footwear; and in the 1980s, the U.S. trade embargo against Nicaragua and restrictions on imports in Argentina. See ANALYTICAL INDEX OF THE GATT, 600-603 (available at https://www.wto.org/english/res_e/booksp_e/gatt_ai_e/art21_e.pdf);

⁴⁶ Brandon J. Murrill, “The ‘National Security Exception’ and the World Trade Organization,” CONG. RSCH. SERV. Nov. 18, 2018, 7-5700, LSB10223. <https://sgp.fas.org/crs/row/LSB10223.pdf>.

⁴⁷ These are not the only recent cases in which parties have invoked the national security exception. In *Saudi Arabi – Protection of IPRs* (DS597), Saudi Arabia invoked the national security exception under the TRIPS Agreement (which is similar, in relevant part, to the GATT 1994). The panel’s decision in this case was similar to that of *Russia-Traffic*, but it has been appealed “into the void” of the non-functioning Appellate Body. Other cases include *Japan – Products and Technology (Korea)* (DS590) and *United Arab Emirates – Good Services and IP Rights* (DS526). See Peter Van den Bossche and Sarak Akpofure, *The Use and Abuse of the National Security Exception under Article XXI(b)(iii) of the GATT 1994*, (World Trade Institute, Working Paper No. 03/2020, 3 https://www.wti.org/media/filer_public/50/57/5057fb22-f949-4920-8bd1-e8ad352d22b2/wti_working_paper_03_2020.pdf

In 2019, a WTO dispute settlement panel ruled for the first time in favor of an Article XXI invocation in the case of *Russia – Traffic*.⁴⁸ In *Russia – Traffic*, Ukraine complained of Russia’s restrictions on cargo from Ukraine destined for Kazakhstan or the Kyrgyz Republic and the banning of cargo for specific categories of goods. Russia invoked the Article XXI national security exception, and the WTO dispute settlement panel issued a ruling finding Russian sanctions on Ukraine consistent with that national security exception in Article XXI. Put very simply, the panel found that the measures were taken during a time of war between Russia and Ukraine, and thus the exception applied.

Second, *US – Steel*. The United States has also asserted Article XXI exceptions several times in the past several years. In *US – Steel*, WTO members challenged Trump-era steel and aluminum tariffs. In its brief, the United States raised Article XXI(b) arguments – going so far as to argue that measures taken for purposes of national security cannot be viewed by a WTO settlement panel.⁴⁹ This argument was rejected in *Russia – Transit*, but as this paper will show, raises key questions about the scope of Article XXI and how countries might apply it to future disputes – including climate disputes.

Third, in *US – Origin Marking*, the United States submitted that its origin-marking requirement is taken as action against what it considers an “unusual and extraordinary threat...to the national security, foreign policy, and economy of the United States.”⁵⁰ The decision of the panel further articulated what is meant in Article XXI(b)(iii) by a “time of war or other emergency in international relations” would be.

As the following paragraphs will show, each of these cases offers relevant interpretations of Article XXI and its potential use.

C. Applying the National Security Exception to Climate Change

Parties seeking exception under Article XXI for climate change-related measures would most likely argue that such measures are either “taken in time of war or other emergency in international relations” in accordance with Art. XXI(b)(iii) or are taken “to prevent any contracting party from taking any action in pursuance of its obligations under the United Nations Charter for the maintenance of international peace and security” as stated in Art. XXI(c).⁵¹ This analysis will then take each of these in turn.

D. Art. XXI(b), “it considers...essential”

If a climate change measure were to be argued to fit within the exception in Article XXI(b)(iii), it would need to be something that the party “considers...essential for security interests.” This vague language raises critical questions about interpretation – what do parties need to do, if anything, to show that they consider an action to be essential for their security interests? Or does the fact that it is up to their consideration make any

⁴⁸ William Alan Reinsch, “The WTO’s First Ruling on National Security: What Does It Mean for the United States?” CENTER FOR STRATEGIC & INTERNATIONAL STUDIES Apr. 5, 2019; See also William Alan Reinsch, *The WTO’s First Ruling on National Security: What Does It Mean for the United States?* CTR. FOR STRATEGIC AND INT’L STUD. (Apr. 5, 2019) <https://www.csis.org/analysis/wtos-first-ruling-national-security-what-does-it-mean-united-states>.

⁴⁹ Opening Statement of the United States at the First Substantive Meeting of the Panel, *United States – Certain Measures on Steel and Aluminum Products* (DS556) (Nov. 12, 2019) https://ustr.gov/sites/default/files/enforcement/WTO/US.Pnl.Mtg1.Open.Stmt.%28As%20Delivered%29.fin_2.pdf.

⁵⁰ First Written Submission of the United States, *United States – Origin Marking Requirements* (DS 597) (July 2, 2021) (available at: <https://ustr.gov/sites/default/files/enforcement/DS/DS597/US.Sub1.fin.pdf>).

⁵¹ ANALYTICAL INDEX OF THE GATT, 600 (available at https://www.wto.org/english/res_e/booksp_e/gatt_ai_e/art21_e.pdf).

inquiry into the decision itself unnecessary (i.e. are these measures self-judging, and therefore beyond the judgment of the WTO Dispute Settlement Body?). Parties asserting this exception would need to establish that climate change is an essential security interest – and simply stating that it is related to national security may not be enough.

Recent cases show how the world thinks about this requirement – in particular, the written submissions in *US – Steel* raised many different arguments about how countries can assert that an action is something that it considers necessary for essential security interests. In its submission in the dispute, the European Union suggested that the term “it considers” qualifies, only the word “necessary,” and that the Panel should undertake a four-part evaluation of whether something constitutes an essential security test, in which it determines “(1) what the Member’s “security interests” are, (2) whether those interests are “essential,” and (3) whether the action in question is “for the protection of” those interests, as well as (4) whether the circumstances in the subparagraph endings (i)-(iii) are present.”⁵² Separately, India suggested in its submission that the Panel may evaluate the necessity of the measure, but the essential security interests are determinable by the United States (i.e. the acting party). On the other hand, Russia and China argued, as the United States did, that “which it considers” qualifies the main text of Article XXI(b), including all four parts of the test that the European Union argues are up to the discretion of the panel. In other words, Russia, China and the United States all asserted that whether a measure is necessary for essential security interests is something beyond the discretion of the WTO Dispute Settlement Body, and thus beyond the review of the international community. Such a “free pass” may be difficult to interpret, and may open a Pandora’s box of supposedly “essential” security measures that may not actually be up for review.

Ultimately, the panel in *Russia – Transit* made a decision on this XXI(b) chapeau issue. The panel rejected the (“self-judging”) argument that the panel lacked jurisdiction to review whether the exception can be applied under XXI(b). With this ruling the panel also found that actions taken under XXI(b) are reviewable and that paragraphs XXI(b)(i)-(iii) can be objectively observed. As summarized by William Reinsch, “the panel found that it can review a measure a WTO member claims “it considers necessary” to protect its own security interest because it can objectively determine whether one of the three circumstances laid out in the subparagraphs of section (b) occurred at the time of the measure’s imposition, and because it can objectively determine whether the measure has a plausible connection to the circumstance identified.”⁵³

The panel established a different test, noting that:

[W]hile it is for every Member to define for itself what it considers to be its essential security interests, such essential security interests must be sufficiently articulated to demonstrate their veracity. Moreover, the obligation of good faith also required that the measures at issue meet a minimum requirement of plausibility in relation to the proffered essential security interests, i.e. that they are not implausible as measures protective of those interests.⁵⁴

⁵²*Id.* at 6.

⁵³ Panel Report, *Russia – Measures Concerning Traffic in Transit*, WTO Doc. WT/DS512/R (Apr. 5, 2019). International Economy Law and Policy Blog: <https://ielp.worldtradelaw.net/exceptions/> William Alan Reinsch, *supra* note 48.

⁵⁴ *WTO Dispute Settlement One-Page Case Summaries: Russia - Traffic in Transit*, WTO (accessed May 2022) https://www.wto.org/english/tratop_e/dispu_e/cases_e/1pagesum_e/ds512sum_e.pdf.

Following the test in *Russia – Traffic*,⁵⁵ the security exception is not self-judging.⁵⁶ Stated reasons for measures would need to be “sufficiently articulated,” “plausible,” and must be adopted in good faith – a standard that is in itself not very specific. In practice, this likely means that legislatures or acting parties in government would likely need to cite national security reasons in passing climate-related measures.

E. Art. XXI(b)(iii) “taken in time of war or other emergency in international relations”

The phrase “other emergency in international relations” establishes a sense of an outer parameter for the interpretation of the application of the provision.⁵⁷ As a national security threat, climate change is an “other emergency in international relations.” It is global in scope but also local in many tangible aspects. For example, while climate change causes sea level and temperature rises and storm pattern changes globally, this globalized risk comes in the form of localized issues – e.g. greater floods to already flood-prone areas, greater droughts to already drought-prone areas, localized changes in soil acidification or threats to key infrastructure. However, the scope of climate change begs the question of how WTO panels may interpret an “other emergency.” How close does the “war or other emergency” need to be to fit within the exception?

In *Russia – Transit*, Russia had invoked Article XXI(b)(iii). The Panel found that whether such measures are “taken in time of war...etc.” is subject to objective determination of the panel, but also that the situation in 2014 with regards to the Russian Federation and Ukraine constituted an emergency in international relations.⁵⁸ Given that, at the time of this writing, the situation between Russia and Ukraine has escalated in a way that has significantly impacted both geopolitical stability and Russian fossil fuels, trade restrictive measures related to Russian fossil fuels may well fit within the Article XXI(b)(iii) exception.

In the *US – Steel*, the United States sought to invoke the National Security Exception for its tariffs against steel and aluminum, contending that they are ‘necessary to ensure the long-term viability of domestic steel and aluminum industries,’ which are important to U.S.

⁵⁵ Ultimately, following *Russia – Traffic in Transit*, one of the only panel decisions on the subject, (though WTO panel and appellate body decisions are not binding and may be overruled if there are cogent reasons for such a change), whether such an action is for national security reasons is subject to review by the WTO.

⁵⁶ A panel in December 2022 similarly ruled against self-judging standards in *US – Origin Marking Requirement* on the basis of a grammatical review of the Article XXI(b) (i.e. “it considers” in Article XXI(b) does not modify subparts (i)-(iii)). Report of the Panel, *United States – Origin Marking Requirement*, WTO Doc. WT/DS597/R (Dec. 21, 2022), Paras 7.36-39. The United States Trade Representative has called this a “flawed interpretation.” *Statements by the United States at the Meeting of the WTO Dispute Settlement Body*, OFF. OF THE U.S. TRADE REPRESENTATIVE (Jan. 27, 2023) <https://ustr.gov/about-us/policy-offices/press-office/press-releases/2023/january/statements-united-states-meeting-wto-dispute-settlement-body>.

⁵⁷ Jaemin Lee, *Commercializing National Security? National Security Exceptions’ Outer Parameter under GATT Article XXI*, 13 ASIAN J. OF WTO & INT’L HEALTH L. AND POL. 277-310, Sept. 2018. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3256689.

⁵⁸ *WTO Dispute Settlement One-Page Case Summaries: Russia - Traffic in Transit*, WTO (accessed May 2022) https://www.wto.org/english/tratop_e/dispu_e/cases_e/1pagesum_e/ds512sum_e.pdf. In making this determination, the Panel examined various UN general assembly resolutions on the state of affairs between Ukraine and Russia.

national defense requirements,⁵⁹ under Article XXI(b)(iii).⁶⁰ WTO Panels have since found that the future threat of reduced domestic steel and aluminum industries was not "taken in time of war or other emergency in international relations" within the meaning of Article XXI(b)(iii) of the GATT 1994.⁶¹ However, the many cases surrounding *US-Steel* raise a key remaining question – how far in the future does a threat need to be in order to be taken in time of an emergency in international relations? This is a key definition as climate change – while a present threat – is also a future one. Actions taken today to avoid geopolitical tensions that are otherwise projected to increase manifold⁶² may well be justified by Article XXI(b)(iii).

Perhaps there is middle ground between active conflict nearby (e.g. *Russia – Transit*) and peacetime need for steel and aluminum, (e.g. *US – Steel*). In *US – Origin Marking*, the United States submitted that its origin-marking requirement is taken as action against what it considers an "unusual and extraordinary threat...to the national security, foreign policy, and economy of the United States" posed by China's actions regarding free speech in Hong Kong, among other things.⁶³ This kind of security threat is not local to the acting party, but it is made in consideration of an actual geopolitical conflict that may be an emergency.

The United States in *US – Origin Marking* also submitted that subparagraph (iii) of XXI(b) does not require that an emergency in international relations or war *directly involve* the invoking Member, supporting that reasoning with the French and Spanish interpretations of the GATT 1994 and the VCLT.⁶⁴ If the panel were to agree with this interpretation, it may be significant to climate change-related policies. As climate change is global and the geopolitical conflicts it may cause are widespread, such an interpretation would allow a member to invoke it even if the "time of war" or "emergency in international relations" is abroad.⁶⁵

⁵⁹ Brandon J. Murrill, *The "National Security Exception" and the World Trade Organization*, CONG. RSCH. SERV. LSB10223 (Nov. 28, 2018) <https://sgp.fas.org/crs/row/LSB10223.pdf>.

⁶⁰ While the dispute between the United States and the European Union (DS548) has been resolved, as well as that between the U.S. and China (DS544) the other claims arising from the steel and aluminum tariffs (DS544 (China as Complainant), DS547 (India as Complainant), DS552 (Norway as Complainant), DS554 (Russian Federation as Complainant), DS556 (Switzerland), and DS64 (Turkey as Complainant) may still be before WTO Panels or are appealed before the appellate body. See also Chad P. Brown and Katheryn Russ, *Biden and Europe remove Trump's steel and aluminum tariffs, but it's not free trade*, PETERSON INST. FOR INT'L ECON (Nov. 11, 2021) <https://www.piie.com/blogs/trade-and-investment-policy-watch/biden-and-europe-remove-trumps-steel-and-aluminum-tariffs>.

⁶¹ *WTO Circulates dispute panel reports regarding US measures on steel and aluminum products*, WTO (Dec. 9, 2022) https://www.wto.org/english/news_e/news22_e/544_552_556_564r_e.htm.

⁶² *National Intelligence Report* at 0.

⁶³ First Written Submission of the United States, *United States – Origin Marking Requirements* (DS 597) (July 2, 2021) (available at: <https://ustr.gov/sites/default/files/enforcement/DS/DS597/US.Sub1.fn.pdf>).

⁶⁴ *Id.*, ¶ 45-47.

⁶⁵ Instead of ruling on the geography scope of subparagraph (iii), the panel in *US-Origin Marking Requirement* in December 2022 instead focused on a literal definition of 'emergency in international relations' to be 'a state of affairs that occurs in relations between states or participants in international relations that is of the utmost gravity, in effect, a situation representing a breakdown or near-breakdown of those relations. Report of the Panel, *United States – Origin Marking Requirement*, WTO Doc. WT/DS597/R (Dec. 21, 2022), Para 7.290. Further, "We consider that the focus under subparagraph (iii) is therefore not about the underlying circumstances from which such a state of affairs appears to result, but rather about the gravity of the impact that such a state of affairs has on the relations between two or more countries, of Members." *Id.*, at Para 7.308. This focuses on the deterioration or relations between states. Taking the gravity of the climate risk into account, such a ruling does not rule out climate-related trade action. By contrast, the United States has objected

In the development of Article XXI, the Preparatory Committee also emphasized the need to balance the scope of what is an essential security interest. “We cannot make it too tight, because we cannot prohibit measures which are needed purely for security reasons. On the other hand, we cannot make it so broad that, under the guise of security, countries will put on measures which really have a commercial purpose.”⁶⁶ To assert the national security exception under XXI(b)(iii), a party would need to adequately support that balance against too broad of an exception. Climate-fighting measures would need to be tied more to the climate change objective than to a particular commercial purpose.

F. Article XXI(b) – A Pandora’s Box?

If one can meet the requirements of Article XXI, it seems that there are very few limits on what parties can do, trade-wise, that they consider to be related to essential security interests in time of war or other emergency in public policy.

For climate change, this may be great news. Climate change is an unprecedented national security risk.⁶⁷ If a country is able to meet the basic requirement of Article XXI(b)(iii), there seem to be no other limits within the GATT on trade-related actions that parties could take to fight this security risk. However, it is also worth asking – would this interpretation erode the trade system as a whole? Climate change is a global, multifaceted issue, that no doubt touches many parts of economies and key “essential interests,” – where does a trade-restrictive policy become too arbitrary or unrelated to climate? Does the breadth of the national security exception and the breadth of climate change mean anything could be justified under this exception, rendering the rest of our trade agreement moot?

There needs to be a logical, legal and applicable limit to what counts as a national security exception. Guardrails need to be set around the national security exception to maintain the integrity of the global trade system while also allowing for the measures we need to take to fight climate change.

The Panel Report in *Russia – Traffic* has helped modify and identify some key first guardrails, by asserting that WTO Dispute Settlement Body jurisdiction over Article XXI cases and outlining guidelines (albeit vague ones) as to what it would consider when evaluating a country’s proffered essential security interest in connection with a war or other emergency. This assertion of jurisdiction is not just prudent in maintaining the integrity of the system, but it also reflects the intent of the framers of the agreement – who tied Article XXI with what would become Article XXIII.2 and the Dispute Settlement System.

to this interpretation, as the decision suggests “a state ought to defer consideration of its essential security interests until after a breakdown in relations. A WTO Member cannot be expected to wait until it is too late to act, or be required to sever relations as a prerequisite for other action it considers necessary.” *Statements by the United States at the Meeting of the WTO Dispute Settlement Body*, OFF. OF THE U.S. TRADE REPRESENTATIVE (Jan. 27, 2023) <https://ustr.gov/about-us/policy-offices/press-office/press-releases/2023/january/statements- united-states-meeting-wto-dispute-settlement-body>. Such a stance would be more in line with climate-change-prevention policies.

⁶⁶This was discussed in the ‘complaint of Czechoslovakia at the Third Session in 1949’, in the ‘1961, accession of Portugal, Ghanian boycott of Portuguese goods, and in *Argentina – Imports*. ANALYTICAL INDEX OF THE GATT, 600 (available at https://www.wto.org/english/res_e/booksp_e/gatt_ai_e/art21_e.pdf); See also SECOND SESSION OF THE PREPARATORY COMMITTEE OF THE UNITED NATIONS CONFERENCE ON TRADE AND EMPLOYMENT, VERBATIM REPORT, THIRTY-THIRD MEETING OF COMMISSION A (July 24, 1947), E/PC/T/A/PV/33, 21 (available at <https://docs.wto.org/gattdocs/q/UN/EPCT/APV-33.PDF#page=21>).

⁶⁷ See Section I, “Climate Change as a National Security Risk.”

Short of unanimously voting and passing a clear set of guidelines in a new round of negotiations, developing further cases that invoke the national security exception may be our best option to help further establish a framework for our understanding of the limits of Article XXI. Despite this modification, the decision in *Russia – Traffic* seems to be part of a large wave of similar cases in which parties are attempting to justify unilateral actions that are otherwise against their international trade responsibilities.

Just developing more cases (amid the current appellate body crisis) is not the only option. Article XXI(c) provides another option that would provide stronger guardrails.

G. Art. XXI(c) – A Potential Guardrail

Article XXI(c) permits national security measures made “to prevent any contracting party from taking any action in pursuance of its obligations under the United Nations Charter for the maintenance of international peace and security.” This exception has been used to not apply most-favored-nation treatment for imports from countries facing UN-mandated sanctions, those covered by UN embargoes, or those covered by UN Resolutions.

Article XXI(c) can and has been invoked by many parties in response to individual geopolitical conflicts, as long as there was a UN Resolution allowing such sanctions. For example, invocations of Article XXI(c) include a series of trade-restrictive measures targeting Serbia and Montenegro during the Bosnian War and the Gulf War.⁶⁸ India’s 1994 balance-of-payments consultations notes that almost all of India’s trading partners received most favored-nation treatment in import licenses, but import licenses were not issued for countries facing UN mandated sanctions – including Iraq, Fiji, Serbia and Montenegro at the time. In the same year, the import licensing notifications of Brazil and Cyprus noted that imports from certain countries were prohibited in accordance with United Nations resolutions, and Norway’s 1993 licensing notification shows that all imports from Iraq and Serbia/Montenegro were prohibited.⁶⁹

However, were the UN to pass such a resolution, this could create further opportunities for nations to act unilaterally with trade measures to impact climate change by Article XXI(c) – a move that may or may not be beneficial. This resolution could create an enforcement mechanism – with its binding framework already existing in international law – for climate obligations. For example, the UN can and should adopt a climate change resolution to enforce existing climate obligations, as outlined in the Paris or Glasgow Accords. Such a resolution would require members to comply and would license trade actions to implement our existing and future climate agreements.

The United Nations can and should adopt a climate change resolution that would be able to actually enforce countries’ obligations related to greenhouse gas emissions and planned infrastructure changes – both to prevent climate change and help deal with the consequences of unavoidable change. Passing such a resolution would mean that all members will have greater incentive to comply – a UN resolution would license trade actions to implement the resolution.

⁶⁸ In the 1960s, the United States invoked article XXI as justification of its 1962 embargo on trade with Cuba.

⁶⁹ ANALYTICAL INDEX OF THE GATT – ARTICLE XXI – SECURITY EXCEPTIONS, 605 (available at: https://www.wto.org/english/res_e/booksp_e/gatt_ai_e/art21_e.pdf).

Unlike Article XXI(b) – which has been largely analyzed in terms of unilateral actions,⁷⁰ XXI(c) would require multilateral agreement via a UN Resolution as to the climate-terms of trade, but would still enable unilateral action from members against parties that break that agreement. It would provide the elusive enforcement mechanism that is conspicuously missing or vague in existing climate agreements like the Paris Agreement or the Glasgow Climate Pact.⁷¹

At this time, there are no UN mandated sanctions, covered UN embargoes or UN Resolutions that relate specifically to climate change. There is some acknowledgement at the UN of the national security implications of climate change. In September of 2021, the United Nations Security Council met to discuss Climate and Security, observing that “there is increasing evidence that climate change is a vector which increases the risk of violent conflict.”⁷² However, in December 2021, the Security Council was unable to adopt a resolution that would integrate climate-related security risk into conflict-prevention strategies.⁷³ Policymakers should not be discouraged by the current lack of a resolution, but encouraged by the increased dialogue about such a possibility. A sustainable legal framework with the flexibility to fight climate change is in sight.

V. IMPLICATIONS AND CONCLUSION

Our discussion of climate change and our ability to fight it are hampered by its framing as an environmental or conservation issue. Keeping this narrow conception of climate as a solely environmental issue also hamstring the ability of trade law to function appropriately in a world where drastic measures are increasingly necessary to fight climate change. If, however, we (correctly) characterize climate change as a national security risk, we may be able to access many more possible avenues for compatibility with existing trade frameworks.

While the analysis of this paper was largely limited to the GATT 1994 and Article XXI in particular, justifying climate-friendly trade policies as a national security issue also opens doors in other multilateral agreements. Several different trade measures include exceptions for national security reasons, including the Article XXI of the General Agreement on Tariffs and Trade 1994 (GATT 1994), Article XIV of the General Agreement on Trade in Services (GATS), and Article 73 of the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS). At the same time, other international trade agreements, including the Agreement on Trade Related Investment Measures (TRIMS) and the Agreement on Trade Facilitation do not explicitly state a

⁷⁰ Notes from the 1947 meeting discussing what would become Article XXI of the GATT and Article 99 of the Charter—except the charter modified the language of (b) to be “to prevent any Member from taking either singly or with other States, any action...” That language is conspicuously missing from Article XXI. This may imply a general understanding that XXI(b) was meant to apply mostly to unilateral actions. *GATT 1994; MULTILATERAL TRADE NEGOTIATIONS, THE URUGUAY ROUND, NEGOTIATING GROUP ON GATT ARTICLES, ARTICLE XXI NOTE BY THE SECRETARIAT*, WTO Doc. MTN.GNG/NG7/W/16, at 2.

⁷¹ Lila MacLellan, *Is the Paris Climate Agreement legally binding? Experts explain*, WORLD ECON. FORUM (Nov. 22, 2021), <https://www.weforum.org/agenda/2021/11/paris-climate-agreement-legally-binding/>; Mary Gagen, *Glasgow Climate Pact: Where do all the words and numbers we heard at COP26 leave us?*, WORLD ECON. FORUM (Nov 24, 2021) <https://www.weforum.org/agenda/2021/11/glasgow-climate-pact-cop-26/>.

⁷² Security Council Meeting Recording, Climate and Security (Maintenance of International Peace and Security) – Security Council, 8864th meeting, (23 Sept. 2021) <https://media.un.org/en/asset/k1v/k1v6qs3ym6>.

⁷³ Press Release, Security Council, Security Council Fails to Adopt Resolution Integrating Climate-Related Security Risk into Conflict-Prevention Strategies, U.N. Press release SC/14732 (Dec. 13, 2021) (available at: <https://www.un.org/press/en/2021/sc14732.doc.htm>).

national security exception, and some scholars argue that the Appellate Body's decisions on the scope of Article XX would suggest that Article XXI exceptions to the GATT 1994 would not be available to justify measures inconsistent with the Agreement on Subsidies and Countervailing Measures (SCM Agreement) and the Agreement on Technical Barriers to Trade (TBT) agreement.⁷⁴

Applying the national security exception to actions for climate change is not just a more accurate framing of the issue, but it also may provide an escape hatch by which a currently defunct system can adapt to this new challenge. Climate change-fighting measures can be justified unilaterally or multilaterally. Unilaterally, via Article XXI(b)(ii) – with the guardrails already being built by the WTO – and multilaterally, through XXI(c) and a UN Resolution.

Ultimately, climate change is an unprecedented global challenge posing an existential risk to humanity. Such an unprecedented security threat may require unprecedented solutions. We have a large arsenal of trade tools that are essential to addressing climate change at the scale and speed we need. Article XXI can be a powerful legal tool in the fight against climate change, and we can build guardrails in our trade frameworks to allow for these measures to be used without eroding the integrity of the system. Using our existing frameworks to account for this change is a small adaptation that could ease the application the sustainable policies we need.

⁷⁴ Peter Van den Bossche and Sarak Akpofure, *The Use and Abuse of the National Security Exception under Article XXI(b)(iii) of the GATT 1994*, (World Trade Institute, Working Paper No. 03/2020, 3 https://www.wti.org/media/filer_public/50/57/5057fb22-f949-4920-8bd1-e8ad352d22b2/wti_working_paper_03_2020.pdf (citing *Russia—Traffic*).

CHAPTER 27: WHERE CLIMATE CHANGE, NATIONAL SECURITY AND INTERNATIONAL TRADE MEET: THE APPLICATION OF GATT ARTICLE XXI(b)(iii) TO CLIMATE CHANGE MEASURES

EMILIE KERSTENS*

I. INTRODUCTION

Climate change presents the current largest global threat to humanity.¹ Its effects range from acute shortages of natural resources like food, water and energy to huge shifts in migration patterns and threats to global infrastructure and security.² For many years, climate change was classified as an environmental law issue.³ However, the consequences of climate change will not only have humanitarian and environmental consequences but also threaten the peace and security of states by amplifying existing instabilities and creating new ones.⁴ Globally, there is increasing recognition that climate change is not just an environmental issue and that environmental law is no longer a sufficient vehicle for climate action.⁵ The Paris Agreement, which was supposed to bind countries to a goal of limiting global warming to 1.5 degrees above pre-industrial levels by 2030, is failing to achieve its goals.⁶

Climate experts are increasingly looking towards trade measures to take action.⁷ These measures range from carbon border adjustment mechanisms, carbon clubs and subsidies to encourage decarbonization to green labeling and carbon passports or waivers to facilitate climate mitigation and adaptation, just to name a few examples.⁸ The preamble to the Marrakesh Agreement Establishing the World Trade Organization (WTO) provides

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¹ United Nations Security Council (UNSC), 'Climate Change 'Biggest Threat Modern Humans Have Ever Faced,' World-Renowned Naturalist Tells Security Council, Calls for Greater Global Cooperation' (23 February 2021) Press Release SC/1445.

² Ibid.

³ Emyr Jones Parry, 'The Greatest Threat to Global Security: Climate Change is Not Merely an Environmental Problem' in United Nations, *Green Our World* (No. 2 Vol. XLIV 2007).

⁴ Ibid.

⁵ World Trade Organization, 'World Trade Report 2022: Climate Change and International Trade' (2022) (Geneva: WTO), 28.

⁶ Paris Agreement to the United Nations Framework Convention on Climate Change, Dec. 12, 2015, T.I.A.S. No. 16-1104 (Hereafter Paris Agreement); See Intergovernmental Panel on Climate Change (IPCC), *Climate Change 2023: Synthesis Report of the IPCC Sixth Assessment Report (AR6)*, IPCC AR6 SYR (2023).

⁷ Ibid, 524.

⁸ See for example Nathaniel Keohane, 'Toward a Club of Carbon Markets' (2015) *Climate Change* 144; Benson et al, 'Analyzing the European Union's Carbon Border Adjustment Mechanism' Center for Strategic and International Studies (February 2023); Khan MR Taufique et al, 'Revisiting the Promise of Carbon Labelling' (2022) *Nature of Climate Change* 12; Ricardo Meléndez-Ortiz, 'Trade and Equity in a World Where Goods Carry Carbon Passports' (2020) and James Bacchus, 'A Call for a WTO Climate Waiver' (2020) in Daniel C Esty and Susan Biniaz, *Cool Heads in a Warming World: How Trade Policy Can Help Fight Climate Change* (Yale Center for Environmental Law & Policy, 2020).

that “*sustainable development and protection and preservation of the environment*” are part of its core goals.⁹ However, some of the trade measures envisioned to tackle climate change are considered violations of the obligations that WTO Members have undertaken in the WTO agreements.¹⁰ Therefore, Members are increasingly looking to make use of the policy space available in the WTO exceptions to take the urgent action they need in the fight against climate change. One of these exceptions is the national security exception under GATT Article XXI(b)(iii) which permits a member to take measures “*which it considers necessary for the protection of its essential security interests*” “*in time of war or other emergency in international relations.*” In 2019, this exception was the subject of WTO Dispute Settlement for the first time in *Russia – Traffic in Transit*, and it has since been the subject of controversy and disagreement.¹¹ There has been an explosion of countries attempting to make use of this exception for a wide range of measures, pushing for the scope of this provision to extend beyond the traditional military interpretation of national security to also include economic or even climate security.¹²

This paper examines the applicability of the security exception under GATT Article XXI(b)(iii) to measures taken in the context of climate change. In light of the increasing pressure on countries to declare climate change a national emergency, and the urgent need for climate action, the application of the WTO security exception to these measures must be examined.¹³ This analysis will not only have implications for climate measures but also more broadly for the scope of this provision as the line between economic and national security continues to blur within the international legal sphere.

This paper will start by examining the link between climate change, national security and trade measures. It will consider the evolving meaning of national security and the climate-related trade measures that may need justification under the security exception. In part III, the substance and proliferation of GATT Article XXI(b)(iii) are examined to understand how the current framework interpretation of this article was established and the evolving and controversial nature of the provision. Then, Part 4 will apply the first two steps in the framework of analysis to climate change measures. It will consider whether climate change can be considered an “emergency in international relations” and what it means to act “in time” of an emergency in international relations. Subsequently, Part 5 will consider the third and fourth elements of the test of consistency. It will examine what is an “essential security interest” and which measures could meet the two good faith

⁹ Marrakesh Agreement Establishing the World Trade Organization, Apr. 15, 1994, 1867 U.N.T.S. 154, 33 I.L.M. 1144 (1994), Preamble.

¹⁰ See Soojin Nam, ‘Inflation Reduction Act’s Clean Vehicle Provisions: Analysis of Potential International Trade Law Violations’ (2022) *Journal of East Asia and International Law* 15(2).

¹¹ *Russia – Measures Concerning Traffic in Transit*, Panel Report, WTO Doc. WT/DS512/R (5 April 2019) (Hereafter *Russia – Traffic in Transit*).

¹² See, e.g. *Saudi Arabia – Measures Concerning the Protection of Intellectual Property Rights*, Panel Report, WT/DS567/R (16 June 2020) (Hereafter *Saudi Arabia – Protection of IPRs*); *United States (US) – Origin Marking Requirement*, Panel Report, WTO Doc. WT/DS597/R (21 December 2022) (Hereafter *US – Origin Marking Requirement*); *US – Certain Measures on Steel and Aluminium Products*, WTO Docs. WT/DS544/R, WT/DS522/R, WT/DS556/R, WT/DS564/R (9 December 2022) (Hereafter *US – Certain Measures on Steel and Aluminium Products*). It should be noted that the Panel reports for *US – Origin Marking Requirement* and *US – Certain Measures on Steel and Aluminium Products* have not been adopted in light of their pending appeals and the paralysis of the Appellate Body (AB). In the *Saudi-Arabia – IPRs*, Qatar has agreed to terminate the dispute following an appeal into the void by Saudi Arabia, meaning the panel report will not be adopted.

¹³ Angshuman Hazarika and Pieter Van Vaerenbergh, ‘Climate Change as a Security Risk: Too Hot to Handle?’ (2020) *Journal of World Trade* 54(3), 417.

requirements read into the provision by Panels in previous disputes. After concluding whether climate change measures could find justification under GATT Article XXI(b)(iii), this paper considers whether these measures should find justification under this provision. Part 6 looks at the risks of abuse and the existing guardrails that exist surrounding this provision. Finally, this paper concludes whether climate change measures could and should be justified under GATT Article XXI(b)(iii).

II. WHERE CLIMATE CHANGE, NATIONAL SECURITY AND TRADE MEET

It is necessary to understand how climate risks and national security meet to conclude why Members may seek to justify measures under this exception. Part II of this paper starts by briefly considering what kind of trade measures members are taking in the fight against climate change. Then it examines the evolution in the meaning of national security since the drafting of GATT Article XXI(b)(iii).

A. *Climate-related trade measures*

The effects of climate change include disruptions of international trade, both directly and indirectly.¹⁴ Rising temperatures and changing weather patterns are expected to interfere with productivity, disrupt global value chains, modify comparative advantages and increase trade costs unevenly across regions.¹⁵ However, international trade will also play a crucial role in supporting mitigating strategies to prevent, reduce and prepare for climate risks as well as adaptation strategies to adjust to and recover from the current and future negative effects of climate change.¹⁶

Trade tools have the potential to act as a “force multiplier” for countries’ adaptation and mitigation efforts by reducing costs, improving access and increasing impact.¹⁷ In this regard, Members are considering a variety of climate and trade measures. The European Union’s Carbon Border Adjustment and the United States (US)’ tax credits for electric vehicles under the Inflation Reduction Act (IRA) are only two examples of efforts to reduce carbon emissions.¹⁸ From an adaptation point, countries are contemplating how to adjust to global shifts in production caused by climate conditions, facilitate access to technologies and ensure availability of critical goods and services.¹⁹

Where trade-related policies or tools are used for climate adaptation or mitigation, their compatibility with WTO law must be assessed. As countries consider carbon taxes, quotas or bans on harmful products, subsidies on renewable products and more to tackle climate change there is increasing concern as to which climate measures are genuine and

¹⁴ Samantha Franks, ‘Exploring Climate Security to Article XXI of the GATT’ (2021) Washington University Global Studies Law Review 20(2), 530.

¹⁵ World Trade Organization, ‘World Trade Report 2022: Climate Change and International Trade’ (2022) (Geneva: WTO), 27.

¹⁶ Adam Behsudi, ‘What is Mitigation vs Adaptation: The World Faces a Two-Front Battle to Halt Global Warming and Address the Effects of Climate change’ (2021) IMF Finance and Development, available at <https://www.imf.org/en/Publications/fandd/issues/2021/09/climate-change-what-is-mitigation-and-adaptation-behsudi-basics>.

¹⁷ World Trade Organization, ‘World Trade Report 2022: Climate Change and International Trade’ (2022) (Geneva: WTO), 27.

¹⁸ See Ilaria Espa et al, ‘The EU Proposal for a Carbon Border Adjustment Mechanism (CBAM): An Analysis under WTO and Climate Change Law’ (2022) WTI Working Paper no. 06/2022; Soojn Nam, ‘Inflation Reduction Act’s Clean Vehicle Provisions: Analysis of Potential International Trade Law Violations’ (2022) Journal of East Asia and International Law 15(2).

¹⁹ World Trade Organization, ‘World Trade Report 2022: Climate Change and International Trade’ (2022) (Geneva: WTO), 134.

which measures are just disguised forms of protectionism. The role of the exceptions within the rules-based system is ideally to balance trade objectives with other interests and distinguish genuine measures from disguised protectionism.²⁰

Under the general exceptions of GATT Article XX, members may take measures that are otherwise inconsistent with WTO rules. For example, GATT Article XX(b) provides an exception for measures that are “necessary to protect human, animal, or plant life or health.” Similarly, Article XX(g) GATT provides a justification for measures taken “to conserve exhaustible natural resources.” However, the Chapeau of this provision provides that these exceptions are only available to the extent that measures are not applied in a manner that constitutes arbitrary or unjustifiable discrimination or a disguised restriction on international trade.²¹ These strict requirements have largely prevented cases from successfully finding an exception under Article XX. This is one reason why members may turn to GATT Article XXI(b)(iii).

B. The evolving meaning of national security

In the wake of World War II, it was expected that economic interdependence would lead to peace and prosperity. The idea was that it was better to break down trade barriers than to reinforce them.²² This laid the groundwork for members to sacrifice some of their sovereign rights in favor of a multilateral and liberalized trading system.²³ Nevertheless, there was still recognition that an appropriate amount of discretion would need to be preserved to allow actions necessary to safeguard national security.²⁴ The negotiating history of GATT Article XXI shows that the contracting parties intended for national security and trade liberalization to co-exist and be balanced.²⁵ That being said, there has never been an agreed upon definition of national security.

Traditionally, national security had a military implication; that a state is free from “the prospect of a sudden or violent attack.”²⁶ Post WWII, the threat of another military conflict of this scale was the single greatest threat to security.²⁷ However, along with the interdependence of the post-war period came increasing complexity in the vulnerabilities of a state’s security beyond military or armed conflicts.²⁸ In a globalized world, there are economic, food, health, environmental, personal, community and political aspects to maintaining security.²⁹ When these aspects are threatened, the security of a state is at risk.

²⁰ See, e.g. Brazil – *Measures Affecting Imports of Retreaded Tyres*, Panel Report, WTO Doc. WT/DS332/R (12 June 2007).

²¹ *US – Origin Marking Requirement*, 7.111.

²² Mona Pinchis-Paulsen, ‘Trade Multilateralism and U.S. National Security: The Making of the GATT Security Exceptions’ (2020) *Michigan Journal of International Law* 41(109), 191.

²³ *Ibid.*

²⁴ James Bacchus, ‘The Black Hole of National Security’ Cato Institute Policy Analysis No. 936 (November 9, 2022), available at <https://www.cato.org/policy-analysis/black-hole-national-security#origins-exception-long-standing-practice>.

²⁵ Daria Boklan and Amrita Bahri, ‘The First WTO’s Ruling on National Security Exception: Balancing Interests or Opening Pandora’s Box?’ (2020) *World Trade Review*, 19(1), 123-136.

²⁶ Adam Smith et al, *The Theory of Moral Sentiments*, (Oxford: Clarendon Press, 1976), 156.

²⁷ Daria Boklan and Amrita Bahri, ‘The First WTO’s Ruling on National Security Exception: Balancing Interests or Opening Pandora’s Box?’ (2020) *World Trade Review*, 19(1), 124.

²⁸ UN Human Security Unit, ‘*Human Security in Theory and Practice*’ (2009) United Nations Office for the Coordination of Humanitarian Affairs (UNOCHA) available at <https://www.unocha.org/sites/dms/HSU/Publications%20and%20Products/Human%20Security%20Tools/Human%20Security%20in%20Theory%20and%20Practice%20English.pdf>.

²⁹ *Ibid.*

The effects of climate change are widespread. Rising temperatures and shifts in weather patterns generate droughts, extreme weather events, rising sea levels, and disrupt food stocks and supply chains.³⁰ The current reality is that the greatest threat to a country's security is no longer a military conflict, but an expanding list of threats including climate change.³¹ Additionally, there has been a shift in the perspective that interdependence and liberalized trade are worth sacrificing sovereignty. Many countries have shifted to an anti-globalist perspective on trade and have started prioritizing economic nationalism.³² They are pushing the boundaries of national security and blurring the line between national security and economic security, going as far as to say that economic security is national security.³³

However, even though the notion of “national security” has expanded to include non-military issues, such as climate security and economic security, the question is whether this expansion can extend into the applicability of the security exception under Article XXI GATT.³⁴ The invocation of the security exception for an increasingly expanding series of measures is not just a possibility but a reality.³⁵ In light of the urgency of climate measures, the difficulty of relying upon GATT Article XX exceptions and the expanding notion of national security, the application of GATT Article XXI(b)(iii) to these measures needs to be considered.

III. THE SUBSTANCE AND PROLIFERATION OF ARTICLE XXI(b)(iii)

It is important to understand the context and controversy that surrounds this exception to contemplate its use to justify climate change measures. Part III of this paper introduces the contents and history of the security exception under GATT Article XXI(b)(iii) and discusses the proliferation of its use since 2019.

A. *Contents of GATT Article XXI(b)(iii)*

GATT Article XXI(b)(iii) provides that:

*“Nothing in this Agreement shall be construed...
(b) to prevent any contracting party from taking any action which it considers necessary for the protection of its essential security interests ...
(iii) taken in time of war or other emergency in international relations”*

This provision, often referred to as the national security exception, allows members to justify departing from or breaching their obligations under the GATT.³⁶ It is mirrored by GATS Article XIVbis(b)(iii) and TRIPS Article 73(b)(iii). While inserting an element

³⁰ Intergovernmental Panel on Climate Change (IPCC), *Climate Change 2023: Synthesis Report of the IPCC Sixth Assessment Report (AR6)*, IPCC AR6 SYR (2023).

³¹ Angshuman Hazarika and Pieter Van Vaerenbergh, 'Climate Change as a Security Risk: Too Hot to Handle?' (2020) *Journal of World Trade* 54(3), 437.

³² Peter Van den Bossche and Sarah Akpofure, 'The Use and Abuse of the National Security Exception under Article XXI(b)(iii) of the GATT 1994' (2022) in CJ Cheng (Ed.), *A New Global Economic Order: New Challenges to International Trade Law* Vol. 3, (Leiden: Brill Nijhoff), 2.

³³ U.S. Commerce Secretary Wilbur Ross "Economic security is military security. And without economic security, you can't have military security" (CNBC: May 24, 2018).

³⁴ Angshuman Hazarika and Pieter Van Vaerenbergh, 'Climate Change as a Security Risk: Too Hot to Handle?' (2020) *Journal of World Trade* 54(3), 418.

³⁵ See *Russia – Traffic in Transit, Saudi Arabia – IPRs, US – Origin Marking Requirement, US – Certain Measures on Steel and Aluminium Products*.

³⁶ Angshuman Hazarika, Pieter Van Vaerenbergh, 'Climate Change as a Security Risk: Too Hot to Handle?' (2020) *Journal of World Trade* 54(3), 419.

of policy space into the GATT, the security exceptions were intended to be read narrowly and used only in exceptional cases.³⁷ For the first 70 years of existence, members exercised restraint in invoking GATT Article XXI(b)(iii).³⁸ This changed in 2019 when the Panel in *Russia – Traffic in Transit*, a case involving the blocking of trade routes by Russia in the context of its geopolitical conflict with Ukraine, delivered its report.³⁹ Since this landmark case, there has been a proliferation of cases invoking this exception including *Saudi Arabia – IPRs*, *US – Origin Marking Requirement* and a series of disputes related to the U.S. tariffs on steel and aluminum.⁴⁰

B. Justiciability

The reviewability and interpretation of this provision has been and continues to be the subject of disagreement.⁴¹ The U.S. has been most vocal in maintaining that this provision is entirely self-judging and not subject to the jurisdiction of WTO dispute settlement.⁴² It maintains that it is “*the invoking Member alone that determines whether an action is necessary for the protection of the Member’s essential security interest.*”⁴³ However, as was determined in the landmark case *Russia – Traffic in Transit* and confirmed by *Saudi Arabia – IPRs* and more recently in the *US – Certain Measures on Steel and Aluminium Products* and *US – Origin Marking Requirement* disputes, the Panels have consistently held that this provision is not entirely self-judging.⁴⁴ The Panel in this latest dispute emphasized that while a Member is free to determine what it finds necessary for the protection of its essential security interest, this same level of discretion does not apply to the subparagraphs of this provision, including the determination of whether an emergency in international relations exist.⁴⁵ Moreover, Members are still subject to the principle of good faith, a general principle of international law codified in Article 31(1) and Article 26 of the Vienna Convention.⁴⁶

C. Four-step framework

The Panel in *Russia – Traffic in Transit* first established a framework for determining whether a measure may be justified under GATT Article XXI(b)(iii). It identified a four-step test:

- i) Can the existence of a “war or other emergency in international relations” be established?⁴⁷
- ii) Were the relevant actions taken “in time” of the “war or other emergency in international relations”?⁴⁸

³⁷ Samantha Franks, ‘Exploring Climate Security to Article XXI of the GATT’ (2021) Washington University Global Studies Law Review 20(2), 526.

³⁸ *US – Origin Marking Requirement*, 7.2

³⁹ *Russia – Traffic in Transit*, 7.20.

⁴⁰ *US – Certain Measures on Steel and Aluminium Products*, WTO Docs. WT/DS544/R, WT/DS522/R, WT/DS556/R, WT/DS564/R (9 December 2022).

⁴¹ *US – Origin Marking Requirement*, 7.3.

⁴² *US – Origin Marking Requirement*, 7.10.

⁴³ *US – Origin Marking Requirement*, 7.18.

⁴⁴ *Russia – Traffic in Transit*, 7.102; *Saudi-Arabia – IPRs*, 7.10; *US – Origin Marking Requirement*, 7.185.

⁴⁵ *US – Origin Marking Requirement*, 7.185.

⁴⁶ *Russia – Traffic in Transit*, 7.132, 7.133.

⁴⁷ *Russia – Traffic in Transit*, 7.5.5.

⁴⁸ *Ibid.*

- iii) Has the invoking Member “sufficiently articulated” its “essential security interests”?⁴⁹
- iv) Were the relevant actions “not so remote from, or unrelated” to the emergency in international relations as to make “it implausible that the invoking Member considers those actions to be necessary” for the protection of its essential security interests arising out of the emergency”?⁵⁰

This test was also adopted by the Panels in subsequent disputes, and it can be divided into two objective and fully reviewable determinations followed by two subjective determinations where the Panel’s review is limited to whether a member has met its good faith requirements.⁵¹ The two pivotal points of this analysis will be whether climate change can be considered an emergency in international relations and determining whether a member has provided sufficient information to determine that it is not implausible that a measure is taken for the protection of an essential security interest. Before considering which guardrails exist in the use of GATT Article XXI(b)(iii), it must be established whether climate change measures could fulfill the existing framework of this provision as interpreted by various Panels across WTO disputes.⁵²

IV. OBJECTIVE DETERMINATIONS UNDER ARTICLE XXI(b)(iii)

This Part examines the first two steps of the test of consistency established by previous Panels: whether the existence of an “emergency in international relations” can be established and whether the measure was taken “in time” of this emergency in international relations.⁵³ In *Russia – Traffic in Transit*, the Panel held that the existence of an “emergency in international relations” and the temporal requirement are objective determinations and therefore fully reviewable by a Panel.⁵⁴

A. *The existence of an “emergency in international relations”*

An “emergency in international relations” is a “*situation of armed conflict, or of latent armed conflict, or of heightened tension or crisis, or of general instability engulfing or surrounding a State.*”⁵⁵ The panels in *US – Origin Marking Requirement* and *US – Certain Measures on Steel and Aluminium Products*, further clarified that the terms “war” and “other emergency in international relations” impart meaning to each other.⁵⁶ However, a situation need not amount to war to constitute an emergency in international relations.⁵⁷ Instead, it must be “*if not equally grave or severe, at least comparable in its gravity or severity to a ‘war’ in terms of its impact on the relations between states or other participants in international relations.*”⁵⁸ It is a “*state of affairs, of the utmost*

⁴⁹ *Russia – Traffic in Transit*, 7.134.

⁵⁰ *Russia – Traffic in Transit*, 7.139.

⁵¹ See, e.g. *Saudi-Arabia – IPRs*, 7.242.

⁵² Panel reports do not act as binding precedent, but their adoption does create ‘legitimate expectations’ for WTO Members and there is a practice of consistency among Panels. Therefore, an analysis of the framework as interpreted by other Panels is highly relevant in examining whether the scope of GATT Article XXI(b)(iii) could be interpreted to include measures taken in the context of climate change.

⁵³ *Russia – Traffic in Transit*, 7.5.5.

⁵⁴ *Russia – Traffic in Transit*, 7.77

⁵⁵ *Russia – Traffic in Transit*, 7.76

⁵⁶ *US – Origin Marking Requirement*, 7.291; *US – Certain Measures on Steel and Aluminium Products (DS544)*, 7.139

⁵⁷ Angshuman Hazarika and Pieter Van Vaerenbergh, ‘Climate Change as a Security Risk: Too Hot to Handle?’ (2020) *Journal of World Trade* 54(3), 421.

⁵⁸ *US – Certain Measures on Steel and Aluminium Products (DS544)*, 7.139

*gravity, that represents a breakdown or near-breakdown in the relations between states or other participants in international relations.*⁵⁹

The further a situation is removed from war or a comparable threat, the more explanation is necessary on why a given situation is a similar “breakdown in relations” between countries.⁶⁰ The Panel also noted that paragraph (iii) is not about the underlying circumstances from which such a state of affairs appears to result, but about the gravity of the impact on the relations between Members.⁶¹ The relevant emergency does not necessarily have to originate in the invoking Member’s own territory and could relate to relations among a wider group of WTO Members. However, there must be an international dimension of the crisis, which means the relevant conflict must extend beyond the domestic borders of a Member.⁶²

When it comes to climate change, there has been an ongoing debate on whether climate change is an international peace and security issue or a sustainable development issue.⁶³ For this analysis, it is relevant to note that, while there is overlap, climate mitigation measures primarily relate to stopping climate change itself and climate adaptation measures are largely focused on adapting to the current and expected consequences of climate change.⁶⁴ Therefore, it is relevant to consider both whether climate change itself can be considered an ‘emergency in international relations’ and whether its effects can be considered emergencies in international relations.

1. Climate change as an “emergency in international relations”

The first approach would be to consider that climate change itself can be an “emergency in international relations.” What makes climate change unique is that it is by its very nature international. The rise in global temperatures caused by greenhouse gas (GHG) emissions is a global phenomenon and cannot be assigned to one country.⁶⁵ However, for climate change itself to qualify as an “emergency in international relations,” it must either be linked to an armed conflict or amount to a near-comparable level of severity to represent a breakdown in the relations between states.⁶⁶ A mere political or economic conflict is not sufficient to rise to the level of an emergency in international relations unless it interferes with a state’s ability to maintain law and order.⁶⁷ Climate change is increasingly linked to instability and armed conflict, and experts predict that as global temperatures rise, so will the risk of armed conflicts.⁶⁸ However, there is some

⁵⁹ *US – Origin Marking Requirement*, 7.304

⁶⁰ *US – Origin Marking Requirement*, 7.312.

⁶¹ *US – Origin Marking Requirement*, 7.308, 7.353.

⁶² Angshuman Hazarika and Pieter Van Vaerenbergh, ‘Climate Change as a Security Risk: Too Hot to Handle?’ (2020) *Journal of World Trade* 54(3), 423.

⁶³ Security Council Report, ‘The UN Security Council and Climate Change: Tracking the Agenda after the 2021 Veto’ Security Council Report No. 4 (30 December 2022) available at https://www.securitycouncilreport.org/atf/cf/%7B65BF9B-6D27-4E9C-8CD3-CF6E4FF96FF9%7D/uncsc_climatechange_2022.pdf.

⁶⁴ Adam Behsudi, ‘What is Mitigation vs Adaptation: The World Faces a Two-Front Battle to Halt Global Warming and Address the Effects of Climate change’ (2021) IMF Finance and Development, available at <https://www.imf.org/en/Publications/fandd/issues/2021/09/climate-change-what-is-mitigation-and-adaptation-behsudi-basics>.

⁶⁵ Angshuman Hazarika and Pieter Van Vaerenbergh, ‘Climate Change as a Security Risk: Too Hot to Handle?’ (2020) *Journal of World Trade* 54(3), 424.

⁶⁶ *US – Origin Marking Requirement*, 7.308, 7.353.

⁶⁷ *Russia – Traffic in Transit*, 7.75.

⁶⁸ Solomon M Hsiang, ‘Quantifying the Influence of Climate on Human Conflict’ (2013) *Science* 341(6151).

discussion on whether climate change itself can be considered a threat or whether it is only a ‘threat multiplier’ that amplifies existing instabilities or crises.⁶⁹

The recognition of the severity of a conflict by the United Nations may be taken into consideration by a Panel to establish that the situation is of “*concern to the international community*.”⁷⁰ For example, the Panel could consider the language in the Paris Agreement, a binding agreement which acknowledges that “*climate change is a common concern of humankind*” and refers to the “*urgent threat of climate change*.”⁷¹ In *Russia – Traffic in Transit*, the Panel referred to a UNGA resolution which noted concern to the international community over the conflict in Crimea.⁷²

In terms of climate change, both the UN General Assembly (UNGA) and the UN Security Council (UNSC) have reflected on the severity of climate change and its adverse effects including water scarcity, drought and food insecurity.⁷³ In 2017, the UNSC recognized the adverse effects of climate change as one of the root causes of the instability in the Lake Chad Basin Region, made up of Cameroon, Chad, Niger and Nigeria.⁷⁴ More recently, the UNGA adopted a resolution which acknowledges that “*climate change is an unprecedented challenge of civilizational proportions and that the well-being of the present and future generations of humankind depends on our immediate and urgent response*.”⁷⁵ The recognition of climate change as an issue of global concern could contribute to its recognition as an “emergency in international relations.” However, it should be noted that in 2021, a resolution aimed at integrating climate-related security risks as a central component of the UN’s conflict-prevention strategies was rejected.⁷⁶

2. The effects of climate change as emergencies in international relations

Another option is to consider whether an effect of climate change could be considered an “emergency in international relations.” Adaptation measures are often focused on dealing the effects of climate change such as water scarcity, desertification, drought, food insecurity, weather emergencies.⁷⁷ Of all the environment-related notifications submitted by WTO Members, 18% of them can be linked to climate change adaptation and half of those concern the agricultural sector.⁷⁸ One illustration is the effects

⁶⁹ The term “threat multiplier” was first coined in Sherri Goodman et al., “National Security and the Threat of Climate Change,” (2007) The CNA Corporation, available at https://www.cna.org/archive/CNA_Files/pdf/national%20security%20and%20the%20threat%20of%20climate%20change.pdf.

⁷⁰ It is important to note that Article XXI(c) GATT provides specifically for an exception that allows members to derogate from their WTO obligations for the purpose of complying with UNSC resolutions.

⁷¹ Paris Agreement, Preamble.

⁷² Angshuman Hazarika and Pieter Van Vaerenbergh, ‘Climate Change as a Security Risk: Too Hot to Handle?’ (2020) *Journal of World Trade* 54(3), 423.

⁷³ UNGA Resolution A/77/L.58 (1 March 2023).

⁷⁴ UNSC Resolution 2349 (31 March 2017) UN Doc S/RES/2349, 23.

⁷⁵ *Ibid*, Preamble.

⁷⁶ See Security Council Report, ‘The UN Security Council and Climate Change: Tracking the Agenda after the 2021 Veto’ Security Council Report No. 4 (30 December 2022) available at https://www.securitycouncilreport.org/atf/cf/%7B65BFCF9B-6D27-4E9C-8CD3-CF6E4FF96FF9%7D/unsc_climatechange_2022.pdf.

⁷⁷ See Intergovernmental Panel on Climate Change (IPCC), *Climate Change 2023: Synthesis Report of the IPCC Sixth Assessment Report (AR6)*, IPCC AR6 SYR (2023).

⁷⁸ WTO, ‘Climate Change Adaptation and Trade Policy Brief’ (2022) (Geneva: WTO) available at https://www.wto.org/english/news_e/news22_e/dgo_ted_climate_change_sept22.pdf, 6.

climate change have had on the Sahel region, spanning across Burkina Faso, Cameroon, Chad, the Gambia, Guinea, Mauritania, Mali, Niger, Nigeria and Senegal.⁷⁹ Warmer temperatures and changing weather patterns have caused prolonged periods of drought and little rainfall in this region.⁸⁰ As a result production capacity of farms has significantly decreased, having a knock on effect on global supply chains and ultimately global food supplies.⁸¹ In addition, there has been a large of migration of herders and pastoralist populations leading to conflict over land, water and other resources.⁸² This risk of conflict is expected to increase as temperatures rise and the annual dry season is further extended.⁸³

As shown by the Sahel case study, droughts can affect multiple countries and regions and lead to widespread displacement and food security. When agricultural production falters due to climate variability it leads to heightened levels of deprivation and insecurity fueling tensions and competition, particularly between countries that are dependent on agriculture and have other institutional and governance weaknesses.⁸⁴ Therefore, given the effects of the drought on the ability to maintain law and order and the international dimension of the crisis, it could be argued that this is an “emergency in international relations.”

Given the level of global acknowledgment of the severity of climate change and the need for immediate and urgent action, it may be feasible to classify climate change or its effects as an emergency in international relations. However, it should be noted that classifying climate change itself as an emergency in international relations would result in a much broader expansion of the scope of GATT Article XXI(b)(iii). This can be observed by looking at the application of the temporal requirement, the second step in the Panels’ framework of consistency.

B. Temporal requirement

The second step of the framework set out by the Panels is the temporal requirement. It must be determined whether the challenged measure was taken “in time of” the emergency in international relations.⁸⁵ When it comes to climate change there is arguably no concretely discernible start or end of the crisis. One line of reasoning is that this requirement cannot be met because an emergency necessarily implies a situation that is unexpected and temporary.⁸⁶ However, it could equally be argued that climate change is an ongoing emergency that will fulfill this requirement as long as this is the case.

While efforts are being made to reduce GHG emissions and curb the risks of climate change, it would take thousands of years for surface air and ocean temperatures to return

⁷⁹ World Trade Organization, ‘World Trade Report 2022: Climate Change and International Trade’ (2022) (Geneva: WTO), 28.

⁸⁰ Ibid.

⁸¹ Ibid.

⁸² WTO, ‘Climate Change Adaptation and Trade Policy Brief’ (2022) (Geneva: WTO) available at https://www.wto.org/english/news_e/news22_e/dgo_ted_climate_change_sept22.pdf, 5.

⁸³ Ulrich Eberle et al, ‘Heat and Hate: Climate Security and Farmer-Herder Conflicts in Africa’ (2020) CEPR Discussion Paper No. DP1552.

⁸⁴ Beza Tasfaye, ‘Climate Change and Conflict in the Sahel’ Council on Foreign Relations Discussion Paper Series on Managing Global Disorder No. 11 (November 2022); World Trade Organization, ‘World Trade Report 2022: Climate Change and International Trade’ (2022) (Geneva: WTO), 28.

⁸⁵ *Russia – Traffic in Transit*, 7.70.

⁸⁶ See Angshuman Hazarika and Pieter Van Vaerenbergh, ‘Climate Change as a Security Risk: Too Hot to Handle?’ (2020) *Journal of World Trade* 54(3), 424.

to pre-industrial levels.⁸⁷ This means that the emergency in international relations would extend indeterminably resulting in a significant expansion of the scope of this exception. Alternatively, if the emergency in international relations is not climate change but one of its effects such as a drought in a particular region, it could be argued that as soon as there is no longer a drought the temporal scope would end.

It is also relevant to consider that climate action includes measures to prevent the emission of GHGs into the atmosphere and measures to adjust to the future effects of climate change.⁸⁸ This raises some chronological questions such as whether a measure could be taken at a time when the emergency is imminent or to prevent an emergency in international relations. In *Russia – Traffic in Transit*, the panel held “in time of” to mean “during” the emergency in international relations.⁸⁹ Moreover the existence of an emergency in international relations must be “established.”⁹⁰

This means that if the emergency in international relations is one of the effects of climate change, such as a climate migration crisis or food insecurity, measures taken to prevent or deter these effects would not be considered “in time” of the emergency in international relations.⁹¹ Only measures taken after irreparable damage has already been done would qualify.⁹² However, if the emergency in international relations is climate change itself then arguably measures taken to avoid or deter one of its effects would still be considered “in time” of the emergency in international relations as evidence of warming temperatures has been traced back to the early 1800s.⁹³

If climate change or one of its effects can be considered an “emergency in international relations” and a relevant measure is taken “in time” of this emergency, the objective elements of the test of consistency will be met. However, a measure will also need to meet the next steps of the framework of analysis set out by the panels, which establish that there is a good faith connection between the measure taken and an essential security interest at stake as a result of the emergency in international relations.⁹⁴

V. GOOD FAITH OBLIGATIONS UNDER ARTICLE XXI(b)

Part V examines the next two steps in the test of consistency established by the Panels in previous disputes. These steps in the analysis relate to paragraph (b) of GATT Article XXI which provides that a Member may only take measures “*which it considers necessary for the protection of its essential security interests.*” This test should be distinguished from the strict

⁸⁷ See Kirsten Zickfeld et al, ‘Long-Term Climate Change Commitment and Reversibility: An EMIC Intercomparison’ (2013) *Journal of Climate* 26.

⁸⁸ Adam Behsudi, ‘What is Mitigation vs Adaptation: The World Faces a Two-Front Battle to Halt Global Warming and Address the Effects of Climate change’ (2021) IMF Finance and Development, available at <https://www.imf.org/en/Publications/fandd/issues/2021/09/climate-change-what-is-mitigation-and-adaptation-behsudi-basics>.

⁸⁹ *Russia – Traffic in Transit*, 7.70.

⁹⁰ *Russia – Traffic in Transit*, 7.71

⁹¹ See Abram Lustgarten, ‘The Great Climate Migration’ (2020) *The New York Times* and Pulitzer Center.

⁹² This is also a criticism of the United States when it comes to the interpretation of GATT Article XXI(b)(iii) by the Panels. See statements made by Ambassador María Pagán at the Meeting of the WTO Dispute Settlement Body on 27 January 2023, available at <https://ustr.gov/about-us/policy-offices/press-office/press-releases/2023/january/statements-united-states-meeting-wto-dispute-settlement-body>.

⁹³ See Nerilie J Abram et al, ‘Early onset of industrial-era warming across the oceans and continents’ (2016) *Nature* 536.

⁹⁴ Daniel Kang Wei-En, ‘Adapting GATT Article XXI(b)(iii) to Climate Change Threats: An Overdue Rethinking of Security Blues for an Urgent Green Way Forward?’ (2020) *Australian International Law Journal* 27, 106.

necessity test and Chapeau that exist under GATT Article XX.⁹⁵ Due to the language “which it considers,” the Panels grant a large degree of deference to Members in deciding what is “an essential security interest.” However, Members are subject to two good faith requirements for which they carry the burden of proof. These were read into the provision by the Panel as a general principle of law under Articles 31(1) and 26 of the Vienna Convention.⁹⁶ Members must sufficiently articulate their essential security interest and show that it is “not implausible” that their measure is “necessary for the protection of an essential security interest” arising out of the emergency in international relations.⁹⁷

A. Sufficiently articulated essential security interest

The Panel in *Russia – Traffic in Transit*, defined “essential security interests” as those “relating to the quintessential functions of a state.”⁹⁸ These include the protection of its territory and population from external threats and the maintenance of law and public order internally.⁹⁹ It is important to note, that unlike the “emergency in international relations” which requires a cross-border element, a Member must show that its own “essential security interest” is at stake.¹⁰⁰

The invoking Member must also “sufficiently articulate” the “essential security interest” arising from the emergency in international relations to demonstrate its veracity.¹⁰¹ Members may not elevate any concern to the level of an “essential security interest.”¹⁰² None of the Panels have defined what constitutes a “sufficient” degree of articulation.” However, the Panel in *Russia – Traffic in Transit* stated that the further removed the emergency is from an armed conflict, the greater the degree of specificity the Member must provide to explain why its essential security interest relates to the ‘maintenance of law and public order interests.’¹⁰³

Climate security is the notion that the effects of climate change will threaten international peace by destabilizing states, fueling and generating new conflicts.¹⁰⁴ For some small island states, such as Tuvalu, the Maldives Kiribati and the Republic of the Marshall Islands, climate change threatens their very existence as they lose territory due to rising sea levels and their soil becomes unusable due to increasing salt content.¹⁰⁵ However, every state in the world will increasingly be subject to different kinds of climate security threats.¹⁰⁶ For example, rising sea levels, extreme weather and the exhaustion of critical resources such as water, food and energy each have the potential to affect a state’s critical infrastructure.¹⁰⁷ When these crucial resources and critical infrastructure are subject

⁹⁵ Unlike GATT Article XX, it is not required that a measure not be applied in a manner that constitutes arbitrary or unjustifiable discrimination or a disguised restriction on international trade. See *US – Origin Marking Requirement*, 7.111.

⁹⁶ *Russia – Traffic in Transit*, 7.132.

⁹⁷ *Russia – Traffic in Transit*, 7.134, 7.139.

⁹⁸ *Russia – Traffic in Transit*, 7.125.

⁹⁹ *Ibid.*

¹⁰⁰ *Ibid.*

¹⁰¹ *Russia – Traffic in Transit*, 7.134.

¹⁰² *Russia – Traffic in Transit*, 7.132.

¹⁰³ *Russia – Traffic in Transit*, 7.135.

¹⁰⁴ Samantha Franks, ‘Exploring Climate Security to Article XXI of the GATT’ (2021) Washington University Global Studies Law Review 20(2), 530-531.

¹⁰⁵ *Ibid.*

¹⁰⁶ *Ibid.*

¹⁰⁷ *Ibid.*

to uncertainty, tensions rise both within a state and between different states.¹⁰⁸ Climate change effects exacerbate threats to security such as political instability and terrorism.¹⁰⁹ For example, some security experts attribute rising civil unrest among farmers in Syria to the prolonged droughts caused by climate change.¹¹⁰ These droughts drove farmers towards urban areas and contributed to Syria's civil war.¹¹¹ As countries lose territory and the number of climate migrants rises there will be increasing conflict over resources, territory, borders and migration.¹¹² For States facing climate security challenges, it is arguably possible to state that their "quintessential functions" are at stake as a result of climate change. However, they will have to articulate why climate change threatens their essential security interest with a greater degree of specificity.¹¹³

B. Causal link

Given the degree of discretion that Members have in determining what they consider an "essential security interest," the Panel in *Russia – Traffic in Transit* determined that Article XXI(b) includes a second good faith obligation.¹¹⁴ This requirement serves to prevent Members from justifying measures that are completely unrelated to the relevant security interest.¹¹⁵ The Panel stated that *'the relevant actions may not be so remote or unrelated that it is implausible for the Member to consider them necessary for the protection of its essential security interest.'*¹¹⁶ Where measures are unrelated to an armed conflict, this evidentiary burden is higher.¹¹⁷ However, generally speaking, this is a very low burden of proof to meet. Given the scope of the climate change crisis and the limited review of the Panel, there is a danger that Members will attempt to justify a broad range of trade-restrictive measures which may have a negligible link to climate change.¹¹⁸

To illustrate this, it is useful to examine the tax credit provided for electric vehicles (EVs) under the IRA in the U.S.¹¹⁹ This EV tax credit aims to make electric vehicles more affordable as part of the U.S.' commitment to reduce carbon emissions.¹²⁰ However, to receive this credit for an EV, final assembly must occur in North America and the critical

¹⁰⁸ Samantha Franks, 'Exploring Climate Security to Article XXI of the GATT' (2021) Washington University Global Studies Law Review 20(2), 530-531.

¹⁰⁹ Emyr Jones Parry, 'The Greatest Threat to Global Security: Climate Change is Not Merely an Environmental Problem' in United Nations, *Green Our World* (No. 2 Vol. XLIV 2007).

¹¹⁰ Emyr Jones Parry, 'The Greatest Threat to Global Security: Climate Change is Not Merely an Environmental Problem' in United Nations, *Green Our World* (No. 2 Vol. XLIV 2007).

¹¹¹ *Ibid.*

¹¹² Angshuman Hazarika and Pieter Van Vaerenbergh, 'Climate Change as a Security Risk: Too Hot to Handle?' (2020) *Journal of World Trade* 54(3), 418.

¹¹³ *Russia – Traffic in Transit*, 7.135.

¹¹⁴ *Russia – Traffic in Transit*, 7.132.

¹¹⁵ Angshuman Hazarika and Pieter Van Vaerenbergh, 'Climate Change as a Security Risk: Too Hot to Handle?' (2020) *Journal of World Trade* 54(3), 425.

¹¹⁶ *Russia – Traffic in Transit*, 7.138.

¹¹⁷ *Ibid.*, 7.135.

¹¹⁸ Angshuman Hazarika and Pieter Van Vaerenbergh, 'Climate Change as a Security Risk: Too Hot to Handle?' (2020) *Journal of World Trade* 54(3), 426.

¹¹⁹ For a complete analysis on why this measure may violate WTO obligations, see Soojn Nam, 'Inflation Reduction Act's Clean Vehicle Provisions: Analysis of Potential International Trade Law Violations' (2022) *Journal of East Asia and International Law* 15(2); William Alan Reinsch et al 'An Electric Debate: Local Content Requirements and Trade Considerations' Center for Strategic and International Studies (12 October 2022) available at <https://www.csis.org/analysis/electric-debate-local-content-requirements-and-trade-considerations>.

¹²⁰ *Ibid.*

minerals and battery components used in the EV must be sourced from North America or one of its FTA trading partners.¹²¹ Moreover, the legislation specifically excludes EVs from qualifying for the tax credit if these components come from “foreign entities of concern,” including China.¹²² The prevailing view is that this local content requirement violates the national treatment obligation under Article III:4 GATT as well as Article 3.1 SCM Agreement, which prohibits subsidies conditional upon using domestic over imported goods.¹²³ It is likely that the U.S. will rely on GATT Article XXI(b)(iii) if this measure were to be challenged at the WTO.¹²⁴ In that case, if it is presumed that climate change can be considered “an emergency in international relations” and measures to reduce GHG measures are considered to be taken “in time” of climate change, the next question will be which “essential security interest” is at stake.

There is a clear link between a tax credit for EVs and reducing GHG emissions, however, it is difficult to imagine that there is even a negligible link between the local content requirement and reducing GHG emissions or climate change.¹²⁵ It will be up to the U.S. to formulate an “essential security interest” arising out of climate change that it can link to the local content requirement to justify this measure.¹²⁶ It is also important to remember that GATT Article XXI(b) does not require that a measure is not discriminatory or the least trade restrictive available.¹²⁷

The U.S. could argue that its essential security interest is to have reliable access to critical minerals. China refines 68 percent of the world’s nickel, 40 percent of its copper, 59 percent of its lithium and 73 percent of its cobalt.¹²⁸ Moreover it holds 78 percent of the world’s manufacturing capacity for EV batteries.¹²⁹ In light of the ongoing trade war and other geopolitical tensions which could result in supply chain disruptions, China could be considered an unreliable partner.¹³⁰ Therefore, the U.S. could argue that it has to develop its domestic critical mineral industry so that it is not dependent on unreliable partners. As critical minerals are essential components in many clean energy technologies, it is at the very least not implausible that a local content requirement is necessary to have

¹²¹ More specifically the battery components must be sourced and assembled in North America and the critical minerals must be extracted or processed in North America or in a country with which the United States has a Free Trade Agreement.

¹²² William Alan Reinsch et al ‘An Electric Debate: Local Content Requirements and Trade Considerations’ Center for Strategic and International Studies (12 October 2022) available at <https://www.csis.org/analysis/electric-debate-local-content-requirements-and-trade-considerations>.

¹²³ Ibid; it should be noted that there is disagreement regarding the application of the GATT security exception to the SCM Agreement.

¹²⁴ Sophie Cameron, ‘Climate crisis: U.S. passes transformative Inflation Reduction Act’ International Bar Association (11 October 2022) available at <https://www.ibanet.org/Climate%20crisis-US-Inflation-Reduction-Act>.

¹²⁵ John Larsen et al, ‘Assessing the Costs and Benefits of Clean Electricity Tax Credits’ Rhodium Group (9 February 2022), available at <https://rhg.com/research/assessing-the-costs-and-benefits-of-clean-electricity-tax-credits/>.

¹²⁶ *Russia – Traffic in Transit*, 7.134.

¹²⁷ *US – Origin Marking Requirement*, 7.111.

¹²⁸ See Rodrigo Castillo and Caitlin Purdy, ‘China’s Role in Supplying Critical Minerals for the Global Energy Transition’ (2022) Brookings Institution, available at https://www.brookings.edu/wp-content/uploads/2022/08/LTRC_ChinaSupplyChain.pdf, 6.

¹²⁹ Ibid.

¹³⁰ Ibid.

reliable access to critical minerals during climate change.¹³¹ Therefore, a local content requirement could meet the test of consistency for a GATT Article XXI(b)(iii) exception despite being motivated by protectionist and political considerations rather than climate mitigation goals.

The conclusion that can be reached from conducting this analysis is that it is likely possible for climate change measures in violation of WTO obligations to find exception under GATT Article XXI(b)(iii). However, it can also be concluded that the scope of this provision would cover both genuine climate change measures and disguised forms of protectionism. Therefore, it is important to consider the broader context in which this exception would be invoked and whether there are any guardrails in place to prevent abuse of this provision to determine whether climate measures “should” be justified under this provision.

VI. THE THREAT OF ABUSE AND POSSIBLE GUARDRAILS

Given the wide degree of discretion of Members and limited review of the Panels under this provision, it is necessary to explore some of the other considerations that may be relevant in considering an application of GATT Article XXI(b)(iii) to climate measures. In addition, it is relevant to consider which guardrails exist or could be put in place to limit abuse of this provision and ensure that genuine climate change measures can be distinguished from disguised forms of protectionism.

A. *The threat of abuse in the current climate*

1. The danger of a “carte blanche”

A general concern of broadening the scope of GATT Article XXI(b)(iii) is that it will result in a “carte blanche” for countries to disregard their WTO obligations and enact trade-restrictive measures.¹³² As showcased by the analysis of the local content requirement for EV credits under the IRA, the current framework is not sufficiently able to distinguish between genuine climate change measures and disguised protectionism. This means expanding the scope of GATT Article XXI(b)(iii) to climate change measures will likely result in both genuine climate change measures and disguised protectionism finding justification. Moreover, in light of the current paralysis of the Appellate Body, there is no longer a mechanism to review measures under this provision in a binding manner, as losing parties to WTO dispute settlement can appeal Panel decisions into a legal void.¹³³ Finally, as discussed in Part II, there are an increasing amount of contemporary issues that can be considered threats to national security. Expanding this exception to climate change measures, opens the door to include other emergencies, such as global health emergencies or even economic crises within the scope of “emergencies in international relations.”

¹³¹ William Alan Reinsch et al ‘An Electric Debate: Local Content Requirements and Trade Considerations’ Center for Strategic and International Studies (12 October 2022) available at <https://www.csis.org/analysis/electric-debate-local-content-requirements-and-trade-considerations>.

¹³² Peter Van den Bossche and Sarah Akpofure, ‘The Use and Abuse of the National Security Exception under Article XXI(b)(iii) of the GATT 1994’ (2022) in CJ Cheng (Ed.), *A New Global Economic Order: New Challenges to International Trade Law* Vol. 3, (Leiden: Brill Nijhoff), 20.

¹³³ The WTO Appellate Body has ceased functioning since December 2019 due to the United States blocking the appointment of new members to the Appellate Body. By appealing a Panel report, the losing party can prevent the decision from becoming legally binding as it cannot be adopted by the DSB until the appeal is heard and the dispute is resolved.

2. Fueling economic nationalism

It is also important to consider that the current political climate has fueled a move away from multilateralism and towards unilateralism or fragmented regionalism outside of the WTO framework.¹³⁴ This is in part due to frustrations surrounding the scope and reach of WTO obligations and losses of sovereignty.¹³⁵ In the past, Members avoided using or abusing this Article to avoid encouraging other States to do the same.¹³⁶ However, as seen by the proliferation of cases relying on this exception, the *Russia – Traffic in Transit* case, in many ways unlocked this Pandora's box.¹³⁷ For example, in December of 2022, the WTO circulated the panel reports of cases brought by China, Switzerland and Turkey concerning the U.S. tariffs on steel and aluminum which the U.S. tried to justify under the security exception.¹³⁸ The Biden administration maintains that this exception is not justiciable despite multiple Panel reports to the contrary in these cases. It has also issued a public statement that it will not comply with this decision and has appealed these decisions into the void.¹³⁹ Prohibiting Members from justifying climate change measures under the security exception could further exacerbate frustrations surrounding the loss of sovereignty and fuel a desire to act unilaterally outside of the WTO system.

Concurrently, Members may argue that there is no reference to climate change in the provision and expanding its scope goes beyond the mandate of the WTO without an authoritative interpretation or amendment of the provision.¹⁴⁰ However, it is important to remember that the purpose of the multilateral trading system is not limited to trade liberalization.¹⁴¹ The Marrakesh Agreement Establishing the WTO highlights the need to balance trade and sustainability concerns in its preamble.¹⁴² Climate action is urgent and necessary. Therefore, it is imperative to consider which guardrails exist or could be developed to provide further guidance on the scope of this exception and prevent abuse of this provision.

¹³⁴ Peter Van den Bossche and Sarah Akpofure, 'The Use and Abuse of the National Security Exception under Article XXI(b)(iii) of the GATT 1994' (2022) in CJ Cheng (Ed.), *A New Global Economic Order: New Challenges to International Trade Law* Vol. 3, (Leiden: Brill Nijhoff), 1.

¹³⁵ Ibid.

¹³⁶ Harold Hongju Koh, 'Why Do Nations Obey International Law?' (1997) *Yale Law Journal* 106, 2632.

¹³⁷ Daria Boklan and Amrita Bahri, 'The First WTO's Ruling on National Security Exception: Balancing Interests or Opening Pandora's Box?' (2020) *World Trade Review*, 19(1), 123-136

¹³⁸ See *US – Certain Measures on Steel and Aluminium Products*, WTO Docs. WT/DS544/R, WT/DS522/R, WT/DS556/R, WT/DS564/R (9 December 2022).

¹³⁹ See statements made by Ambassador María Pagán at the Meeting of the WTO Dispute Settlement Body on 27 January 2023, available at

<https://ustr.gov/about-us/policy-offices/press-office/press-releases/2023/january/statements-united-states-meeting-wto-dispute-settlement-body>.

¹⁴⁰ Daniel Kang Wei-En, 'Adapting GATT Article XXI(b)(iii) to Climate Change Threats: An Overdue Rethinking of Security Blues for an Urgent Green Way Forward?' (2020) *Australian International Law Journal* 27, 109.

¹⁴¹ Ibid.

¹⁴² Marrakesh Agreement Establishing the World Trade Organization, Apr. 15, 1994, 1867 U.N.T.S. 154, 33 I.L.M. 1144 (1994), Preamble.

B. Guardrails

1. Transparency mechanisms

One of the greatest strengths of the WTO system has been to improve transparency among members regarding the measures that they are taking.¹⁴³ This is true even today as the system faces a systemic crisis of legitimacy yet many Members continue to report their measures and engage in dialogue within the many committees of the WTO.¹⁴⁴ However, there has been little to no dialogue or transparency when it comes to national security measures.

One way to bring more transparency to the security exception would be for members to raise a specific trade concern (STC) before a WTO Committee.¹⁴⁵ STCs are a way for a member to seek information or raise a concern about another Member's trade measures, without lodging a formal DSU dispute.¹⁴⁶ Within the Committee on Market Access and the SPS and TBT Committees, there is a robust practice of raising trade concerns which have helped ease trade tensions, improve transparency on other Members' regulations and generally facilitated the resolution of trade issues between members.¹⁴⁷ Most relevant for the purpose of climate change would perhaps be the Committee on Trade and the Environment, a committee which does not address STCs at present but could.¹⁴⁸

Alternatively, the General Council could establish a new Committee on National Security to serve as a specific forum in which members could raise STCs related to national security measures.¹⁴⁹ Considering the current paralysis of the AB and the contentious nature of litigation surrounding Article XXI(b)(iii), dialogue within a committee could help avoid the adversarial nature of the exchanges on these issues when they are raised on the agenda of the General Council or within dispute settlement.¹⁵⁰ The creation of a Committee on National Security could also involve a notification system, in which Members notify their national security measures relying on GATT Article XXI.¹⁵¹ This notification could involve an explanation of the measure, the emergency in international relations during which the measure is taken and a sufficiently detailed explanation of the essential security interest at stake and why the Member considers its measure necessary for the protection of this interest. While recognizing that certain aspects of national security measures will necessarily need to remain confidential, these are aspects of the measure that a member would have to disclose in the event of dispute settlement but avoids the adversarial nature of litigation. The importance of transparency cannot be emphasized enough. However, it does not provide a guaranteed safeguard against abuse

¹⁴³ William Alan Reinsch et al, 'Transparency at the WTO: Why Does Transparency Matter, and Are Members Meeting Their Obligations?' Center for Strategic and International Studies (22 April 2020), available at <https://www.csis.org/analysis/transparency-wto-why-does-transparency-matter-and-are-members-meeting-their-obligations>.

¹⁴⁴ See, e.g. the WTO Trade Monitoring Database, available at <https://tmdb.wto.org/en>.

¹⁴⁵ Henrik Horn et al, 'In the Shadow of the DSU: Addressing Specific Trade Concerns in the WTO SPS and TBT Committees' (2013) The Center for Law & Economic Studies Working Paper No. 494, 1.

¹⁴⁶ *Ibid.*

¹⁴⁷ Robert Wolfe, 'Reforming WTO Conflict Management: Why and How to Improve the Use of "Specific Trade Concerns"' (2020) EUI Working Paper RSCAS 2020/53, 7-8.

¹⁴⁸ *Ibid.*

¹⁴⁹ See Simon Lester and Inu Manak, 'A Proposal for a Committee on National Security at the WTO' (2020) *Duke Journal of Comparative & International Law* 30(267).

¹⁵⁰ *Ibid.*, 274.

¹⁵¹ *Ibid.*, 275.

and some countries, such as the US, are likely to object to providing any insight into their national security measures.¹⁵²

2. Authoritative interpretation or amendment

As discussed, the current interpretation and guidance on the meaning of “*which it considers necessary for the protection of its essential security interest*” by the Panels would not allow sufficient distinction between genuine climate change measures and disguised protectionism. To rectify this, Members could apply for an authoritative interpretation of GATT Article XXI(b)(iii) which states that climate change is an “emergency in international relations” and more importantly provides guidance on the meaning of “*necessary for the protection of its essential security interest.*”¹⁵³ Article IX:2 of the WTO Agreement provides that the Ministerial Conference and the General Council have exclusive authority to adopt interpretations of the covered agreements, including the GATT. Therefore, an authoritative interpretation can amend or reverse the Panels’ interpretation of this provision.¹⁵⁴

However, the Panel in *US – Origin Marking Requirement* considered that when it comes to GATT Article XXI(b)(iii), it would ‘*neither be possible nor helpful to attempt to provide a list of events that fall under this definition.*’¹⁵⁵ It held that the determination of whether an emergency in international relations exists must be made on a case-by-case basis. Furthermore, it is also relevant to note that an authoritative interpretation requires a decision by consensus, therefore given the disagreement regarding the interpretation of this provision, the political feasibility of an authoritative interpretation is low.¹⁵⁶ The U.S. perspective is that the determination of what a member considers necessary for the protection of its essential security interest is solely the right of the Member. Therefore, it is also unlikely that an authoritative interpretation would lead to stricter guardrails against abuse of the provision if successful. Finally, an authoritative interpretation can only be used to clarify the meaning of existing provisions and not to impose new obligations. Therefore it does not offer the same amount of legal certainty or flexibility as an amendment to the provision.¹⁵⁷

Amending Article XXI would permit a wider scope of changes and tailoring of the provision to climate change specifically. For example, Members could add a subsection to the provision specifically for measures taken in the context of climate change including specific conditions to the use of this exception. However, the procedure to amend a GATT provision is even more lengthy and complex than seeking an authoritative interpretation and given the need for a political consensus, this option is also unlikely to be feasible.¹⁵⁸

¹⁵² *Ibid*, 281

¹⁵³ Daniel Kang Wei-En, ‘Adapting GATT Article XXI(b)(iii) to Climate Change Threats: An Overdue Rethinking of Security Blues for an Urgent Green Way Forward?’ (2020) *Australian International Law Journal* 27, 114.

¹⁵⁴ *Ibid*.

¹⁵⁵ *US – Origin Marking Requirement*, 7.312.

¹⁵⁶ Article IX:2 Marrakesh Agreement provides that an authoritative interpretation requires a three-fourths majority. However, in practice the WTO votes by consensus.

¹⁵⁷ Kasturi Das et al, ‘Making the International Trade System Work for Climate Change: Assessing the Options’ (2018) *Climate Strategies*, available at https://climatestrategies.org/wp-content/uploads/2018/07/CS-Report-_Trade-WP4.pdf, 20.

¹⁵⁸ See Marrakesh Agreement, Article X.

3. Rebalancing through nullification or impairment claims

Finally, it could also be considered that the existing limitations to the use of GATT Article XXI(b)(iii) as interpreted by the Panels are sufficient to limit the scope of the provisions and it is rather the use of the provision that must be curtailed. In this regard, the U.S. maintains that GATT Article XXI(b) is not justiciable and should lead immediately to a rebalancing through nullification and impairment proceedings.¹⁵⁹ While the justiciability of this provision has been repeatedly established, the possibility of nullification or impairment claims as a guardrail to GATT Article XXI is a relevant option to consider.¹⁶⁰

GATT Article XXIII allows Members to bring a claim for the nullification of benefit or impairment of an objective under the GATT as a result of (a) a violation, (b) a non-violation or (c) the existence of any other “situation.” In the case of limiting measures relying on Article XXI, paragraphs (b) and (c) are the most relevant. By invoking Paragraph (b) a member could challenge a national security measure for nullification or impairment of a benefit or objective under the GATT, regardless of whether the measure was successfully justified under Article XXI.¹⁶¹ In the event of a successful claim, a Member has to make a “mutually satisfactory adjustment,” which could include compensation or suspension of the aggrieved member’s concessions if a negotiated settlement cannot be reached.¹⁶² This option would not limit the scope of GATT Article XXI(b)(iii) but would deter Members from invoking it by making it expensive to do so.¹⁶³

However, arguably the language used in Article 26 of the Dispute Settlement Understanding (DSU) regarding non-violation and “situation” complaints is not as strong as the language and remedies provided for violation complaints under Article 22 DSU. Therefore, there is some discussion on the remedies available for a non-violation claim.¹⁶⁴ Additionally, there is a high burden of proof for a nullification or impairment claim on the accusing Member including a detailed justification in support of the complaint and a requirement there is a requirement that the measure that nullifies or impairs the concession could not have been reasonably anticipated.¹⁶⁵

In the context of climate change, this analysis depends on the measure but given the commitments of Members to reduce emissions under the Paris Agreement, it is hard to argue that measures taken to reduce emissions could not be reasonably anticipated. When it comes to the effects of climate change, it may be argued that these are more

¹⁵⁹ See U.S. First Written Submission, *United States – Certain Measures on Steel and Aluminum Products* (India) (DS547), Section III.A.3 (Exhibit USA-1).

¹⁶⁰ *Russia – Traffic in Transit*, 7.102; *Saudi-Arabia – IPRs*, 7.10; *US – Origin Marking Requirement*, 7.185.

¹⁶¹ See GATT Article XXIII(1)(b) “*The application by another contracting party of any measure, whether or not it conflicts with the provisions of this Agreement.*”

¹⁶² DSU Article 26.1(b); Robert W Staiger, ‘Non-Violations’ (2013) *Journal of International Economic Law* 16, 12.

¹⁶³ Jennifer Hillman on TradeTalks, ‘Episode 175. The dreaded WTO ruling on Trump’s national security tariffs’ (22 January 2023).

¹⁶⁴ For a detailed discussion on this possibility, See Nicolas Lamp, ‘At the Vanishing Point of Law: Rebalancing, Non-Violation Claims and the Role of the Multilateral Trade Regime in the Trade Wars’ (2019) Queen’s University Legal Research Paper Forthcoming, available at <https://ssrn.com/abstract=3470617>; Simon Lester, ‘Non-Violation Claims Against National Security Measures’ *International Economic Law and Policy Blog* (31 October 2019), available at <https://ielp.worldtradelaw.net/2019/10/non-violation-claims-against-national-security-measures.html>.

¹⁶⁵ *Japan – Measures Affecting Consumer Photographic Film and Paper*, Panel Report, WTO Doc. WT/DS44/5 (23 April 1998), 10.76, 10.77; DSU Article 26(1)(a).

unpredictable and therefore the measures taken in time of these emergencies could not be anticipated. Another option would be for Members to bring a nullification or impairment claim under Paragraph (c) “the existence of any other situation,” which would avoid a decision or assessment of the validity of a national security defense altogether. However, there has never been any adjudication of “situation” complaints, leaving the scope of this possibility unclear. Finally, it should be noted that a non-violation or ‘situation’ nullification or impairment claim still involves litigation.¹⁶⁶ Therefore, in light of the paralyzed AB a losing Member of a nullification or impairment claim could still appeal the decision into the void.¹⁶⁷ Given the uncertain future of the WTO dispute settlement system, this is arguably not a sufficient improvement on the current framework of GATT Article XXI(b)(iii) or a guardrail on the use of this provision.¹⁶⁸

An alternative option would be to create a rebalancing mechanism like the one that exists under the Safeguards Agreement.¹⁶⁹ This mechanism provides for compensation or suspension of substantially equivalent concessions where safeguard measures are used.¹⁷⁰ Similar to a nullification or impairment claim, it would allow members to enact national security measures but require them to offer compensation or accept suspension of concessions, making it costly to enact them.¹⁷¹ This option has the benefit of avoiding litigation altogether and ensuring rebalancing happens almost immediately.¹⁷² However, it would also require an amendment to the rules which would be politically challenging as discussed earlier.¹⁷³

VII. CONCLUSION

Given the urgency of climate action and the evolving and expanding meaning of national security beyond military threats to include economic and climate security, a discussion on the scope of Article XXI(b)(iii) is imminent and necessary. This paper attempted to examine this provision through the lens of climate action by considering whether climate change measures could, and more importantly should, find justification under the national security exception.

Conducting an application of the framework of consistency established by the Panels in *Russia – Traffic in Transit* and subsequent disputes to climate change measures, leads to the conclusion that these measures could likely find justification under GATT Article XXI(b)(iii). Both climate change itself and its effects could be considered emergencies in international relations due to their impact on the ability of countries to maintain law and

¹⁶⁶ Simon Lester, ‘National Security Disputes, Non-Violation Nullification or Impairment and Authoritative Interpretations’ International Economic Law and Policy Blog (27 January 2023), available at <https://ielp.worldtradelaw.net/2023/01/national-security-disputes-non-violation-nullification-or-impairment-authoritative-interpretations.html>.

¹⁶⁷ *Ibid.*

¹⁶⁸ *Ibid.*

¹⁶⁹ See Simon Lester and Huan Zhu, ‘A Proposal for “Rebalancing” to Deal With “National Security” Trade Restrictions’ (2019) *Fordham International Law Journal* 42(5).

¹⁷⁰ Safeguards Agreement, Article 8.1.

¹⁷¹ See Simon Lester and Huan Zhu, ‘A Proposal for “Rebalancing” to Deal With “National Security” Trade Restrictions’ (2019) *Fordham International Law Journal* 42(5).

¹⁷² Simon Lester, ‘National Security Disputes, Non-Violation Nullification or Impairment and Authoritative Interpretations’ International Economic Law and Policy Blog (27 January 2023), available at <https://ielp.worldtradelaw.net/2023/01/national-security-disputes-non-violation-nullification-or-impairment-authoritative-interpretations.html>.

¹⁷³ See Simon Lester and Huan Zhu, ‘A Proposal for “Rebalancing” to Deal With “National Security” Trade Restrictions’ (2019) *Fordham International Law Journal* 42(5).

order. Measures taken “in time” of climate change could include both mitigation and adaptation efforts. However, measures taken to prevent climate effects may not meet the threshold until the harm has already been done. When it comes to the subjective elements of the framework, applying the current guidance provided by the Panels on what it means to be necessary for the protection of an essential security interest to the local content requirement on tax credits for EVs under the U.S. IRA showcases that the current framework is not capable of distinguishing between genuine climate change measures and disguised forms of protectionism. Furthermore, in light of the current political climate, an expansion of this exception would likely result in a further proliferation of cases relying upon it.

When it comes to guardrails, the existing mechanisms in place are not sufficient and new guardrails such as an authoritative interpretation or amendment are politically unrealistic. The most feasible option is seemingly to improve transparency mechanisms, such as STCs, within WTO committees or to use nullification or impairment claims to discourage national security measures by making them painful and expensive for Members to impose. However, the former provides an insufficient guarantee against abuse and the latter requires reliance on the dispute settlement system which is currently paralyzed.

In conclusion, while Members could likely rely on GATT Article XXI(b)(iii) as an exception for their climate measures, the risk of abuse of this provision is too great. The threat of climate change is urgent and climate action must be taken but Members should avoid using GATT Article XXI(b)(iii) as a vehicle to do so until the political climate allows new guardrails to be erected and enforced.

CHAPTER 28: THE POTENTIAL ROLE OF ARTICLE XXI(c) OF GATT TO FIGHT CLIMATE CHANGE

LUIZIO FELIPE GOMES ROCHA*

This paper delves into the possibility of using climate change as a trigger for the GATT security exception, specifically under section (c) of article XXI. It analyzes the potential interpretation of this provision in relation to obligations under the United Nations Charter, and considers whether climate change can fall under it. The paper also highlights the recognition of climate change as an international security issue and emphasizes the importance of the UN Security Council's role in addressing these implications. Ultimately, it argues that although climate change poses a significant threat to international peace and security, the GATT's security exception is not applicable in this context.

INTRODUCTION

Article XXI of the General Agreement on Tariffs and Trade (GATT) allows contracting parties to invoke security exceptions and disregard their obligations under the agreement. Sections (a) and (b) of this article have a history of dispute, while section (c) has not been subject to any challenges to date. The application of section (c) would thus represent a novel use of this provision. In particular, its use as a trade tool to address climate change is a relatively unexplored approach. This represents a departure from previous applications of Article XXI and introduces new considerations regarding the implementation of this provision.

I. THE GATT SECURITY EXCEPTION OF ARTICLE XXI(c)

When a contracting party invokes a security exception, as detailed in Article XXI of the GATT, it is granted the right to disregard its obligations under the agreement. This provision can be employed by countries to design trade measures aimed at combating climate change without fear of violating the GATT. However, it is important to note that such actions cannot be interpreted as granting *carte blanche* to nations, as Article XXI imposes specific limitations on this right. Consequently, in discussions on legal frameworks governing trade agreements as a means to promote climate change mitigation, Section (c) of Article XXI is a viable tool that provides clear parameters for countries to follow. This ensures that the pursuit of climate action does not serve as an excuse for countries to disregard established trade rules.

“Article XXI - Nothing in this Agreement shall be construed:

[...]

(c) to prevent any contracting party from taking any action in pursuance of its obligations under the United Nations Charter for the maintenance of international peace and security.”¹

To undertake an analysis of the potential application of Section (c), a comprehensive examination of its provisions is required, guided by the principles outlined in Articles 31, 32, and 33 of the Vienna Convention on the Law of Treaties (1969). Central to this inquiry

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¹ https://www.wto.org/english/docs_e/legal_e/gatt47_02_e.htm#articleXXI

are two fundamental questions: Firstly, what qualifies as “obligations under the United Nations Charter?” And secondly, what constitutes a valid interpretation of the phrase “maintenance of international peace and security”? Addressing these questions is critical to ensure a sound understanding of the provisions of Section (c) and the potential role it can play in addressing climate change through trade measures.

II. OBLIGATIONS UNDER THE UNITED NATIONS CHARTER

The United Nations Charter is a significant international agreement that established the United Nations in 1945. The charter outlines the fundamental principles and objectives of the United Nations, including the promotion of human rights, international cooperation, and the maintenance of international peace and security. It also establishes the UN's governing bodies, such as the General Assembly and the Security Council, and sets out their respective roles and responsibilities.

It's noteworthy that the United Nations Charter is not only a landmark agreement in international relations, but it is also a legally binding treaty that sets out the principles, objectives, and governing structures of the United Nations. As a foundational document of the international system, the Charter plays a crucial role in shaping the norms and practices of states and international organizations. In particular, the Charter's legally binding nature underpins its significance as a tool for promoting international peace and security, protecting human rights, and advancing global cooperation. Understanding the UN Charter's legal framework is thus essential for grasping the complex and dynamic nature of international law and governance.

When countries sign and ratify the Charter, they agree to be bound by its provisions and to respect the principles and objectives set forth in its text. The Charter's legally binding nature is underscored by the fact that it has been recognized as a primary source of international law by the International Court of Justice. As a treaty, the Charter creates legal obligations for its member states, which are binding under international law. These obligations reflect the collective commitment of the international community to upholding the principles of international law and working together to address global challenges. The Charter's principles and purposes, including the promotion of human rights, the maintenance of international peace and security, and the advancement of economic and social progress, are not mere aspirations, but rather obligations that member states have pledged to uphold.

“Article 1

The Purposes of the United Nations are:

- 1. To maintain international peace and security, and to that end: to take effective collective measures for the prevention and removal of threats to the peace, and for the suppression of acts of aggression or other breaches of the peace, and to bring about by peaceful means, and in conformity with the principles of justice and international law, adjustment or settlement of international disputes or situations which might lead to a breach of the peace;*
- 2. To develop friendly relations among nations based on respect for the principle of equal rights and self-determination of peoples, and to take other appropriate measures to strengthen universal peace;*
- 3. To achieve international co-operation in solving international problems of an economic, social, cultural, or humanitarian character, and in promoting and encouraging respect for human rights and for fundamental freedoms for all without distinction as to race, sex, language, or religion; and*

4. *To be a centre for harmonizing the actions of nations in the attainment of these common ends.*²

Article 1 of the UN Charter outlines the fundamental purposes of the United Nations, which includes maintaining international peace and security. This purpose is achieved through the promotion of peaceful means to resolve disputes between nations, the use of collective action to prevent and suppress acts of aggression, and the establishment of a system for the regulation of armaments. The UN recognizes that the absence of peace and security can lead to widespread suffering and the disruption of economic and social progress. As such, this article represents the importance placed on maintaining international peace and security as a cornerstone of the organization's mission. Through the UN's various bodies and mechanisms, member states work together to address conflicts, prevent violence, and promote peaceful and sustainable development around the world.

Hence, it can be comprehended that the United Nations Charter, being a legally binding treaty with its various provisions, can constitute an "obligation." This implies that actions undertaken to uphold international peace and security, by the contracting parties of the GATT, would indeed be considered as "taking any action in pursuance of its obligations under the United Nations Charter," as mandated by its Article XXI(c). Nevertheless, it remains essential to ascertain whether the efforts aimed at combating climate change would be considered within the purview of the "maintenance of international peace and security."

III. CLIMATE CHANGE AS AN INTERNATIONAL SECURITY ISSUE

It is widely recognized in academic circles that local anthropogenic activities exert a significant influence on global climate change. Moreover, empirical evidence supports the notion that climate change is perceived as a threat to national security by 110 countries, including all member states of North Atlantic Treaty Organization (NATO)³, which demonstrates the relevance of the issue in the security scenario since NATO is a crucial political and military alliance that plays a vital role in global security issues, including collective defense, crisis management, conflict prevention, and peacekeeping, as well as promoting democratic values and human rights.

Various authoritative figures and international actors have acknowledged this understanding. For instance, the former United States Secretary of State, John Kerry, emphasized: "*Measured against the array of global threats that we face today – and there are many – terrorism, extremism, epidemics, poverty, nuclear proliferation – all challenges that know no borders – climate change absolutely ranks up there equal with all of them.*"⁴

The impact of climate change on international security is not a vague threat, but rather a significant risk that primarily affects the human security of national populations. The notion of human security pertains not to weaponry, but rather to the protection of human life and dignity.⁵ The interconnectedness of the adverse consequences of climate change within the analytical framework of security studies has implications for the prerequisites of sustainable development. The multifaceted effects of climate change, such as rising sea levels, extreme weather events, and displacement of populations, can exacerbate existing

² <https://www.un.org/en/about-us/un-charter/chapter-1>

³ <https://www.actu-environnement.com/media/pdf/news-25462-rapport-philippe-vittel.pdf>

⁴ https://climate-diplomacy.org/sites/default/files/2020-11/NewClimateForPeace_FullReport_small_0.pdf

⁵ <https://hdr.undp.org/system/files/documents/hdr1994encompletenostatspdf.pdf>

vulnerabilities and inequalities, posing threats to human security at local, national, and global levels. Therefore, addressing the complex interplay between climate change and human security is crucial in formulating policies and strategies for ensuring sustainable development pathways that safeguard the well-being and dignity of all people.

The interpretation and wide-ranging application of climate change as a security issue has generated theoretical debates, leading to the possibility of securitizing climate change due to its recognized threat to human security and subsequently to international security. The escalation of socio-environmental disasters linked to climate change has heightened concerns about its impacts. Since the 2000s, there has been a growing trend to move beyond the purely environmental lens and examine climate change from various perspectives. Notably, the international community has begun to discuss the integration of national security with other major political and social crises, marking the initial steps towards securitizing climate change. A significant development in this regard was the unanimous adoption of Resolution 1625 by the United Nations Security Council at the 2005 World Summit, emphasizing the urgency of addressing climate change as a security concern:

*“Reaffirming the need to adopt a broad strategy of conflict prevention, which addresses the root causes of armed conflict and political and social crises in a comprehensive manner, **including by promoting sustainable development**, poverty eradication, national reconciliation, good governance, democracy, gender equality, the rule of law and respect for and protection of human rights.”*⁶

In addition, concern for the effects of climate change in the context of international security, in 2008, is the subject of Resolution 63/281 of the UN General Assembly, stating that the body is *“Deeply concerned that the adverse impacts of climate change, including sea level rise, could have possible security implications.”*⁷ In addition, we can support the evidence of securitization of the climate agenda in Declaration No. 15, of 2011, by the President of the UN Security Council, when he attests that:

*“The Security Council **expresses its concern that possible adverse effects of climate change may, in the long run, aggravate certain existing threats to international peace and security.** The Security Council expresses its concern that possible security implications of loss of territory of some States caused by sea-level-rise may arise, in particular in small low-lying island States.”*⁸

The adoption of the aforementioned declaration serves as a symbolic representation of the effort to frame the issue of climate change as a security concern. This framing is based on the premise that the speech delivered by the securitizing agent, exemplified by the President of the UN Security Council, the German ambassador Peter Wittig, effectively legitimized the perception of climate change as a threat. This perception was subsequently endorsed by the audience, comprising the other members of the Security Council, who took the decisive step of adopting the resolution. This adoption served to affirm the shared concern among the Security Council members regarding the risks posed

⁶ <https://www.securitycouncilreport.org/atf/cf/%7B65BF9B-6D27-4E9C-8CD3-CF6E4FF96FF9%7D/CPR%20S%20RES%201625.pdf>

⁷ <https://www.securitycouncilreport.org/atf/cf/%7B65BF9B-6D27-4E9C-8CD3-CF6E4FF96FF9%7D/res%2063%20281.pdf>

⁸ <https://www.securitycouncilreport.org/atf/cf/%7B65BF9B-6D27-4E9C-8CD3-CF6E4FF96FF9%7D/CC%20SPRST%202011%205.pdf>

by climate change and its far-reaching effects on a global scale. Furthermore, this adoption of the resolution can be seen as a tangible manifestation of the securitization process, whereby climate change is being framed and addressed as a security issue at the international level. Thus, this event marks a significant development in the securitization of climate change discourse within the United Nations framework.

The recognition of climate change as a security concern by the United Nations is indisputable. However, this acknowledgment alone may not fully align with the criteria outlined in GATT's Article XXI(c) for justifying a security exception. This is due to the prevailing understanding within the United Nations Security Council that regards climate change as a "threat multiplier" rather than a direct threat in itself.⁹ Thus, while the United Nations recognizes the security implications of climate change, this stance may not meet the criteria necessary to invoke the security exception under GATT's Article XXI(c). It underscores the need for further analysis and interpretation of how climate change could be categorized within the framework of international security under the United Nations Charter provisions.

IV. THE UNITED NATIONS SECURITY COUNCIL ROLE AND THE “MAINTENANCE OF INTERNATIONAL PEACE AND SECURITY”

The United Nations Security Council is a significant organ of the United Nations with the mandate of maintaining international peace and security, as stipulated in the United Nations Charter. Its composition is provided for in Article 23 of the Charter, which outlines the Council's membership structure comprising 15 members. The membership includes five permanent members, namely China, France, Russia, the United Kingdom, and the United States, each of whom possesses veto power, and ten non-permanent members who serve two-year terms, elected by the General Assembly. The Security Council is empowered with broad authority, which includes the authorization of military action, imposition of sanctions, and establishment of peacekeeping operations.

In order to properly interpret Article XXI(c) of the GATT, it is necessary to direct our attention towards Article 24 of the United Nations Charter. This particular article expounds upon the duties and capabilities of the Security Council, and as such, its provisions warrant close examination in order to comprehend the Council's mission to preserve worldwide peace and stability.

“Article 24

1. In order to ensure prompt and effective action by the United Nations, its Members confer on the Security Council primary responsibility for the maintenance of international peace and security, and agree that in carrying out its duties under this responsibility the Security Council acts on their behalf.

*2. In discharging these duties the Security Council shall act in accordance with the Purposes and Principles of the United Nations. **The specific powers granted to the Security Council for the discharge of these duties are laid down in Chapters VI, VII, VIII, and XII.**”¹⁰*

The provision posits that the United Nations Security Council is entrusted with the essential obligation of upholding global peace and security. The Council is authorized to adopt necessary measures, including the application of force, to ensure the maintenance

⁹ <https://news.un.org/en/story/2019/01/1031322>

¹⁰ <https://www.un.org/en/about-us/un-charter/chapter-5>

or reinstatement of international peace and security. Additionally, the Security Council may institute regional arrangements or organizations to enforce its decisions, thereby bolstering the effectiveness of its mandate. Such powers are prescribed within specific chapters of the UN Charter, which outline the scope and limitations of the Council's authority. Consequently, the Security Council is recognized as the primary international body with the requisite mandate to address threats to international peace and security, and is equipped with the necessary powers to take decisive action when required.

The Security Council is not solely authorized to tackle potential security threats; rather, it is incumbent upon this institution to ascertain the presence of such hazards, as stated in Article 39 of the United Nations Charter. This provision confers upon the Council a broad authority to examine a range of situations that may jeopardize international peace and security. Such powers extend beyond the mere adoption of measures aimed at averting security threats, encompassing the capacity to make determinations regarding the existence of a threat itself. In essence, the Security Council is vested with the prerogative to assess the veracity of threats and undertake actions aimed at maintaining global peace and stability.

“Article 39

***The Security Council shall determine the existence of any threat to the peace, breach of the peace, or act of aggression and shall make recommendations, or decide what measures shall be taken in accordance with Articles 41 and 42, to maintain or restore international peace and security.”**¹¹*

The United Nations Security Council, by virtue of the United Nations Charter, possesses the exclusive authority to ascertain the presence of a peril and is obligated to exercise this responsibility in compliance with the rules and procedures governing its operations. Hence, the Council's resolution must formally designate a circumstance as a danger in order to activate the various implications associated with the Council's determination of such a hazard. This process not only requires a thorough assessment of the potential threat but also necessitates adherence to the procedural guidelines established by the Council. The Council's determination of a threat is a critical decision, as it not only affects the international community's response but also has significant implications for the impacted state and its people. As such, the Council's determination of a threat cannot be done by extended interpretation, must be a direct act under the rules and procedures of the body.

V. THE NON-APPLICABILITY OF GATT'S ARTICLE XXI(c) FOR CLIMATE CHANGE ISSUES

Thus far, it has been established that certain premises hold true: firstly, the objectives and tenets articulated in the United Nations Charter can be perceived as binding commitments pursuant to the treaty; secondly, the international community and the Security Council have expounded upon climate change as a matter of security; and lastly, the determination of what qualifies as a threat under the UN Charter rests exclusively with the United Nations Security Council.

The present analysis concludes that the security exception provided under Article XXI(c) of the GATT cannot be invoked on the basis of climate change. This assertion derives from the fact that the United Nations Security Council has not classified climate

¹¹ <https://www.un.org/en/about-us/un-charter/chapter-7>

change as a threat in itself. While several resolutions have been adopted regarding the issue, none of them identifies climate change as a threat per se. In fact, the Security Council has referred to climate change as a “threat multiplier,” indicating that it can exacerbate other threats, but does not constitute a threat on its own. Despite the growing advocacy for action on this matter, as noted by the securitization process over the aforementioned issue, some countries' inclination to view climate change as a security threat does not satisfy the necessary procedures to trigger an obligation under the United Nations framework.¹² Consequently, the invocation of the security exception under GATT's provisions is not warranted.

In the context of the legal implications of the security exception provided in section (c), a pertinent query arises is whether the United Nations Security Council has ratified a resolution that identifies the matter as a threat. The activation of exceptions to contravene legally binding treaties necessitates a meticulous comprehension of the parameters and restrictions established in the text. It is therefore imperative that we construe “action in pursuance of its obligations under the United Nations Charter for the maintenance of international peace and security” as a course of action aimed at combating a peril duly classified as such by the United Nations Security Council. Such a nuanced reading of the exception clause would safeguard against any potential ambiguity in its interpretation and ensure that the implementation of the exception is consistent with the underlying principles of the United Nations Charter. A potential language used in a United Nations Security Council resolution to determine climate change as a security threat must be clear and concise without the use of enigmatic or diplomatic vocabulary.

CONCLUSION

In conclusion, while climate change is undoubtedly a security issue, it has not been officially recognized as such by the United Nations Security Council. This means that it cannot currently trigger the security exception of Article XXI, section (c) of GATT. However, it is up to society to advocate for a proper measure of the UN Security Council to recognize climate change as a threat to peace and international security.

The designation of climate change as a security threat offers numerous advantages. One primary advantage is the increased attention it garners, particularly given the influential position of the United Nations Security Council (UNSC) in the global community. By affirming the urgency of the climate change issue, the UNSC can prompt prioritization of this challenge among individuals, businesses, and governments worldwide.

A second advantage of such a declaration is the potential for increased funding. The UNSC has the authority to direct resources and funding to address climate change, which could result in additional funds being allocated towards adaptation and mitigation measures in vulnerable countries. Additionally, the declaration could lend support to clean energy initiatives and other climate solutions.

A third advantage is the potential for increased action. Through advocacy and leadership, the UNSC could encourage member states to pursue more ambitious actions to address climate change, such as by setting more stringent emissions reduction targets and offering greater support for clean energy initiatives. Further, the UNSC could hold

¹² https://www.un.org/securitycouncil/sites/www.un.org.securitycouncil/files/24th_suppl_part_vii_advance_version.pdf#page=25

countries accountable for their failure to act, thereby spurring more meaningful steps towards mitigating the impacts of climate change.

Despite these advantages, declaring climate change as a security threat entails risks as well. One such risk involves divisiveness, whereby divergent opinions on the issue may create disunity and impede progress. For example, some countries may view climate change as an economic or environmental issue rather than a security threat.

Another risk is the possibility of political manipulation. Countries may exploit the declaration of climate change as a security threat for political gain, potentially leading to military interventions in other countries. Such actions could exacerbate geopolitical tensions and trigger unintended consequences.

Finally, the legal implications of declaring climate change as a security threat may present a risk. Some experts contend that such a declaration could undermine existing legal frameworks governing climate change, such as the United Nations Framework Convention on Climate Change. Consequently, this may introduce confusion and uncertainty, hindering progress towards addressing climate change.

Global leaders have increasingly recognized that climate change constitutes a significant threat in its own right, rather than merely a force that exacerbates existing threats. As such, it is necessary for these leaders to formalize their commitment to combating climate change in the form of a United Nations Security Council Resolution that carries the same level of obligation as the UN Charter and GATT. The gravity of the potential consequences of failing to act on climate change cannot be overstated. Therefore, it is incumbent upon the international community to take decisive and expeditious action to mitigate its impact. Such action is essential not only in the present moment but also for the well-being of future generations.

PART VII: ESSENTIAL RESOURCES
**CHAPTER 29: A ROADMAP TO KEY CLIMATE CHANGE AND
INTERNATIONAL TRADE RESOURCES**

LORIANE DAMIAN

I. CLIMATE CHANGE

- Bodansky, D., Brunnée, J. & Rajamani, L. (2017). *International Climate Change Law*, Oxford University Press [purchase required], presenting an overview of international climate change law by analyzing climate change instruments, conventions, and the linkages between climate change law and human rights law, migration law, and trade law.
- Brown Weiss, E., Cinammon, C.P., Magraw, D.B., McCaffrey, S.C. & Tai, S. (2023). *International Law for the Environment*, West Academic Publishing, 2nd Edition [purchase required], setting out an explanation of contemporary international environmental law topics, including treaty-based regimes, the interaction of environmental issues with other areas of international law (armed conflict, health, international trade, and financing) as well as the international legal system and the governance institutions of international environmental protection and international dispute settlement.
- Climate Analytics and NewClimate Institute. *Climate Action Tracker*, evaluating and monitoring climate change action under the Paris Agreement, mitigation targets, policies, and actions taken by governments.
- Dzebo, A., Iacobuță, G.I. & Beaussart, R. (2023). *The Paris Agreement and the Sustainable Development Goals: Evolving Connections*, SEI Policy Brief, Environment Institute, Stockholm, presenting data from the Nationally Determined Contributions and the Sustainable Development Goals (SDGs) to establish how climate commitments under the Paris Agreement are being achieved with respect to the SDGs.
- Intergovernmental Panel on Climate Change (IPCC). (2023). *Sixth Assessment Report: AR6 Synthesis Report: Climate Change 2023 - Summary for Policymakers*, providing key findings on the Sixth Assessment Report, including the state of knowledge of climate change and its current status and trends, impacts and risks, long-term adaptation and mitigation options as well as near-term responses.

II. INTERNATIONAL TRADE AND CLIMATE CHANGE

- Bledsoe, P. & Gresser, E. (2023). *Alliance for Clean Trade: A Framework Proposal for a New Climate and Trade Alliance Between the U.S., EU, and Allies*, ppi – progressive policy, arguing that the United States and the European Union, along with other G7 Countries and Member countries of the Organisation for Economic Co-operation and Development (OECD), should form an alliance to establish emissions standards

for carbon-intensive industries and impose a fee on domestic and imported goods with emissions rate that surpass the agreed emission intensity standard.

- Brenton, P. & Chemutai, V. (2021). *The Trade and Climate Change Nexus: The Urgency and Opportunities for Developing Countries*, The World Bank Group, explaining how trade and climate change interact with each other while confronting some of the myths that usually arise between the two, especially in the context of developing countries.
- Deere Birkbeck, C. (2021). *Greening International Trade: Pathways Forward*, Global Governance Centre and the Forum on Trade, Environment & the SDGs (TESS), setting out the current narrative on environment-trade policy and suggesting recommendations to foster more sustainable trade (strong environmental laws, regulations, institutions and enforcement, international environmental agreements, green trade, updating trade rules and policies for climate change, intergovernmental cooperation, and stakeholder initiatives to green trade and supply chains).
- Delimatsis, P. (Editor). (2016). *Research Handbook on Climate Change and Trade Law*, Edward Elgar Publishing, presenting authoritative original contributions to explain the linkage between trade and climate change with respect to World Trade Organization's disciplines, including carbon credits and taxes, sustainable standard-setting, trade in green goods and services, global and regional considerations, investment, among others.
- Esty, D.C. & Biniaz, S. (Editors). *Cool Heads in a Warming World: How Trade Policy Can Help Fight Climate Change Project White Papers*, Yale Center for Environmental Law and Policy, featuring analysis from scholars, practitioners, and policymakers that explore the interactions between the international trade system and the Paris Agreement and how the trade system could be used to support the transition to a low-carbon global economy. Some of the topics addressed in the white papers include: a WTO climate waiver, carbon clubs, reduction of international maritime shipping emissions.
- Hufbauer, G., Charnovitz, S., & Kim, J. (2009). *Global Warming and the World Trading System*, Peterson Institute for International Economics [purchase required], analyzing the economics of greenhouse gas (GHG) emissions and presenting policy recommendations for their reduction.
- Okonjo-Iweala, N. (2023). *The WTO's Contribution to the Challenges of Global Commons*, Journal of International Economic Law, Volume 26, Issue 1, pp. 12–16, explaining the current role of international trade and the World Trade Organization to confront global modern challenges, including climate change.
- Rorke, C. (2022). *The Case for Climate and Trade*, Climate Leadership Council, presenting four areas (environmental, competitiveness, geopolitical, and international) that United States policymakers should consider with respect to trade and climate change.
- United Nations Environment Program & International Institute for Sustainable Development. (2005). *Environment and Trade: A Handbook*, Second Edition, Chapter 3: International Trade Law, explaining key aspects of the linkage between trade and environment: World Trade Organization Agreements and regional trade agreements with provisions related to the environment, processes and production methods,

ecolabeling, intellectual property rights, subsidies, agriculture, investment, services, environmental goods, government procurement, among others.

- World Trade Organization (Tamiotti, L., Teh, R. & Kulaçoğlu, V.) – United Nations Environment Programme Report (Olhoff, A., Simmons, B. & Abaza, H.). (2009). *Trade and Climate Change*, examining the intersection between trade and climate change based on four perspectives: science, trade theory; multilateral efforts to address climate change; and national climate change policies.
- World Trade Organization. (2022). *World Trade Report 2022 – Climate Change and International Trade*, analyzing the link between trade and climate change from a “bad” perspective (trade by itself contributes to a significant amount of greenhouse gases) and a “good” perspective (trade could be used to address climate change).

III. CARBON BORDER ADJUSTMENT MECHANISMS

- Bacchus, J. (2021). *Legal Issues with the European Carbon Border Adjustment Mechanism*, CATO Briefing Paper, Number 125, examining whether the European Union Carbon Adjustment Mechanism (CBAM) is consistent with World Trade Organization (WTO) rules, and addressing, among other questions, how will other WTO members react to it and how would the CBAM impact other trade and climate policies and global governance.
- Dominioni, G. & Esty, D.C. (2023). *Designing Effective Border-Carbon Adjustment Mechanisms: Aligning the Global Trade and Climate Change Regimes*, Arizona Law Review, Issue 65:1, Yale Law & Economics Research Paper Forthcoming, comparing “explicit versus effective” border carbon adjustments with respect to their environmental effectiveness, administrative efficiency, consistency with World Trade Organization rules, and political viability.
- Francis, R., Hoenig, D. & Rooper, H. (2023). *Getting Ahead of the Curve: Primer on Border Carbon Adjustment Policy Proposals*, Climate Leadership Council, explaining the rapid developments on trade and climate policy that have arisen in the last two years, including border carbon adjustment proposals that are being considered or in the process of implementation.
- Hillman, J. (2013). *Changing Climate for Carbon Taxes: Who’s Afraid of the WTO?* Georgetown Law Faculty Publications and other Works, Climate & Energy Policy Paper Series, arguing that carbon taxes could be implemented in the United States without violating World Trade Organization (WTO) rules so long as they are carefully designed to comply with basic WTO requirements not to discriminate.
- Hufbauer, G. (2021). *Why is the EU Seeking a Carbon Border Tax Adjustment and How Would it Work?* Peterson Institute for International Economics, explaining how the European Union (EU) Carbon Adjustment Mechanism would work in practice for both EU firms and foreign firms.
- Porterfield, M.C. (2019). *Border Adjustments for Carbon Taxes, PPMs, and the WTO*, University of Pennsylvania Legal Scholarship Repository, Vol.41:1, analyzing whether governments can border adjust imported products based on their process or production methods that do not affect the physical properties of a product.

- Quick, R. & Das, I. (2023). *Guest Post: The EU's CBAM-Regulation Stands in Contrast to Fundamental EU-Obligations Under the Paris Agreement*, International Economic Law and Policy Blog, arguing that by not incorporating differentiation and by imposing a uniform European carbon price, the European Union (EU) Carbon Adjustment Mechanism could be inconsistent with some provisions of the Paris Agreement.
- The African Climate Foundation. (2023). *Navigating New Turbulences at the Nexus of Trade and Climate Change*, explaining the impacts of the European Union's Carbon border Adjustment Mechanism and the United States' Inflation Reduction Act (IRA) in developing countries, particularly Africa.
- The World Bank. (2023). *Relative CBAM Exposure Index*, identifying countries who would be highly exposed to the European Union (EU) Carbon Adjustment Mechanism (CBAM), based on the carbon emissions intensity and exports of products subject to the CBAM to the EU.
- Young, M. (2022). *Improving Border Adjustment Mechanisms*, Institute for International Trade, The University of Adelaide, suggesting a set of principles (global recognition, equivalent contribution, process-determined benchmark, inclusion of all close substitutes in the mechanism, limiting access to a general fiscal exemption to a single party, cascading accounting) and fiscal considerations to guide the adoption of carbon border adjustment mechanisms.

IV. CARBON PRICING V. CARBON REGULATION

- Bailey, D. (2023). *Unlocking Net Zero Emissions: Accelerating Innovation and Deployment Through Carbon Pricing*, Climate Leadership Council, proposing the implementation of a carbon price as a financial incentive to deploy low- and zero-carbon technologies.
- Bradley, R., Staley, B.C., Werksman, J., Heilmayr, R., & Houser, T. (2008). *Leveling the Carbon Playing Field*, World Resource Institute, analyzing the economics and trade flows of key carbon-intensity industries, and presenting policy options such as those that impose carbon fees on foreign goods at the border.
- Climate Leadership Council and ERM. (2023). *Counting Carbon: Voluntary and Mandatory Emissions Reporting Programs*, exploring existing voluntary and mandatory emissions reporting programs to determine whether they serve as a guideline for carbon accounting emissions at the product level.
- Hafstead, M. (2019). *Carbon Pricing 101*, Resources for the Future, presenting introductory notions of carbon pricing, carbon taxes, and cap-and-trade programs, the benefits and design of pricing policies, and their worldwide applications.
- Hillman, J. (2020). *To Address Climate Change While Protecting Workers, the United States Needs a Border-Adjustment Carbon Tax*, Council on Foreign Relations, stating that the adoption of a carbon tax with border adjustments will tackle two objectives: confront climate change and preserve the competitive advantage of the United States.
- Reid, M. (2022). *Measuring Carbon Across Borders*, Silverado Policy Accelerator, arguing in favor of the implementation of a “new carbon accounting paradigm” that would apply specifically to trade in goods.

- Stowe, L. (2022). *Governments Must Lead on Trade-Tailored GHG Accounting to Address “Carbon Leakage,”* Silverado Policy Accelerator, recommending four different ways (aggregated entity/facility-specific emissions, GHG accounting scheme for traded goods, mandatory reporting, and transparency) that could be used by governments to design a system to measure embedded emissions of traded goods.
- The World Bank Group & the International Carbon Action Partnership. (2017). *World Bank’s Carbon Pricing Dashboard*, providing an interactive online platform with worldwide information on both existing and arising carbon pricing initiatives.

V. SUBSIDIES

Fisheries Subsidies

- Irschlinger, T. & Tipping, A. (2023). *The WTO Agreement on Fisheries Subsidies: A Reader’s Guide*, International Institute for Sustainable Development, laying out an overview of the recently concluded World Trade Organization Agreement on Fisheries Subsidies, including key rules, legal provisions, and disciplines incorporated in such agreement and those provisions that were left out because of lack of agreement.

Fossil Fuel Subsidies

- Environmental and Energy Study Institute. (2019). *Fossil Fuel Subsidies: A Closer Look at Tax Breaks and Societal Costs*, presenting some of the costs and externalities associated with the use of fossil fuel subsidies.

Tax Credits

- Nakano, J. (2022). *IRA and the EV Tax Credits – Can We Kill Multiple Birds with One Stone?* Center for Strategic and International Studies, exploring the effects of the Inflation Reduction Act and its electric vehicle tax credit provisions on the decarbonization of the transportation sector in the United States.
- PwC, *Green Taxes and Incentives Tracker*, providing insights on the green taxes and incentives implemented in different countries.
- Reinsch, W.A. (2022). *A Tale of Two Policies: Electric Vehicle Tax Credits*, Center for Strategic and International Studies, analyzing whether electric vehicles tax credits are consistent with World Trade Organization rules and the response of companies to such tax credits.

Green Subsidies

- Behboodi, R. & Hyner, C. (2019). *Countervailing Climate Change: Emissions Trading and the SCM Agreement*, Georgetown Journal of International Law, Vol. 50, examining whether the unregulated consumption of a natural resource by a particular sector not included in an existing emissions trading system could be categorized as a countervailable subsidy, and if so, whether the Agreement on Subsidies and Countervailing Measures (SCM Agreement) could apply.
- Charnovitz, S. (2014). *Green Subsidies and the WTO*, Robert Schuman Centre for Advanced Studies Research Paper No. RSCAS 2014/93, explaining how

environmental subsidies, especially renewable energy subsidies, are regulated under WTO rules, and presenting recommendations to refine World Trade Organization rules in that regard.

- Clausing, K. & Wolfram, C. (2023). *Carbon Border Adjustments, Climate Clubs, and Subsidy Races When Climate Policies Vary*, Working Papers 23-3, Peterson Institute for International Economics, analyzing whether carbon border adjustments and climate clubs could respond to two “policy spillovers” (free riders and competitive disadvantage), and presenting the “policy dynamics” (benefits and risks) of using these climate measures.
- Conley, T. & Botwright, K. (2023). *What Do Green Subsidies Mean for the Future of Climate and Trade?* World Economic Forum, explaining the “subsidy race” between the United States and the European Union and its impact on developing economies.

VI. USE OF PRODUCT STANDARDS V. TECHNICAL BARRIERS TO TRADE

- Condon, B.J. & Sinha, T. (2013). *The Role of Climate Change in Global Economic Governance, Chapter 3.6: Technical Barriers to Trade*, Oxford Academic [purchased required], analyzing a variety of unresolved issues under the WTO Agreement on Technical Barriers to Trade (TBT Agreement), including the interpretation and application of its Article 2.
- Potts, J. (2008). *The Legality of PPMs Under the GATT: Challenges and Opportunities for Sustainable Trade Policy*, International Institute for Sustainable Development, laying out an overview of General Agreement on Tariffs and Trade (GATT) case law in the context of processes or production methods (PPMs) issues, and providing recommendations to improve the effective use of PPMs to advance sustainable development.
- Taufique, K.M.R., Nielsen, K.S., Dietz, T., Shwom, R., Stern, P.C. & Vandenberg, M.P. (2022). *Revisiting the Promise of Carbon Labelling*, Nature Climate Change [subscription required], presenting available knowledge, research questions, challenges for carbon labeling systems (standard setting, data collection and use, and labels), and potential next steps for their implementation.
- United Nations Conference on Trade and Development. (2022). *Making Trade Work for Climate Change Mitigation: The Case of Technical Regulations*, laying out an overview of non-tariff measures (technical regulations, labelling schemes, and conformity assessment procedures) for climate change and its applicable framework, and analyzing the effectiveness and equity of climate-related technical regulations.

VII. SHIPPING, TRANSPORT AND THE OPENING ARCTIC AND THE EUROPEAN UNION APPLICATION OF ITS EMISSION TRADING SYSTEM TO AVIATION

- Arvin, J. (2021). *The Latest Consequence of Climate Change: The Arctic is Now Open for Business Year-Round*, Vox, elaborating on the current situation of the Arctic, which is now going to be used as a business year-round commercial route.
- Court of Justice of the European Union. (2011). *The Directive Including Aviation Activities in the EU's Emissions Trading Scheme is Valid*, Press Release No. 139/11, press release

with a summary of the Judgement in Case C-366/10 – Air Transport Association of America and Others v. Secretary of State for Energy and Climate Change.

- European Commission, *Reducing Emissions from Aviation*, presenting a summary of the actions taken by the European Union to reduce aviation emissions in Europe.
- Horn, H. (2013). *The ECJ Judgment on the Extensions of the ETS to Aviation: An Economist's Discontent*, Research of Industrial Economics, IFN Working Paper No. 980, addressing the European Court of Justice and the Advocate General decision on the extensions of the European Union Emission Trading System on aviation from an economic perspective.
- Irigoyen, I. & Goelz, T (2021). *Shipping Industry's Customers Need International Maritime Organization to Adopt 2050 Decarbonization Goal*, Aspen Institute, arguing in favor of an alignment of the international shipping sector with the Paris Agreement to achieve the full decarbonization of this industry by 2050.
- Irigoyen, I., Goelz, T., Williams, C. & Rodriguez, D. (2021). *Companies Aim to Use Only Zero-Carbon Ocean Shipping by 2040*, Aspen Institute, explaining the maritime carbon footprint and presenting some of the options to start decarbonizing ocean transportation.
- *Judgment of the Court (Grand Chamber) Reference for a preliminary ruling – Directive 2003/87/EC* (2011), “Reference for a preliminary ruling – Directive 2003/87/EC – Scheme for greenhouse gas emission allowance trading – Directive 2008/101/EC – Inclusion of aviation activities in that scheme – Validity – Chicago Convention – Kyoto Protocol – EU-United States Air Transport Agreement – Principles of customary international law – Legal effects thereof – Whether they may be relied upon – Extraterritoriality of European Union law – Meaning of ‘charges,’ ‘fees’ and ‘taxes.’”
- Martella, R., Francke, G., & van der Meulen, N. (2012). *Lessons Learned. The EU and its Aviation Directive*, American Bar Association, explaining the impacts and challenges of the European Union Aviation Directive, which subjects aircraft landing and departing from European territory to the European Union Emissions Trading System.

VIII. INTELLECTUAL PROPERTY RIGHTS AND TECHNOLOGY TRANSFER RULES

- Cosby, A. (Editor). (2008). *Trade and Climate Change: Issues in Perspective, Chapter Four: Climate Change, Technology Transfer and Intellectual Property Rights*, International Institute for Sustainable Development, presenting chapters on the role and impact of intellectual property rights: how to support the transfer of climate technology using the WTO Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS); and the stage of intellectual property and the transfer of technology in the post-2012 climate regime.
- Global Environment Facility. (2009). *Technology Transfer for Climate Change*, exploring the role of technology transfer, including the transfer of environmentally sound technologies (ESTs), to address global climate change.
- Humphreys, S. (2009). *Perspective: Technology Transfer and Human Rights: Joining Up the Dots*, Sustainable Development Law & Policy Clean Technology and International

Trade: Volume 9, Issue 3, focusing on the role of technology transfer to implement climate adaptation measures and address the human rights consequences posed by climate change.

- Irfan, U. (2022). *This is What We Need to Invent to Fight Climate Change*, Vox, presenting options where governments and companies could invest to support clean energy technologies and confront climate change.
- Littleton, M. & UN Department of Economic and Social Affairs. (2008). *The TRIPS Agreement and Transfer of Climate-Change-Related Technologies to Developing Countries*, United Nations Digital Library, exploring how the WTO Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) could serve to promote the transfer of climate change-related technologies in developing countries.
- Yang, Z. *An Analysis of Technology Transfers as a Response to Climate Change*, Copenhagen Consensus Center, presenting a tentative quantification of benefit and cost ratio (B/C ratio) of technology transfer in the context of climate change policies, especially for mitigation and adaptation measures.

IX. CLIMATE LITIGATION

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- Patrick, S.M. (2022). *Reflecting Sunlight to Reduce Climate Risk*, Council on Foreign Relations, analyzing whether the world would be worse or better if sunlight reflection is used to address the impacts of climate change.

- Quinby, E.F. (2021). *Regulating Geoengineering: Applications of GMO Trade and Ocean Dumping Regulation*, 51 *Vanderbilt Journal of Transnational Law* 211, exploring solar radiation management and the challenges it poses to regulators, and analyzing international GMO trade and ocean dumping regulations to contribute to design future multinational geoengineering regulation.
- Wang, K., Costanza-van den Belt, M., Heath, G., Walzberg, J., Curtis, J., Barrie, J., Schröder, P., Lazer, L. & Altamirano, J.C. (2022). *Circular Economy as a Climate Strategy: Current Knowledge and Calls-to-Action*, Working Paper, World Resource Institute, identifying and summarizing current consensus, debates, and critical knowledge gaps of the circular economy in climate change management, and proposes recommendations to adopt such knowledge into practice.
- Yamaguchi, S. (2022). *Securing Reverse Supply Chains for a Resource Efficient and Circular Economy*, Organisation for Economic Co-operation and Development, presenting both the opportunities and challenges (trade facilitation mechanisms and standards) for cross-border reverse supply chains and resource efficiency, and providing policy responses with respect to cross-border reverse supply chains.



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Georgetown Law’s Center on Inclusive Trade and Development (CITD) was established to bring together scholars, students, practitioners, NGOs, business and labor leaders, and international organizations to find solutions to the challenges facing the international trading system and develop global approaches to making trade rules more inclusive and sustainable. Today, the rules-based international trading system faces its most significant turning point in decades.

Around the world, multilateral alliances are breaking apart, sustainable development concerns are gaining attention, the core mission of the World Trade Organization (WTO) of policing discrimination is out-of-date, and the forces that pushed the world toward globalization over the past 40 years are shifting. The COVID-19 pandemic has forced a reexamination of supply chains, while the need for the trading system to affirmatively contribute to the fight against climate change and the growth in income inequality has become truly urgent. Many countries and communities are also pressing for approaches that address historical biases and inequities and take into account a diverse range of state and individual needs. As the multilateral system comes under strain, new models for international trade law are emerging, particularly in the form of regional trade agreements (RTAs), shaping law in areas where the WTO has not been able to gain ground, such as sustainability, digital regulation, gender equity, and more sustainable investment regimes.

Understanding how we get from where we are today to a future rules-based trading system that addresses the implications of trade rules for development, for the environment, for global health, and for labor rights is the core of the CITD. The work has both a top-down approach that examines the WTO and how it can be reformed and revitalized to meet these challenges and a bottom-up assessment of what women, workers, farmers, and small- and medium-sized enterprises (MSMEs) need from a trading system to ensure their full and fair participation in the global trading system. CITD serves as the hub and coordinator for research, writing, teaching, events, and clinical work on key aspects of inclusive trade and development, focused around five key pillars:

- 1) Development – The link between economic and social development and international economic law is becoming stronger in both academic literature and practice. However,

vulnerable communities, minorities, women, and MSMEs continue to face greater challenges in the global economy, and existing trade rules are yet to fully address these gaps. CITD focuses on these intersecting dimensions of law, trade, and development, generating scholarship and thought leadership that more closely link trade and development through engagement with both international institutions and with MSMEs and communities on the ground.

2) Environment and Climate Change – CITD’s work under this pillar focuses on how to make the link between trade and the environment real and practical, including crafting specific tools that would allow trade officials to see trade rules through the prism of their impact on the environment and sustainable development. CITD is also working in partnership to conduct research at the intersections between trade and climate change and environmental sustainability and development, with the goal of enabling the trading system to make an affirmative contribution to fighting climate change.

3) Gender – CITD contributes to the growing body of literature focused on the impact of trade on women’s empowerment and gender related issues. This includes research on everything from trade’s potential to exacerbate income inequality or racial or gender disparities, to the implications for the workforce of the future, to the effectiveness of including gender and labor provisions within the text of trade agreements, to how to assess impact and help those affected by trade adapt to the changes brought about by trade and globalization, to specific proposals for how trade rules or trade policies could be designed.

4) WTO Institutional Reform and Governance – The WTO, and with it the rules-based trading system, is in deep trouble. Its dispute settlement system has been crippled by blockages to appointments to its Appellate Body. With few notable exceptions in areas like trade facilitation and fisheries subsidies, the WTO rule book has remained largely stuck in the 1990s. CITD is working toward an ambitious but realistic road map to reform the WTO as an institution and to modernize its basic rules, working to ensure that the WTO can remain at the core of a rules-based trading system addressing 21st century trade concerns.

5) Regionalism – Among the many paradigm shifts occurring in the trade arena is the shift away from globalization to a greater emphasis on regionalism, both in patterns of trade and in trade agreements. CITD focuses its research on the drivers and the implications of this shift and on what can be done to ensure that regional arrangements serve to support, or at least to operate in parallel to the multilateral trading system, and drive positive change as new issues are incorporated. This pillar also focuses on particular regional models to address sustainable development through trade.

Governance

Co-Directors: Georgetown Law professors Jennifer Hillman and Katrin Kuhlmann serve as co-directors of the CITD. Jennifer Hillman currently teaches and writes about international trade law, WTO reform, the rise of China, and climate change and brings decades of experience in the trade arena from her service on the WTO’s Appellate Body, the U.S. International Trade Commission, and as a lawyer and negotiator at USTR. Katrin Kuhlmann teaches and writes about trade and development, gender, and regional trade issues, with a focus on Africa, and has spent decades working on trade and development as a negotiator at USTR and leader at NGOs and think tanks, combining expertise at both the policy level and through grass-roots applications of trade law in developing economies.

USING TRADE TOOLS TO FIGHT CLIMATE CHANGE

"The climate crisis is one of the defining issues of our time, and one for which trade and trade policies ought to be part of the solution. *Using Trade Tools to Fight Climate Change* could not come at a better time, all the more so as it brings some young and fresh perspectives to examine different ways in which trade can be a force for good and a key driver to achieving the low-carbon economy, climate resilience, and just transition that our world so urgently needs."

Dr. Ngozi Okonjo-Iweala, WTO Director-General

"As the global community comes to grips with the challenge of achieving net-zero greenhouse gas emissions by 2050, policymakers are urgently looking for new pathways to deep decarbonization, including ways that international trade policy could help drive progress — and *Using Trade Tools to Fight Climate Change* offers a sweeping menu of options to consider. A must-read for all those thinking about how to ramp up the global response to climate change!"

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ABOUT THE EDITORS



Jennifer Hillman is the co-director of Georgetown Law's Center on Inclusive Trade and Development and a professor from practice. She brings to the classroom her experience serving as a member of the WTO Appellate Body, as a Commissioner at the U.S. International Trade Commission, as General Counsel and also Ambassador and Chief Textiles Negotiator at the Office of the United States Trade Representative (USTR), and as the Legislative Director for U.S. Senator Terry Sanford (NC).



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