

ARTICLES

The Resilience of the Paris Agreement: Negotiating and Implementing the Climate Regime

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ABSTRACT

The Paris Agreement is undoubtedly one of the greatest diplomatic achievements of the Obama-Kerry Administration. However, it is at risk of being dismantled by the Trump Administration, as has been the fate of other international agreements, such as the Trans-Pacific Partnership. This Article argues that the Paris Agreement's success does not depend solely on it being negotiated and adopted, but also depends on its actual and effective implementation. By analyzing both the negotiation and implementation phases of the Paris Agreement, this Article will show that the Paris Agreement was designed to be resilient, and that dismantling it would not only be a difficult task, but would also be a disfavored course of action by the plurality of actors involved in the process.

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INTRODUCTION

This Article analyzes the resilience of the Paris Agreement in light of the United States' decision to withdraw from it.

Evaluating the impact of a political event on the course of history is often a hard task. Political, legal, and economic consequences will follow from the

United States' decision to withdraw from the Paris Agreement, with an outstanding impact on the global community's ability to achieve environmental sustainability. Although it is not yet possible to determine the exact ramifications of the U.S.'s decision at this moment, it is possible to examine the negotiation and implementation phases of the Paris Agreement, which sheds light on its resilience.

By hosting the 21st Session of the Conference of the Parties ("COP 21") in 2015, Paris served as the stage for the global revolution on climate change. When the COP 21 adopted the Paris Agreement in December that same year, the world celebrated.¹ On April 22, 2016, at a ceremony convened by UN-Secretary General Ban Ki-moon in New York, 174 states and the European Union ("EU") signed the Paris Agreement. As of December 2018, 197 countries have signed the Paris Agreement.² Until 2020, when it becomes effective by replacing the Kyoto Protocol, the Paris Agreement remains in a transitional period.³

The Paris Agreement is the first universal agreement on climate change that is legally binding.⁴ The legal framework adopted during COP 21 negotiations was the result of a compromise between soft and hard law. The Paris Agreement relies on both binding and non-binding instruments of international law, mainstreaming an emerging hybridism in treaty-making processes.⁵ Even if the deal lacks enforcement mechanisms, it still has a model based on mandatory transparency about countries' emissions. Such a legal technique sought to overcome formalism to secure universal standards whilst encouraging the process of commitment to climate change. For these reasons, the Paris Agreement represents a major diplomatic success and provides a real opportunity to create a shift in the energy sector worldwide.

However, the U.S.'s current position on climate change poses risks to the Paris Agreement's future and the degree of its success. On June 1, 2017, U.S. President Donald Trump fulfilled his campaign promise to leave the deal by announcing: "we are getting out." The Trump Administration claimed the Paris Agreement is "less about the climate and more about other countries gaining a financial

1. U.N. Framework Convention on Climate Change, *Adoption of the Paris Agreement*, U.N. Doc. FCC/CP/2015/L.9/Rev.1 (Dec. 12, 2015).

2. *Paris Agreement - Status of Ratification*, UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE, http://unfccc.int/paris_agreement/items/9444.php (last visited Dec. 1, 2018).

3. See Sophie Power, *Paris Climate Agreement: A Quick Guide*, PARLIAMENT OF AUSTRALIA RESEARCH PUBL'NS (Nov. 10, 2017), https://www.aph.gov.au/About_Parliament/Parliamentary_Departments/Parliamentary_Library/pubs/rp/rp1718/Quick_Guides/ParisAgreement.

4. The Paris Agreement has been referred to as the first-ever universal, legally binding global climate deal. See *Paris Agreement*, EUROPEAN COMM'N, <https://perma.cc/2Q5D-KYUQ> (last visited Dec. 1, 2018).

5. See David M. Trubek, M. Patrick Cottrell & Mark Nance, *Soft Law, Hard Law and European Integration: Toward a Theory of Hybridity*, U. OF WISC. L. SCH. LEGAL STUD. RES. PAPER SERIES 10002, 2-3 (2005) (studying the increasing attention to the combination of the use of hard law and soft law in the European Union context); see also KERSTIN JACOBSSON, *Between Deliberation and Discipline: Soft Governance in EU Employment Policy*, in *SOFT LAW AND GOVERNANCE AND REGULATION: AN INTERDISCIPLINARY ANALYSIS*, (Ulrika Mörth ed., Cheltenham, Edward Elgar, 2004).

advantage over the United States” and poses “draconian” financial burdens on the American people.⁶ This announcement shakes the stability of the Paris Agreement, and international efforts to curb global warming consequently seem threatened.

Whether the Paris Agreement will successfully lead to the mitigation of climate change and its effects, despite the U.S.’s withdrawal, is a question that deserves serious consideration. The success of the Paris Agreement does not depend simply on its adoption, but also on its actual implementation and effectiveness. Therefore, this Article evaluates the resilience of the Paris Agreement by studying both the negotiations that led to its creation and the implementation mechanisms embedded in it. As the analyses of the negotiation and implementation phases will show, dismantling the Paris Agreement is a difficult task to accomplish, and the other parties involved would disfavor such a course of action.

The structure of the Paris Agreement took years to develop and is the product of trial and error from the COP, within the United Nations Framework Convention on Climate Change. The Paris Agreement’s foundation consists of three pillars: diplomatic, legal, and economic.

The diplomatic pillar is the evolution of climate diplomacy, from a top-down to a bottom-up approach, which enabled the first global, legally binding climate deal to be achieved. The legal pillar consists of new legal strategies embedded in the Paris Agreement, including a combination of hard and soft law and compliance mechanisms. The economic pillar reflects the economic dynamics surrounding the Paris Agreement, including non-state actors’ influences such as corporate strategies and consumer preferences. As a result of the alignment of the three pillars, dismantling the deal will be hard to achieve. Indeed, the success of the deal lies in the achievement of an inherent synergy of such pillars in climate action. In other words, dismantling the Paris Agreement will be hard and disfavored by diplomats, international lawyers, and business persons, who serve as the guardians of each pillar respectively.

The Paris Agreement consists of a global action plan, with the long-term general goal of avoiding dangerous climate change. There are five primary objectives of the Paris Agreement.⁷ The first is to mitigate climate change, which includes the subsidiary goals of limiting the global average temperature to well below 2 degrees Celsius and halting the increase to 1.5 degrees Celsius.⁸ Second is increased transparency and global stock-take, providing a system of

6. See Kevin Liptak & Jim Acosta, *Trump on Paris Accord: ‘We’re Getting Out’*, CNN (June 2, 2017), <https://perma.cc/CX93-J226>.

7. See Elizabeth Burleson, *Paris Agreement and Consensus to Address Climate Challenge*, 20 AM. SOC’Y INT’L L. INSIGHTS (Mar. 29, 2016).

8. Article 2.1.a sets the goal of “holding the increase in the global average temperature to well below 2 degrees Celsius above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5 degree Celsius above pre-industrial levels, recognising that this would significantly reduce the risks and impacts of climate change.” *Adoption of the Paris Agreement*, *supra* note 1, at 21.

accountability. Third, an adaptation system to facilitate dealing with climate impacts. Fourth, a loss and damage system, to facilitate the recovery from climate impacts. Fifth, a support mechanism, easing the path towards a clean and resilient future.⁹

To enter into force, the Agreement needs to be joined by a minimum of 55 parties that together represent at least 55 percent of the total global greenhouse emissions.¹⁰ With the EU agreeing to the ratification on October 5, 2016, 75 countries have joined the deal.¹¹ Therefore, the established threshold having been achieved, the Agreement entered into force 30 days later, on November 4, 2016.¹² Today, as 184 parties have ratified its text,¹³ the Paris Agreement is the first legally binding global deal on climate change and thus is a major diplomatic, legal, and economic success.

The constantly evolving prerogatives of domestic interests in international relations have brought along new questions to be answered and new challenges to be solved. In this light, the decision taken by the U.S. government forces the international community to find new *ad hoc* tools and strategies to assess the resilience of international treaties. With regard to the Paris Agreement, the present article takes into account a transversal holistic approach—one which embraces a plurality of cross-cutting disciplines—that is not only grounded on purely legal arguments but also embraces the intersections of law and diplomacy, and law and economics.

Part I of this Article explores the evolution of the three pillars of climate negotiations within the UN Framework Convention on Climate Change (“UNFCCC”) context, from Rio to Kyoto, to Copenhagen, to Paris. This framework highlights the innovative strategies embedded in the Paris Agreement, which aim to foster the alignment of the three pillars. Aligning the three pillars promotes universal standards for mitigating climate change and creates a juridical framework

9. See Burleson, *supra* note 7.

10. In the multilateral treaty context, some treaties require the satisfaction of *ad hoc* conditions for their entry into force. These conditions are usually related to Parties’ deposit of their instrument of ratification, acceptance, approval or accession, as in the case of the Paris Agreement. See Article 21.1 of the Paris Agreement, which states: “[t]his Agreement shall enter into force on the thirtieth day after the date on which at least 55 Parties to the Convention accounting in total for at least an estimated 55 per cent of the total global greenhouse gas emissions have deposited their instruments of ratification, acceptance, approval or accession.” *Adoption of the Paris Agreement*, *supra* note 1, at 31.

11. The European Union reaffirmed since the negotiation phase its commitment to achieve a full and immediate implementation of the Paris Agreement. Not only did it aim at including climate finance goals, but also a transition to clean energy and enhanced cooperation with international partners. See *Paris Agreement on Climate Change Timeline*, EUR. COUNCIL & COUNCIL OF THE EUR. UNION, <http://www.consilium.europa.eu/en/policies/climate-change/timeline/> (last visited Oct. 12, 2018).

12. The first session of the Conference of the Parties, serving as the Meeting of the Parties to the Paris Agreement (“CMA1”), took place in Marrakech in November 2016 during the COP 22. *Paris Agreement - Status of Ratification*, *supra* note 2.

13. As of November 2018, 184 of 197 Parties to the UN Framework Convention on Climate Change have ratified the Paris Agreement. *Id.*

capable of facilitating political negotiation and fostering implementation through the business sector. The fulfillment of the three-pillar architecture will determine the stability of the deal and its resilience at the international level against uprising and diverging nationalist interests.

Part II of this Article focuses on the implementation strategies and mechanisms embedded in the Paris Agreement that are critical to its success as an effective climate regime. Two arguments are set forth in Part II. First, the proposition that trade systems have tremendous potential to contribute to decarbonization and, relatedly, that trade agreements have significant potential to help mitigate climate change, is under-explored. Second, individuals are key to achieving environmental sustainability due to the role they play in international trade, climate change mitigation, and sustainable energy—all of which are crucial to reach sustainability.¹⁴

The remainder of this Article therefore proceeds as follows: Part I traces the picture of climate negotiations. Section I.A. defines the diplomatic pillar, outlining the evolution of climate negotiations, from a top-down approach, stuck in political hardship, to a bottom-up approach. Section I.B. sheds light on the innovative legal instruments embedded in the Paris Agreement, combining binding and non-binding sources of law to promote compliance. Section I.C. analyzes the political-economy pillar, through a market-based approach to climate change, and the role of non-state actors, through the lens of multinational corporations. Part II explores a traditional methodology to the governance of sustainable development. It does so in section II.A. by identifying obstacles and opportunities for trade and climate regimes. Section II.B. analyzes the potential of the international trading system (especially plurilateral and regional trade agreements) in helping to mitigate climate change and to enhance sustainable energy. Section II.C. then examines a novel approach to sustainable development by focusing on the potential role of citizens in international trade, climate change mitigation, and sustainable energy. The conclusion will demonstrate how the new strategies explored in climate negotiations at the COP 21 will secure the resilience of the Paris Climate Agreement during its implementation phase.

I. NEGOTIATION OF THE CLIMATE REGIME: THE THREE PILLARS OF CLIMATE CHANGE NEGOTIATIONS

Taking into account the ever-growing global energy needs and the environmental consequences associated with such needs, the international community

14. See generally Rafael Leal-Arcas, *Sustainability, Common Concern and Public Goods*, 49 GEO. WASH. INT'L L. REV. 801 (2017); Paul Ekins et al., *A Framework for the Practical Application of the Concepts of Critical Natural Capital and Strong Sustainability*, 44 ECOLOGICAL ECON. 165 (2003); Nick Hanley, *Macroeconomic Measures of 'Sustainability'*, 14 J. ECON. SURV. 1 (2000); David W. Pearce & Giles D. Atkinson, *Capital Theory and the Measurement of Sustainable Development: An Indicator of 'Weak' Sustainability*, 8 ECOLOGICAL ECON. 103 (1993).

advocated for a universal commitment on climate change. If the Paris Agreement serves as the answer to this call, reflecting on the negotiations in which it was developed can provide critical insight on the factors that contributed to its widespread support and adoption.

Over the last three decades, environmental protection has become a higher priority in international public policy. This is the ineluctable consequence of a production system driven by highly material and energy-intensive strategies, which has triggered environmental threats and degradation.¹⁵ In turn, this has negatively influenced human health and economic wellbeing. If countries worldwide do not undertake global action to limit the increasing average global temperature, the latter is predicted to exceed pre-industrial levels¹⁶ by five degrees Celsius.

Climate change is indisputably the main environmental issue of the twenty first century, which compels the international community to undertake a decisive step towards mitigation. Beginning in 1994 with the United Nations Framework Conventions on Climate Change (“UNFCCC”), the international community has engaged in multilateral management of climate change, which recently led to the Paris Agreement.

The study of climate change has varied over time and has continually triggered new questions in three different fields: diplomacy, international law, and economics. Climate change negotiations have consistently considered these questions and incorporated analyses grounded in each of these disciplines to help address them. Accordingly, diplomacy, international law, and economics have become the three main pillars of climate change negotiations and regimes.

To develop an integrated theory in international law, it is important to study the interconnections between law and diplomacy, along with law and economics, examining the way they have been shaping international agreements.¹⁷ With

15. See JENNI KAUPPILA, *Transnational Advocacy Networks in International Climate Policy: The Challenge of Raising the Voices of the Marginalised Effectively Without Compromising their Legitimacy*, in INTERNATIONAL CLIMATE CHANGE LAW AND POLICY: CULTURAL LEGITIMACY IN ADAPTION AND MITIGATION at 138 (Thoko Kaime ed., 2014) (describing climate change as the “most serious and best known global environmental problem,” which has been addressed at the international political level by the UNFCCC through the Kyoto Protocol, a milestone for global commitment).

16. With regard to pre-industrial levels, there is not a precise line defined by the UN agreements or by the Intergovernmental Panel on Climate Change (“IPCC”). See Ed Hawkins et al., *Estimating Changes in Global Temperature Since the Pre-Industrial Period*, BULL. AM. METEOROLOGICAL SOC’Y 1841, 1848 (2017) (“Pre-industrial” should refer to the time before 1720-1800, as this was the period in which Industrial Revolution sparked in England and the use of fossil fuels began at scale in industrial production); but see *Global Climate in Context as the World Approaches 1°C Above Pre-industrial for the First Time*, MET OFF., <https://perma.cc/SL2C-AVET> (last updated Jan. 25, 2016) (pre-industrial refers to global temperatures between 1850–1900, as before to that period there was not a reliable indicator of global temperatures, and it also corresponds to the period chosen by IPCC to represent a suitable earlier reference period).

17. See MARTIN SHAPIRO, *Law and Politics: The Problem of Boundaries*, in THE OXFORD HANDBOOK OF LAW AND POLITICS 767 (Keith E. Whittington et al. eds., 2008) (analyzing the so-called “law and . . .” movements that have arisen in recent years); Phillip Allott, *Language, Method and the Nature of International Law*, 45 BRITISH YEARBOOK OF INT’L L. 79, 123–125 (1971) (analyzing combinations

increasing diversity in each sector, negotiations of climate deals have come to rely on approaches from various disciplines to respond to the problem. Even though topics and strategies from the different fields could be treated at “separate tables,” climate change negotiations have taken an increasingly cross-cutting approach, and this comprehensive perspective is reflected in the structure of the Paris Agreement.¹⁸

The tripartite structure proposed in this Article mirrors the three main fields that lie at the heart of climate negotiations—the diplomatic, the legal, and the economic field. Learning from earlier failures, the negotiating parties were able to achieve an alignment of the three pillars at COP 21, which resulted in the first global legally binding deal on climate change.

A. THE DIPLOMATIC PILLAR

The tension between international and domestic needs is a common hardship in international negotiations, especially in climate change negotiations. If every international negotiation is characterized by dualistic needs between international and domestic prerogatives, then generating consensus at the international level cannot be achieved without losing consensus at home. This consideration comes into play in climate change negotiations because of the substantial and technical complexity of the subject at hand. Diplomacy strives to bridge the gap between the two different sets of needs and priorities that are present at the multilateral table.

As a result of COP 21, 195 nation states are parties to the Paris Agreement,¹⁹ seizing the opportunity to avoid catastrophic consequences on a global scale. Tracing new boundaries in climate change, the international community aims to find concrete solutions to the outstanding problem of climate change.

Nonetheless, negotiating a global solution to an international problem is often an endemic challenge, especially when it relates to climate change.²⁰ Because

between legal and extra-legal settings, despite endemic contradictions; *see also* Stepan Wood, et al., *International Law and International Relations Theory: A New Generation of Interdisciplinary Scholarship*, 92 AM. J. INT’L L. 367, 369 (1998) (identifying the main points of interconnections between international legal theory and international relations theory); Anne-Marie Slaughter Burley, *International Law and International Relations Theory: A Dual Agenda*, in 87 AM. J. INT’L L. 205, 213 (1993) (seeking to re-conceptualize negotiations between international law and political framework for international agreements) a way to e international legal system international law and politics).

18. *See generally* GABRIEL A. ALMOND, *A DISCIPLINE DIVIDED: SCHOOLS AND SECTS IN POLITICAL SCIENCE* (1990) (on specialists of law and politics sitting at “different tables”); KEITH E. WHITTINGTON ET AL., *Overview of Law and Politics: The Study of Law and Politics*, in *THE OXFORD HANDBOOK OF POLITICAL SCIENCE* 241 (Robert E. Godin ed., 2011) (on the scholarly communities’ engagement on different approaches in law and politics in various disciplines).

19. 181 of the 197 Parties have ratified the Convention. *Paris Agreement – Status of Ratification*, *supra* note 2.

20. *See* FRANK BIERMANN ET AL., *Studying the Influence of International Bureaucracies: A Conceptual Framework*, in *MANAGERS OF GLOBAL CHANGE, THE INFLUENCE OF INTERNATIONAL ENVIRONMENTAL BUREAUCRACIES* 37, 53 (Frank Biermann & Bernd Siebenhuner eds., 2009) (analyzing

most human activities, regardless of whether they occur on a local, national, or international level, cause carbon dioxide to be emitted from fuel combustion or changes in land use, there are inevitable challenges present on the negotiating table.

In this setting, diplomacy strives to find a delicate balance between domestic needs and international prerogatives. Because negotiations represent an *ex ante* momentum, states cannot fully comprehend the true scope of the obligations to be undertaken or fully appreciate risks associated with implementation of their obligations. In this framework, climate negotiations constitute a pioneering effort to apply new institutionalist approaches to multilateral agreements to achieve global solutions in the international community.

To place the Paris Agreement negotiations in context, this Article will review the institutional forums that organize and host climate change negotiations. This Article will focus specifically on the United Nations Climate Change Convention (“UNCCC”) and the Conferences of the Parties (“COPs”) and will analyze how they have respectively evolved over time. This will be followed by an examination of the bottleneck problems that have previously occurred in climate negotiations and stalled climate change action. Lastly, the shift from a top-down to bottom-up approach, which contributed to the successful adoption of the Paris Agreement, will be explored.

1. The Evolving Role of Climate Diplomacy

Climate change is a global challenge that can only be effectively overcome if it is addressed nationally and internationally. Climate change is a transnational issue both in terms of its causes, such as the expanding global energy demand, and its effects, which are felt by every country. One consequence of a globalized world is that a state’s activities can take place in another country, causing cross-border environmental consequences. In this setting, states alone cannot effectively address the complex and diffuse environmental issue of climate change. However, there is a growing international consensus that each state should assume responsibility for its actions and protect the fundamental values of the international community. Accordingly, coordinated international solutions are necessary for an effective climate regime.²¹

In a continuous harmonization between law and politics, the UNFCCC²² was created under the U.N. umbrella to provide diplomatic solutions to the needs of

the role of international bureaucracies in complex negotiation situations, whilst offering their services as neutral mediators).

21. *Id.*

22. The UNFCCC today is composed of 197 parties, including the major contributors to climate change, and represents a global framework for the whole international community. See *List of Parties to the Convention*, UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE, <https://unfccc.int/process/parties-non-party-stakeholders/parties-convention-and-observer-states> (last updated Aug. 7, 2018).

the parties. As the international doctrine of political science meets the paradigms of the treaty-making process, the role of diplomacy is key to establishing universally accepted standards for global problems. Through diplomatic dialogue, parties strive to find tailored solutions to overcome hardships in climate negotiations. Parties turn to broad solutions, rather than formal narrow commitments, to balance domestic and international objectives.²³ Combined, the multiplicity of competing interests and the global scale of the problem pose significant obstacles for international actors in their efforts to achieve an agreement on a policy solution to climate change. Thus, climate diplomacy efforts must strive to harmonize international legal policies and state actions.

To understand what led to the signing and ratification of the Paris Agreement, it is critical to explore how climate diplomacy and its relation to law and politics have evolved over time. In the 1970s, scientific research began to address climate change, leading to increased global attention on the issue. The heightened awareness provided the momentum necessary to establish a framework for climate change negotiations to address the issue. The United Nations seized this opportunity and formed the Intergovernmental Negotiating Committee on Climate Change. This ultimately paved the way for the UNFCCC to be established, which was signed in 1992 at the United Nations Conference on Environment and Development (“UNCED”). In asserting its role in international policymaking, the UNFCCC developed an array of instruments, ranging from the annual COPs, to the Secretariat’s carrying out of operations, to providing financial support for the Global Environmental Facility. Throughout the years, the UNFCCC has been ratified by a vast majority of the international community. By setting *ad hoc* principles, member states made the UNFCCC the defining framework for international climate negotiations.²⁴

In this framework, diplomacy has played a crucial role in shaping the climate regime. Diplomacy has had a particularly influential role in COP decision making, and ultimately led to adoption of the Paris Agreement. In an effort to achieve a global climate regime, the international community aims to regulate the interaction between human activities and climate systems to curb net greenhouse gas emissions. In other words, throughout negotiations, parties have strived to find common grounds for an agreement that serves to mitigate climate change on both domestic and international levels.

The evolution of climate negotiations can be viewed from different angles because the problem of climate change and its solution involve elements of law,

23. See NADIA VON BASSEWITZ, *International Climate Change Policy: Where do we Stand?*, in CLIMATE CHANGE: INTERNATIONAL LAW AND GLOBAL GOVERNANCE VOLUME II: POLICY, DIPLOMACY AND GOVERNANCE IN A CHANGING ENVIRONMENT 101, 119–21 (Oliver C. Ruppel et al. eds., 2013) (analyzing the evolution of diplomatic technique at COPs, from top-down to bottom-up strategies).

24. See KAUPPILA, *supra* note 15, at 138.

politics, and economics, and diplomacy serves as a balancing force. Particularly, in a highly politicized context, diplomacy traced the frontiers in the evolution of the climate regime, in a complex mixture of legal and political prerogatives.²⁵

Whether law and politics constitute two separate and distinct fields, or are a overlapping but non-conterminous sphere, has been a topic of vivid scholarly debate. If legal theories have shaped political outcomes, the role of diplomacy can be seen in the constant efforts to provide tailored solutions for domestic needs and international prerogatives. Scholarly debate on this topic has involved two dichotomies in international legal theory, one between idealism and realism and the other between normativity and concreteness. Idealism relies on the intertwinement of international law and the social and political relationships among states. This is the result of the concreteness perspective, which relies on the fact that states create laws. Realism draws a strict distinction between law and power as a result of normativity. This perspective views legal instruments as independent from political opinions and deems politics, which represent expressions of power, as alien to pure legal prerogatives.²⁶ Despite the initial contradiction, both spheres can rely on each other.

In the current doctrinal framework, mainstream approaches aim to harmonize realism with idealism.²⁷ Indeed, as pointed out by Phillip Allott, combining the two spheres of legal and extra-legal settings is possible, despite endemic contradictions.²⁸ As Martin Shapiro pointed out, while political scientists can improve their scholarly performance by incorporating law into their approach, current doctrine warns doing so presents a slippery slope.²⁹ Substantively speaking, it would entail blurring definitions of key elements, and regarding procedural aspects, it generates uncertain perimeters around the relevant matter.³⁰ Hence, it is preferable to envision law and politics as two overlapping spheres, instead of separate and contiguous subjects. Therefore, legal doctrines can be viewed as both expressions of political ideology and as a vehicle for political outlook.³¹ Using a holistic approach that combines international legal theories with state actions, scholars can provide sound and useful policy advice to the international community,

25. See DENNIS TÄNZLER & ALEXANDER CARIUS, *Beyond International Climate Negotiations: Climate Diplomacy from a Foreign Policy Perspective*, in CLIMATE CHANGE: INTERNATIONAL LAW AND GLOBAL GOVERNANCE VOLUME II: POLICY, DIPLOMACY AND GOVERNANCE IN A CHANGING ENVIRONMENT 259 (Oliver C. Ruppel et al. eds., 2013).

26. See Martti Koskenniemi, *The Politics of International Law*, 1 EUR. J. INT'L L. 4, 13 (1990); see generally DAVID KENNEDY, *INTERNATIONAL LEGAL STRUCTURES* (1987); ALASDAIR MACINTYRE, *The Indispensability of Political Theory*, in *THE NATURE OF POLITICAL THEORY* 19–33 (David Miller & Larry Siedentop eds., 1983).

27. See Koskenniemi, *supra* note 26, at 12.

28. See Philip Allott, *Language, Method and the Nature of International Law*, 45 BRIT. Y.B. INT'L L. 79, 123–25 (1971).

29. See SHAPIRO, *supra* note 17 (on political scientists' approach to legal doctrine).

30. *Id.*

31. See generally WHITTINGTON ET AL., *supra* note 18; *THE NEW LAW AND ECONOMIC DEVELOPMENT: A CRITICAL APPRAISAL* (David M. Trubek & Alvaro Santos eds., 2006).

which is intended to be the main producer of international norms.³² Aligning the expertise of these two disciplines can foster enhanced policy-making performances in international negotiations.

Balancing law and politics in climate diplomacy has consistently been a difficult task because of the sensibility of the subject matter and the number of parties involved. The next section will analyze the underlying tensions between law and politics that gave rise to hardship in reaching a global agreement on climate change.

2. Hardship in Climate Negotiations

The formation of multilateral deals tends to reflect an endemic hardship that is directly proportional to the complexity of the matter at stake. In climate negotiations, the high stakes and the concurring interests of the parties involved tend to hinder the development of a regime to address climate change.

Negotiation deadlock can be seen as a reflection of the complexity. Even if the goal is clear, parties negotiate on difficult grounds, and the lack of clear procedural rules renders multilateral negotiations particularly complex and long.³³

Scholars on negotiation deadlock refer to long-lasting, and generally fruitless, attempts for the achievement of an international legally binding treaty. This process occurs during two different stages of the treaty making process, signature and ratification of an agreement.³⁴ During the treaty-making process, sovereign states participate in perfecting an international agreement at two different moments. First, during the ascending moment that corresponds with the formation of the agreement itself, every state negotiates the agreement, presenting comments and reservations, and ultimately accepts its text. Second, during the

32. See Andrew T. Guzman, *A Compliance-Based Theory of International Law*, 90 CAL. L. REV. 1823, 1826 (2002).

33. See CHRISTIAN DOWNIE, *THE POLITICS OF CLIMATE CHANGE NEGOTIATIONS: STRATEGIES AND VARIABLES IN PROLONGED INTERNATIONAL NEGOTIATIONS* 5 (2014) (stating how the consultation rounds of COP Presidents for a clear regulatory framework almost generated a halt without providing effective solutions to the problem); Robert Falkner et al., *International Climate Policy after Copenhagen: Towards a 'Building Blocks' Approach*, 1 GLOBAL POL'Y 252, 254 (2010) (expressing the hardship of Kyoto Protocol in establishing a climate regime after a prolonged struggle to muster the established threshold for ratification); see generally ELISABETH CORELL & MICHELE M. BETSILL, *Analytical Framework: Assessing the Influence of NGO Diplomats*, in NGO DIPLOMACY: THE INFLUENCE OF NONGOVERNMENTAL ORGANIZATIONS IN INTERNATIONAL ENVIRONMENTAL NEGOTIATIONS 19 (Elisabeth Corell & Michele M. Betsill eds., 2008).

34. See generally Stefan Persson, *Deadlocks in International Negotiations*, 29 COOPERATION AND CONFLICT 211 (1994). See also DOWNIE, *supra* note 33, at 5; Christian Downie, *Prolonged International Environmental Negotiations: The Roles and Strategies of Non-State Actors in the EU*, 16 INT'L ENVTL. AGREEMENTS: POL., L. & ECON. 739, 740 (2016); ARSTEN DAUGBERG & ALAN SWINBANK, *IDEAS, INSTITUTIONS, AND TRADE: THE WTO & THE CURIOUS ROLE OF EU FARM POLICY IN TRADE LIBERALIZATION* (2009); Larry Crump & I. William Zartman, *Multilateral Negotiation and the Management of Complexity*, 8 INT'L NEGOT. 1 (2003); Pamela Chasek, *A Comparative Analysis of Multilateral Environmental Negotiations*, 6 GROUP DECISION & NEGOT. 437 (1997); PAMELA S. CHASEK, *EARTH NEGOTIATIONS: ANALYZING THIRTY YEARS OF ENVIRONMENTAL DIPLOMACY* (2001); I. WILLIAM ZARTMAN & MAUREEN R. BERMAN, *THE PRACTICAL NEGOTIATOR* (1982).

descending moment that corresponds to the implementation, each state transposes the agreement's provisions into its domestic legal system.³⁵

From a doctrinal perspective, Christian Downie has suggested a classification method, based on five reasons, that aims to analyze the hardships of negotiating a climate agreement. This classification seeks to explore the challenges faced by negotiators in the climate regime to determine the lessons that were learned and the forward steps that were purportedly taken in Paris. First, this is the result of a twofold position taken by every country in regard to the problem. Each country plays a fundamental part in achieving a common goal, and also benefits other countries' compliance with the emissions reduction goals.³⁶ Second, climate change is not only caused by the actions of states, but is caused by most human activity, which involves a multitude of actors. Consequently, all of these actors must be taken into account during negotiations.³⁷ Third, climate change not only triggers concerns about the global environment, but also raises concerns about global development. Whereas developed countries have benefitted from carbon-intensive development, developing countries have viewed restrictions on carbon emissions as an obstacle to improving their economies. Accordingly, the topic of development caused a divide between developed and developing countries and posed a challenge to achieving consensus.³⁸ Fourth, the complexity of the variables in climate change analysis presents a slippery slope. It is particularly difficult to predict the precise long-term impacts corresponding to each variable when scientific data intersects with economic values and results in vague or weak provisions. There is a constant trade-off between long-term gains and short-term costs, which adds further political complications into the negotiation mix.³⁹ Fifth, the risks of permanent and irreversible effects on marine and atmospheric ecosystems make every decision particularly delicate.⁴⁰

Notwithstanding the hardships of climate negotiations, dialogue between states is paramount for achieving international consensus on the direction that should be taken. Within the UNFCCC, parties framed new diplomatic instruments for more rapid and effective solutions. This evolution, where juridical form was traded for pragmatism, led to broader consensus between the negotiators in Paris, and opened

35. See generally BARRY E. CARTER & ALLEN S. WEINER, *INTERNATIONAL LAW* 85–95 (6th ed. 2011) (reviewing the process of creation of international norms, explaining that with regard to international treaties, under article 18 of Vienna Convention on the Law of Treaties, it is paramount to each signatory state not to defeat their object and the purpose prior to their entry into force).

36. See DOWNIE, *supra* note 33, at 6.

37. See generally GARETH PORTER ET AL., *GLOBAL ENVIRONMENTAL POLITICS* (George A. Lopez ed., 3d ed. 2000).

38. See LAWRENCE E. SUSSKIND, *ENVIRONMENTAL DIPLOMACY: NEGOTIATING MORE EFFECTIVE GLOBAL AGREEMENTS* 3–10 (Oxford Univ. Press ed., 1994).

39. See NICHOLAS STERN, *THE ECONOMICS OF CLIMATE CHANGE: THE STERN REVIEW* 92–9 (Cambridge Univ. Press 2007).

40. See Thomas F. Stocker et al., *Climate Change 2013: The Physical Science Basis*, INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, 70 (2013), http://www.ipcc.ch/pdf/assessment-report/ar5/wg1/WG1AR5_TS_FINAL.pdf.

negotiations to new standards in the sphere of international law and global governance.

3. From a Top-Down to a Bottom-Up Approach in Climate Negotiations

The UNFCCC'S creation of a multilateral forum sought to overcome the procedural obstacles of the traditional approach of climate negotiations, moving from a top-down to a bottom-up approach. In order to produce substantive outcomes, the diplomatic strategies employed historically at the COP aimed to make domestic and international interests coexist, rather than converge. In this framework, diplomacy, in an effort to strike a balance between juridical form and political reality, has focused on effective application of climate rules rather than abstract codification.⁴¹ This strategy led to the harmonization of each country's political needs on multilateral level. Based on the results of the historical approach taken in the UNFCCC context, it was possible to purport new prerogatives in climate negotiations, for more rapid and effective solutions.⁴²

The dichotomy between domestic needs and supra-national prerogatives, which is present in every international negotiation, is particularly prominent in climate change negotiations when striving to set universal standards without inadvertently weighing down the process of commitment to climate change.

In 1992, UNFCCC negotiators were enthusiastic about the idea of the top-down approach of the "cap and trade" system. This system sought to obtain mitigation commitments by relying on science to define global emissions caps and allowing states to negotiate about the caps and how they would be implemented. The 'cap and trade' system is based on a threshold 'cap', which is the total amount of greenhouse gases that can be emitted within a given system, allowed for a carbon dioxide emissions market to develop, where pollution credits could be bought and sold. This approach shaped the first COP meetings, from the 1995 COP1 in Berlin, Germany, to the 1997 COP3 in Kyoto, Japan. Through the top-down approach, diplomatic missions, with the support of environmentalists and non-governmental organizations ("NGOs"), set the path to the Kyoto Protocol. The deal was adopted in 1997, but only entered into force years later in 2005.

Stuck in the top-down approach, negotiations on climate change were at a standstill for many years. Building binding global caps put too much pressure on the role of diplomacy. When forming bilateral or multilateral consensus between sovereign states, achieving a global commitment that would be effective was stalled by a diplomatic impasse, which resulted in deadlock.⁴³ The goal of

41. See Guzman, *supra* note 32.

42. See ANTONIO MORELLI, *Paris Agreement: The Evolution of International Law Standards in the Post-Ontological Framework*, in RESEARCH HANDBOOK ON EU ENERGY LAW AND POLICY 370, 374 (Rafael Leal-Arcas & Jan Wouters eds., 2017).

43. See Downie, *supra* note 34, at 739; see also DAUGBERG & SWINBANK, *supra* note 34; Crump & Zartman, *supra* note 34, at 1-5; Chasek, *Comparative Analysis*, *supra* note 34, at 437; CHASEK, *EARTH NEGOTIATIONS*, *supra* note 35; ZARTMAN & BERMAN, *supra* note 34; Persson, *supra* note 34, at 29.

UNFCCC was to overcome the deadlock, balancing legal, political, and economic interests, in order to achieve effective outcomes.⁴⁴ As a result, the strategy embedded in the COPs fostered the harmonization of political needs of each country.⁴⁵

However, Australia, since the aftermath of Copenhagen, urged for a shift in the diplomatic strategies used during negotiations, which made achieving a global deal possible.⁴⁶ Inspired by the tariff schedules of the World Trade Organization, member states are required to uphold their commitment to mitigating climate change, where their commitment takes into account factors such as economic status and prior contributions to the problem. This method treats developed and developing countries differently, recognizing that developed countries disproportionately contributed to the problem, and therefore developing countries should have lighter commitments. In practice, following a trend already apparent at the Copenhagen Climate Change Conference (“COP 15”) in 2009,⁴⁷ COP 21 introduced new strategies that led to the adoption of the Paris Agreement. The role of each country in reducing greenhouse gas emissions is no longer the result of a top-down approach, but instead follows a voluntary bottom-up approach. In UNFCCC negotiations, multilateral consensus for treaties relating to climate change is achieved through a new “pledge and review” process. As part of the COP 21 results, this model facilitated the construction of a legal framework around nation-states “pledges” for mitigation of greenhouse gas emissions. This model represents a renovated system in which governments are able to propose or pledge actions, policies, and goals unilaterally, and “review” them over time.⁴⁸

The new approach to climate negotiations is tailored as a trade-off of juridical form for pragmatism, which eventually was met with the consent of all the negotiators in Paris, opening to new standards in the sphere of international law and global governance. Indeed, one of the greatest innovations of the Paris Agreement was to overcome procedural issues such as deadlocks and prolonged negotiations for the realization of a shared binding text. Instead, it created a successful combination of binding and non-binding provisions that resulted in a universally accepted treaty.

44. See DOWNIE, *supra* note 34 at 159 (analyzing strategies to overcome prolonged international negotiations in climate change).

45. See MORELLI, *supra* note 42, at 382.

46. See ROSS GARNAUT, *THE GARNAUT REVIEW 2011: AUSTRALIA IN THE GLOBAL RESPONSE TO CLIMATE CHANGE* 38 (2011) (analyzing the proposal of the Australian delegation at COP 16 in Cancun for a ‘pledge and review’ system).

47. The Copenhagen Climate Change Conference, representing the 15th session of the Conference of the Parties to the UNFCCC, took place in Copenhagen and was hosted by the Government of Denmark in December 2009. *COP 15, UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE*, <https://unfccc.int/process-and-meetings/conferences/past-conferences/copenhagen-climate-change-conference-december-2009/cop-15> (last visited Oct. 20, 2018).

48. See Joseph E. Aldy & William A. Pizer, *Comparability of Effort in International Climate Policy Architecture*, HARVARD KENNEDY SCH. WORKING PAPER 3 (2014).

B. THE LEGAL PILLAR

Negotiations for climate deals reflect a continuous struggle to find proper international juridical forms for national commitments. In this picture, the legal nature of the climate agreements represents a core topic in the debate that surrounds climate negotiations.⁴⁹ Precisely, binding and non-binding sources of international law define the perimeter in which international lawyers come into play drafting global deals, as the ones on climate change.

The legal pillar (i) defines the line between binding and non-binding instruments of international law; (ii) combines these two different sources of law; and (iii) examines compliance theory in international law. First, public international law being a legal sector in which conventional and customary sources are constantly proliferating, it is core to point out the difference between binding and non-binding sources of international law. Second, the analysis will allow a better understanding of the structure and strategies that resulted out of the COP negotiations, hence to assess their efficacy in solving a complex global problem as climate change, through a combination of binding and non-binding provisions.⁵⁰ Third, it examines compliance theory, to understand the operational interplay of soft and hard law, analyzing reputational stakes and assessing the cost of compliance.

1. Defining the Line between Binding and Non-Binding Instruments of International Law

The classification between binding and non-binding instruments reflects the long-lasting dichotomy between hard and soft law in international law. Pragmatic and functional questions usually shift the balance between binding and non-binding provisions in the international legal sphere. The *discrimen* between the two sources relies on the verge of the effects of each legal instrument. International lawyers tend to consider imperative norms those codified in hard law, whilst voluntary those embedded in soft law.⁵¹ Such a binary approach to international legal sources is often neglected in practice, as soft law may constitute a stepping-stone

49. See Justin Worland, *What to Know About the Historic 'Paris Agreement' on Climate Change*, TIME (Dec. 12, 2015), <http://time.com/4146764/paris-agreement-climate-cop-21/>.

50. See Justine Nolan, *Refining the Rules of the Game: The Corporate Responsibility to Respect Human Rights*, 30 UTRECHT J. INT'L & EUR. L. 7, 15–20 (2014) (outlining the importance of combination of public and private regulation to foster corporate compliance across boundaries).

51. See Tadeusz Gruchalla-Wesierski, *A Framework for Understanding "Soft Law"*, 30 MCGILL L. J. 37, 40 (1984); Gunther F. Handl et al., *A Hard Look at Soft Law*, 82 AM. SOC'Y INT'L L. PROC. 371, 371 (1988); see generally K.C. Wellens & G.M. Borchardt, *Soft Law in European Community Law*, 14 EUR. L. REV. 267 (1989) (intending soft law as alternative sources of international law); but see Prosper Weil, *Towards Relative Normativity in International Law?*, 77 AM. J. INT'L L. 413, 414 n.7 (1983) (implying that soft law, as non-binding instrument, is no law); see also Pierre-Marie Dupuy, *Soft Law and the International Law of the Environment*, 12 MICH. J. INT'L L. 420, 432–33 (1991) (framing soft law in the environmental context as aspirational, as opposed to hard established law).

in the formation of hard law. In other words, from a lineal approach, soft law instruments may gradually evolve to hard law ones.

Binding sources serve many useful functions. First of all, they are concrete operative obligations that promote the certainty of law. Particularly, they impose uniformity in the standards amongst the countries that adopted them, thus avoiding any discretionary deviation that may affect voluntarism.⁵² The imperativeness of those sources crystallizes certain values of the international community through a codification process in hard law. They sole to be justiciable and enforceable, as they provide mandatory mechanisms, which are the teeth that indenture the signatory States to them.⁵³

Non-binding provisions are the expression of a peculiar legal technique, generally classified under soft law, to be intended as the ultimate result of voluntarism. Particularly, these provisions, even if they do not have legally binding force, still may produce legal effects. According to their drafters, these can be indirect or practical effects, related to their legal scope and aiming to influence the conduct of all the relevant players.⁵⁴ With regard to non-binding instruments, there is a sort of tension between the intention of the drafter and the result of the provision. This is an instrument that, despite being non-mandatory, aims to produce alternative effects to still have a relevant quasi-legal scope.⁵⁵ Particularly, states did not accept them in their entirety as the mandatory statements of what a binding instrument commands. It is clear that if they did, the dichotomy in analysis would automatically crumble. Instead, they trigger a positive action in shaping states' expectations towards a compliant behavior.⁵⁶ The recourse to soft legal technique usually mirrors the needs of flexibility and rapidity of the negotiators. Non-binding instruments can be adopted in a different frame, which not only is quicker, but also better reflects the constant evolution of certain sectors in international law. In this picture, it is possible to envision the analysis on climate deals in its evolution within the UNFCCC.⁵⁷ From this perspective, returning to pure binding instruments may result in a backfire effect, due to a time loophole. In fact, if achieved prematurely, imperative solutions tend to be too broad to be workable

52. See THE HAGUE ACADEMY OF INTERNATIONAL LAW, *THE PROTECTION OF THE ENVIRONMENT AND INTERNATIONAL LAW*, COLLOQUIUM 1973 623–627 (Leiden, Sijthoff, 1975).

53. See David M. Trubek et al., “Soft Law,” “Hard Law,” and *European Integration: Toward a Theory of Hybridity*, 10002 U. WIS. L. SCH. LEGAL STUD. RES. PAPER SERIES 1 (2005).

54. See generally Richard R. Baxter, *International Law in “Her Infinite Variety,”* 29 INT’L & COMP. L. Q. 549 (1980); see also LINDA SENDEN, *SOFT LAW IN EUROPEAN COMMUNITY LAW* 133 (2004); see generally Wellens & Borchardt, *supra* note 51; Gruchalla-Weisierski, *supra* note 51, at 43.

55. See generally Olufemi Elias & Chin Lim, ‘General Principles of Law,’ ‘Soft’ Law and the Identification of International Law, 28 NETH. Y.B. INT’L L. 3 (1997); FRANCIS SNYDER, *Soft Law and Institutional Practice in the European Community*, in *THE CONSTRUCTION OF EUROPE: ESSAYS IN HONOUR OF EMILE NOËL* 197, 200 (Stephen Martin ed., 1994).

56. See generally Andrew T. Guzman & Timothy L. Meyer, *International Soft Law*, 2 J. LEGAL ANALYSIS 171 (2010) (studying the role of soft law mechanisms, embedded in the ICJ advisory opinions).

57. See Dupuy, *supra* note 51, at 623–27.

and too restrictive to be covered. As a result, non-binding sources may provide more precise and clearer language, easier to understand and to monitor. Moreover, lacking a mandatory element, these are less risk-adverse solutions that allow states to undertake prominent steps that otherwise would not be taken into account. Nonetheless, a non-binding provision does not entail a lack of obligation *tout court*, as they still generate expectations on the international community, along with a moral suasion. In time, these instruments can generate applicative practice that, in the long run, may become customs or may be subject to codification in hard law.⁵⁸ They bridge over legal commands with purely political statements, and they contribute in the evolutionary process of building support and culture amongst all the relevant actors around the subject matter.⁵⁹ In this light, the whole legal and social framework will get direct energy from non-binding instruments.

Since the 1980s, climate negotiations were carried out with the purpose to achieve a binding treaty. Nonetheless, as the climate regime could not fit into the framework, parties engaged in long-lasting discussions over the most suitable legal form for mitigation commitments. The debate on whether a climate deal should be solely oriented to the achievement of binding instruments, resulted in recent times, as previously seen, in deadlock in climate negotiations, which hindered the formation of consensus.⁶⁰

The dichotomy of binding and non-binding sources of international law is harmonized in the 'pledge and review' negotiation strategy, through a balance between imperativeness and voluntarism.⁶¹ This hybrid strategy allows promoting the universality of the standard embedded in the deal, without hindering the raising commitment towards climate change. If member states have generally preferred a soft-law approach to climate change, to not have strict obligations to comply with, civil society organizations have mainly advocated for a binding approach. Nonetheless, even within the binding approach, many institutions have transformed their view to more moderate positions, due to the stall at the political and diplomatic level. In turn, the evolution of the legal approach to climate change has reflected the mutated diplomatic realities in climate negotiations. Indeed, with the adoption of the Paris Agreement, within COP 21, the global community aimed to achieve effective solutions in dealing with problems that are technically, economically, and politically complex, promoting a progressive development on the matter.

In this picture, the combination of dual standards emphasizes inclusion of all relevant actors, whose engagement is key in enriching substantive discussion. Hence, the multilateral forum created in Paris fosters harmonization of legal

58. See generally Michael Bothe, *Legal and Non-Legal Norms: A Meaningful Distinction in International Relations?*, 11 NETH. Y.B. INT'L L. 65 (1980).

59. See Guzman & Meyer, *supra* note 56, at 171–73.

60. See *supra*, Part I.A.2 Hardship in Climate Negotiations.

61. See *supra*, Part I.A.3 From a Top-Down to a Bottom-Up Approach in Climate Negotiations.

provisions, in order to make them coexist instead of collide, seeking their effective application instead of abstract codification.⁶²

2. Combining Binding and Non-Binding Instruments of International Law

The narrative on climate negotiations allows shedding light on the paradigm of the most genuine principles of international law in their evolution toward the achievement of a global agreement. In turn, consideration of the actors involved in the process allows for benchmarking the final impact a climate deal may have on the global community. Though public international law is a sphere operated and governed by sovereign States, it does not mean that governments are the only agents subjects to its rules. Under this light, obligations arising under public international law should and shall inform, directly and indirectly, the activity of all the different players involved in the subject matter touched by the international provision.⁶³ Through this perspective, the difference is core between binding and non-binding sources of international law and state and non-state actors recently involved in the COP negotiations. The evolution of social expectation is such that not only state actors, but also private agents, should respect environmental and human rights standards. As a consequence, different regimes will be applicable to different actors, depending on the status and the role they have under international law. This is a way to foster compliance through a nuanced array of instruments and players to solve complex legal problems whilst promoting effective solutions.⁶⁴

Whether the combination of binding and non-binding legal poles fostered in climate negotiations represents a strength or a weakness depends on whether the interpreter carries out an analysis based on a formal or substantive approach. Following on a path that already has been opened in the sector of business and human rights, the climate regime that resulted in the Paris Agreement pictures a grey zone in international law.⁶⁵ It strikes a balance between endogenous and exogenous legal elements, furthering a functional purpose, given the sensitiveness of the subject-matter it addresses.

In the analysis of international global challenges, classical ontological inquiries on international law seem to be obsolete. Particularly, justifying the essence,

62. See Guzman, *supra* note 32, at 1881 (illustrating a functional definition of international law, through traditional and non-traditional legal sources).

63. See DAVID BILCHITZ, *A Chasm Between 'Is' and 'Ought'? A Critique of the Normative Foundations of the SRSG's Framework and Guiding Principles*, in HUMAN RIGHTS OBLIGATIONS OF BUSINESS: BEYOND THE CORPORATE RESPONSIBILITY TO RESPECT? 111–14 (Surya Deva & David Bilchitz eds., 2013).

64. See Nolan, *supra* note 50, at 15–20.

65. See Bennett Freeman, Senior Counselor, Burson-Marsteller, Remarks: To What Extent Can Voluntarism Provide Answers? at the Wilton Park Conference on Business and Human Rights: Advancing the Agenda 7 (Oct. 11, 2005) (finding a 'sparkling grey zone' between black and white poles, thus between imperative tools and voluntarism).

or even the existence, of the international legal system does not always go along with the evolving dynamics in international relations. In a heterogeneous system, where norms and institutions are constantly proliferating, the classical ontological questions on international law lose their original meaning and validity.⁶⁶ In the post-ontological era, international law is real and it is meant to be a concrete tool to address the continuously arising challenges of the global community.⁶⁷ As a result, the role of international lawyers should be oriented to find real and positive meanings to international law. Free from defensive ontology, which is based on nature and foundation of the international legal system, international lawyers are deemed to find a real and positive ground for the application of international law. Hence, international law can be pictured as a concrete toolbox for international lawyers in the analysis, the interpretation, and the solutions of global challenges. In other words, it mirrors the so-called principle of “flat little empirical question” of Foucault, under which legal norms have to be interpreted in the lights of their functioning and results.⁶⁸

In the light of the doctrine of the late Thomas Franck, it is possible to understand climate negotiations in the post-ontological framework, which does not solely grasp what international law is but also what international law stands for.⁶⁹ Therefore, it can be a valuable tool to better understand the core international legal principles that are touched and questioned in a climate regime. The post-ontological framework is a doctrine that overcomes the traditional ontological inquiries on international law about the meaning and the essence of international law. It carries out an analysis based on the effectiveness, the enforceability and the interpretation of international law.⁷⁰ In the international endeavor to harness climate change, this approach allows measuring the power, the breadth and the novelty of those international norms setting climate regimes. This approach is particularly relevant in a world that is facing new complex global challenges, where traditional solutions may not reflect anymore the rapidity in evolving trends of the international community. Consequently, international scholars are urged to question the efficacy of the answers at stake. In this framework, climate change represents an outstanding challenge, whose solutions, for many years, not only have been stalled in form but also have been revealed ineffective in substance.

66. See MARIO PROST, *THE CONCEPT OF UNITY IN PUBLIC INTERNATIONAL LAW* 132 (2012).

67. See EUAN MACDONALD, *INTERNATIONAL LAW AND ETHICS AFTER THE CRITICAL CHALLENGE* 222 (2011).

68. See PROST, *supra* note 66 at 132 (mentioning MICHEL FOUCAULT, *Deux Essais sur le Sujet et le Pouvoir*, in *IV DITS ET ECRITS* 233 (Paris, Gallimard, 1994)).

69. See THOMAS M. FRANCK, *FAIRNESS IN INTERNATIONAL LAW AND INSTITUTIONS* 6 (1995).

70. See Iain Scobbie, *Tom Franck's Fairness*, 13 *EUR. J. INT'L L.* 909 (2002). *But see* Duncan B. Hollis, *Why State Consent Still Matters*, 23 *BERKELEY J. INT'L L.* 137, 137–39 (2005) (“[R]ecent developments suggest that the pronouncement of a post-ontological age was premature. Issues as diverse as terrorism, hegemony, and globalization all demonstrate that the international lawyer cannot yet dispense with the question of what makes international law ‘law’ and where one looks to find it.”).

The evolution of climate negotiations is tracing new frontiers in the traditional perimeters of international law. Striking the balance between lower and binding targets *vis-a-vis* more ambitious, non-binding targets set the pace in the evolution of climate negotiations. Aligning the legal prerogatives with diplomatic needs is paramount in climate negotiations to find concrete solutions to outstanding global problems. In other words, the success of climate negotiations ultimately depends on the harmonization of diplomatic strategies with legal tools that allow providing tailored solutions to the international community.

3. Compliance Theory in International Law

A focus on compliance theory allows us to understand how the combination of binding and non-binding sources of international law can succeed in securing the effectiveness of the deal. In other words, whether the Agreement will lie only on promises or an effective commitment of the contracting parties depends ultimately on the role of compliance. This is a way of shaping States' behaviors while enforcing the climate regime set in the Paris Agreement.

In the current doctrinal debate on the effectiveness of international law, international scholars have turned their attention to the matter of States' compliance. Sovereign-States, being moved by national interests, are rational actors that behave in ways to maximize their domestic goals. Nonetheless, even considering self-interested States, international law still matters, and compliance is the key for this interpretation. As Guzman points out, a compliance-based model is grounded on two elements—namely sanctions and reputation.⁷¹ Building a strong reputation entails for a nation-State a cost-benefit analysis. As a result, whenever a country loses credibility internationally, the only way to regain credibility is through compliance with international law. The corroboration and the impoverishment of reputation are factors that are built over time throughout government decisions and actions. Long-term benefits *vis-à-vis* short gains strike the line between international shared values and internal domestic prerogatives.⁷² On one hand, by honoring their commitment to the international community, States move toward a reputational consolidation, which is paramount in bilateral and multilateral negotiations. On the other hand, those countries that are more likely to disregard international commitments will struggle to find partners and allies. In extreme cases, when mutual trust is no longer an option, international law will only serve as a vehicle for imposing direct sanctions on those countries that have destroyed their reputational capital. In this context, sanctions are on a spectrum: from punishment and retaliation, to diplomatic and economic measures, to

71. See Guzman, *supra* note 32.

72. See Ian Johnstone, *Treaty Interpretation: The Authority of Interpretive Communities*, 12 MICH. J. INT'L L. 371, 391 (1991); see generally A. MITCHELL POLINSKY, AN INTRODUCTION TO LAW AND ECONOMICS 31 (Little, Brown & Company, 2d ed. 1989).

reputational costs for the country, including the possibility to make future commitments at the international level.⁷³

To understand international treaty compliance, it is paramount to take two different prongs into account. First is the reputational impact of violations. Second is the cost of compliance, which ultimately derives from the subject matter at hand.⁷⁴

a. The Reputational Impact

The reputational impact of violations is a way to measure the effects of informal repercussions to non-compliance. International agreements—especially those that entail non-reciprocal obligations, as in the fields of climate change—may lack teeth for ensuring compliance. Nonetheless, international practice has developed particular instruments to guide States' behavior. The analysis of the naming and shaming model allows an understanding of how reputational impact represents a key element in the enforcement of an international agreement, embracing the support of civil society.

Public pressure is key in monitoring the compliance of States' commitment to the agreement. Hence, a sovereign's reputation for being an upstanding and exemplary member in the international community is at stake.⁷⁵ From this perspective, this process comes into play through the formula of "naming and shaming." Naming and shaming is a model of public accountability adopted in modern international relations to indirectly enforce international norms with a deep intrinsic value. More specifically, this is a policy strategy used by international organizations, nongovernmental organizations, and media to put those countries perpetrating human rights violations under the spotlight.⁷⁶ The ultimate goal of the name and shame process is to gradually lead the international system through reforms, improving the spheres in which violations are registered. The UN High Commissioner for Human Rights finds the main strength of the strategy in the role that public pressure plays. Even if this is a factor that differs from one country to another, it still serves as a ground to enforce legal commitments accepted by governments through the signing and then the ratification of conventional

73. See generally Johnstone, *supra* note 72, at 391 (analyzing States' compliance with treaty commitments); see also Robert O. Keohane, *International Relations and International Law: Two Optics*, 38 HARV. INT'L L.J. 487, 496-99 (1997) (analyzing countries decisions to observe international norms).

74. See Guzman, *supra* note 32, at 1874.

75. See Samantha Page, *No, The Paris Agreement Isn't Binding. Here's Why That Doesn't Matter*, THINK PROGRESS (Dec 14, 2015), <http://thinkprogress.org/climate/2015/12/14/3731715/paris-agreement-is-an-actual-agreement/> (reporting negative and positive thesis on the outcomes of the Paris Agreement).

76. See Emilie M. Hafner-Burton, *Sticks and Stones: Naming and Shaming the Human Rights Enforcement Problem*, 62 INT'L ORG. 689, 690 (2008) (showing through empirical analysis that, since 1975, NGOs are the ones that have shown the greatest commitment in the naming shaming strategy); see also LOUIS HENKIN, *INTERNATIONAL LAW: POLITICS, VALUES AND FUNCTIONS* 214-15 (1989) (analyzing commitment to human values).

instruments of international law.⁷⁷

That the process is not only a blurry residual instrument but also an effective countermeasure in human rights violations is proven by evidence. In the international human rights law field, the naming and shaming accountability formula is esteemed to be one of the most appropriate tools in international advocacy, allowing specialized organizations to have a corroborated impact in tackling abuse regimes.⁷⁸

Moreover, naming and shaming is an extremely valuable tool that allows a process of information diffusion. This is a strategic choice that enables non-State actors to exert their influence in national and international forums. To put it bluntly, whenever there is a lack of enforcing regulation in the compliance mechanism of a certain regulation, soft-law instruments can serve as an effective framework for non-State actor intervention.⁷⁹ In the environmental sphere, it has been shown that NGOs active in the field have served throughout the years as alternative tools whenever there is a lack, or inefficiency, of domestic political institutions *ad hoc*.⁸⁰ Indeed, international NGOs are playing a pivotal role in bridging the gap between the national and the international sphere to secure the implementation of the environmental and human rights agenda.⁸¹ An established scholarship in human rights advocacy explains such public accountability process through the *boomerang model*.⁸² Under this theory, domestic organizations bring local grievances to an international audience to facilitate domestic improvement and thus trigger the boomerang effect. Specifically, domestic NGOs, which have a local focus *per se*, collect, investigate and analyze relevant information regarding abuses and violations and report the data at the international level to

77. See Mary Robinson, *Advancing Economic, Social, and Cultural Rights: The Way Forward*, 26 HUM. RTS Q. 866, 869 (2004) (Mary Robinson served as UN High Commissioner for Human Rights, from 1997 to 2002, highlighting the added value of naming and shaming formula in progressing human rights protection, from a legal, doctrinal and advocacy perspective).

78. See James Meernik et al., *The Impact of Human Rights Organizations on Naming and Shaming Campaigns*, 56 J. OF CONFLICT RESOL. 233, 234 (2012). But see Hafner-Burton, *supra* note 76, at 689, 707 (explaining how “Naming and shaming is not just cheap talk. But neither is it a remedy for all abuses. Governments put in the global spotlight for violations often adopt better protections for political rights afterward, but they rarely stop or appear to lessen acts of terror. Worse, terror sometimes increases after publicity”).

79. See Kenneth W. Abbott & Duncan Snidal, *Hard and Soft Law in International Governance*, 54 INT’L ORG. 421 (2000) (analyzing the effectiveness of soft law provisions); see also COMMITMENT AND COMPLIANCE: THE ROLE OF NON-BINDING NORMS IN THE INTERNATIONAL LEGAL SYSTEM (2000) (pointing out the effectiveness of soft law instruments in environmental law and human rights law, particularly in multilateral context).

80. See generally Raul Pacheco-Vega, *Transnational Environmental Activism in North America: Wielding Soft Power through Knowledge Sharing?*, 32 REV. OF POL’Y RES. 146 (2015).

81. See James C. Franklin, *Human Rights Naming and Shaming: International and Domestic Processes*, THE POLITICS OF LEVERAGE IN INTERNATIONAL RELATIONS: NAME, SHAME, AND SANCTIONS 43 (H. Richard Friman ed., 2014) (analyzing advantages and disadvantages of naming and shaming in international human rights law).

82. See generally MARGARET E. KECK & KATHRYN SIKKINK, *ACTIVISTS BEYOND BORDERS* 36–7 (1998).

international NGOs or international organizations. At this stage, the information is used to give the right resonance within the international audience and to exert the proper pressure to local governments and address the behavior of the latter.⁸³ In other words, this is a way for international advocacy to enforce governments' accountability, on the one hand, and to promote sound governance on the basis of credibility on the other hand.⁸⁴

From this perspective, at COP level, not only did parties play a major role in enhancing the relevance of soft law instruments, as well as binding obligations, but also urged a combined action of all the major actors—states, corporations, and NGOs—to successfully deal with one of the most complex international problems. In other words, through a multi-stakeholder approach, UNFCCC has aimed to achieve universality in climate change standards. The Paris Agreement is the fruit of this process, where the participation of state and non-state actors appears to be a potential factor leading to a successful and effective deal.

b. The Cost of Compliance

Analyzing the cost of compliance is a way for sovereign states to strike a balance between costs and benefits of maintaining their commitment to international agreements. In addition to the reputational impact, the cost of treaty compliance influences the effectiveness of international climate agreements. With regard to the cost of compliance, the analysis should primarily rely on the subject matter covered by the treaty. Treaties that trigger issues of paramount importance in the life of a state, such as national security, are less likely to stimulate compliance. Indeed, in these circumstances, national reputation would not be a sufficient element to ignite compliance, as governments will likely focus on fostering domestic prerogatives rather than furthering international values.⁸⁵ As a result, a state's decision to about whether to comply with the treaty will be based mainly on costs and benefits related to national priorities, not considerations embedded in international law. In those fields where reputational effects may actually influence states' behavior, international law is more likely to have direct effects. For instance, these include international economic law, international antitrust law, and international environmental law. International law can thus serve to inspire national commitments and to strengthen compliance. Public pressure and monitoring play important roles in this field by detecting possible violations *ex ante* while

83. See *id.*; see also Meernik, et. al., *supra* note 78, at 233, 240; see generally R. Charli Carpenter, *Setting the Advocacy Agenda: Theorizing Issue Emergence and Nonemergence in Transnational Advocacy Networks*, 51 INT'L STUD. Q. 99 (2007).

84. See Amanda Murdie & Johannes Urpelainen, *Why Pick on Us? Environmental INGOs and State Shaming as a Strategic Substitute*, 63 POL. STUD. 353, 353–54 (2015).

85. See Baxter, *supra* note 54, at 549, 551 (analyzing the mutual interests in the treaties of alliances, which represent the key element to keep the agreement alive); see also Steven R. Ratner, *Does International Law Matter in Preventing Ethnic Conflict?*, 32 N.Y.U. J. INT'L L. & POL. 591, 653 (2000).

reducing the benefits for violations.⁸⁶

In a model of rational self-interested states, the decision of whether to comply with international law is informed by an analysis of costs and benefits and risks and opportunities. Therefore, whenever a national government determines that costs of compliance outweigh the benefits, it is more likely to violate international obligations. This analysis must take two different variables into consideration: time and context. Indeed, states' behavior may vary over time and across contexts, as different governments may choose to comply with or ignore a given law at a certain time or in a certain context.⁸⁷ For example, this consideration may reflect the shifting position of the U.S. administration with regard to climate change, as it takes a step back in the adoption of the Paris Agreement.

C. THE POLITICAL ECONOMY PILLAR

Addressing the economic pillar of the climate regime embedded in the Paris Agreement is certainly an ambitious challenge. In a global picture in which global economies are witnessing a continuous transformation, this article aims to strike a delicate balance of the economic components. This article takes into account short-term decisions vis-à-vis long-term visions in corporate strategies. In light of Schumpeter's theory of "creative destruction,"⁸⁸ today, the business sector is going through a process of industrial evolution in which old economic structures give way to the creation of new ones. In fact, the business sphere is now on the verge of an economic revolution that not only embraces productivity and growth but also is progressively more oriented towards a sustainable future. In this light, corporate strategies are increasingly more tailored to public interests and take into account the needs of an array of stakeholders.⁸⁹ The political economy pillar analyzes (i) the market-based approach to climate change and (ii) the role of non-state actors. The impact of the Paris Agreement's targets on the market will be examined first, followed by a focus on the increasing involvement of non-state actors in climate negotiations through business participation.

1. Market-Based Approach to Climate Change

The involvement of the business sector in climate negotiations allows for the use of a market-based approach to climate change. It eases the harmonization between short, middle, and long-term decisions of all the relevant actors involved in the process. In the analysis of the economic sphere related to climate change,

86. See Guzman, *supra* note 32, at 1884.

87. See *id.* at 1853.

88. See JOSEPH A. SCHUMPETER, CAPITALISM, SOCIALISM, AND DEMOCRACY 81–82 (1942) (describing the "process of industrial mutation that incessantly revolutionizes the economic structure from within, incessantly destroying the old one, incessantly creating a new one").

89. CDP Worldwide, CDP GLOBAL CLIMATE CHANGE REPORT 2015 4 (2015), <https://b8f65cb373b1b7b15feb-c70d8ead6ced550b4d987d7c03fcdd1d.ssl.cf3.rackcdn.com/cms/reports/documents/000/000/578/original/CDP-global-climate-change-report-2015.pdf?1470050331>.

one must distinguish between real production and the financial sector. Indeed, when it comes to business model adjustments, the real production sphere tends to be proportionally more receptive to changes than the financial services sphere. With this distinction in mind, it is possible to view resource scarcity and climate change as two distinct drivers in the evolution of global management.⁹⁰ Indeed, as market economies change at an increasing pace, new corporate models and strategies are required. It may sound counter-intuitive that corporate strategies are becoming green-oriented while the price of fossil fuel plummets, but an analysis of temporal business models can explain this phenomenon. In particular, there are short-, middle-, and long-term concerns that orient the direction of businesses.

Undoubtedly, the climate change journey that began in Paris will entail risks and opportunities. The Paris Agreement sets ambitious targets for countries, which will in turn impact their respective domestic corporations. As a result, businesses are building climate change strategies and models to gain a competitive advantage in a changing economic landscape and are preparing to move towards climate change action.⁹¹ In this framework, business executives need to balance long-term perspectives with short-term needs by employing business models and strategies that are tailored to climate change action. This will enable businesses to have lasting legacies of resilience and set precedent for future businesses to follow. In this context, it is possible to conclude that the Paris Agreement successfully solved a real-world problem by forging consensus based on shared solutions.

2. Non-State Actors: Business Participation

The effect of the Paris Agreement on the energy market coincides with the increased role that non-state business actors play in shaping the economy. The economic pillar is based on the assumption that corporate decisions are driven by expectations of upcoming climate change regulation. Therefore, not only does the implementation of a climate regime shape business decisions at the corporate level through a top-down approach, but it also does so at the consumer level through a bottom-up approach.

From a top-down perspective, corporate strategies will take into account the changing scenario and will internalize the costs and benefits that derive from the new climate regime. On one hand, the cap on emissions imposed by the treaty

90. See PRICEWATERHOUSE COOPERS, *REDEFINING BUSINESS SUCCESS IN A CHANGING WORLD: CEO SURVEY* (2016), <https://www.pwc.com/gx/en/ceo-survey/2016/landing-page/pwc-19th-annual-global-ceo-survey.pdf> (exploring the business strategies and models of over 1,400 CEOs around the world in changing environment).

91. See Lauren Hepler & Barbara Grady, *How Much Do Companies Really Care About COP21?*, GREENBIZ, (Sept. 9, 2015, 2:30 A.M.), <https://www.greenbiz.com/article/how-much-do-companies-really-care-about-cop21>; see also PRICEWATERHOUSE COOPERS, *CEO PULSE ON CLIMATE CHANGE* (2015), <http://download.pwc.com/gx/ceo-pulse/climatechange/index.htm>.

will inevitably trigger higher energy costs in the short- and middle-term. On the other hand, from a long-term perspective, executives tend to consider climate change risks to their global supply and value chains. As a result, a new regime considering climate will require new corporate strategies focused on the supply of raw materials, business production, and ultimately customers, in pursuit of economic modernization.⁹²

From a bottom-up perspective, companies will be required to account for changes in consumer preferences. Consumers constitute a pivotal factor in the economic pillar, as their preference for sustainable production orients the future path of business. This trend reflects the Keynesian theory, under which demand triggers the offer in a competitive market. More specifically, in the General Theory,⁹³ John Maynard Keynes pointedly contests Say's law, which is based on the neoclassic assumption that supply generates its own demand.⁹⁴ Keynes demonstrates that consumer demand determines the effective production.⁹⁵ Indeed, effective production is not necessarily related to business potential production but is based on consumer choice. This theory applies in the present context as consumers increasingly prefer sustainable products. As a result, this preference will constitute a major driver in the success of the Paris Agreement, which makes the transition to a low-carbon economy desirable and profitable.⁹⁶

This analysis illustrates the circular trend, once again, that a universal agreement, even one using non-binding provisions, orients the future of development. Business strategies will be tailored to consumer choice, and to be profitable, they will have to include strategic investment in green growth. The choices of the consumers in this case, based on a corroborated public sensitivity to the environment, will be crucial to the success of the regime. Consumers, as part of the social community affected by climate change, are directly touched and interested in sustainability issues. From an economic perspective, spillovers will be detrimental to welfare, as harmful activities produce long-lasting negative effects on communities, in addition its direct consequences.⁹⁷ This is particularly relevant with regard to climate spillovers as they affect every individual. Individuals will represent a category of external stakeholders interested in mitigating the negative

92. See UNFCCC, *Global Business Community Comes to Paris with Solutions for Taking On the Climate Challenge Across the Board* (Dec. 8, 2015), <https://unfccc.int/news/lpaa-focus-on-business-global-business-community-comes-to-paris-with-solutions-for-taking-on-the-climate-challenge-across-the-board>; see also PRICEWATERHOUSE COOPERS, *supra* note 90.

93. See JOHN MAYNARD KEYNES, *THE GENERAL THEORY OF EMPLOYMENT INTEREST AND MONEY* 26 (1936).

94. See THOMAS SOWELL, *SAY'S LAW: AN HISTORICAL ANALYSIS* 3 (1972).

95. See generally KEYNES, *supra* note 93.

96. UNFCCC, *supra* note 92.

97. See Eric A. Posner, *Law, Economics, and Inefficient Norms*, 144 U. PA. L. REV. 1697, 1722–23 (1996); see also Robert D. Cooter, *Decentralized Law for a Complex Economy: The Structural Approach to Adjudicating the New Law Merchant*, 144 U. PA. L. REV. 1643, 1646 (1996) (analyzing potential externalities in private lawmaking).

impact of climate spillovers (primarily externalities related to industrial activities) in their own environment.⁹⁸ As a result, corporations will be called upon to adjust their business processes and outcomes to match the needs and preferences of the market and the consumers. Moreover, the existence of a social surplus will encourage business entities to enhance their models and strategies and foster innovation with respect to the climate regime. To put it bluntly, eventually, each player has a key role to play in the success of climate action.⁹⁹

II. THE IMPLEMENTATION OF THE CLIMATE REGIME: USING INTERNATIONAL TRADE AND BOTTOM-UP APPROACHES

One of the main arguments of Part II of this Article is that trade agreements have tremendous potential to help mitigate climate change, and that this potential is currently underexplored. This hypothesis raises the question of how to reconcile progressive trade liberalization with the protection of non-economic interests. Is there an inherent conflict? We argue that trade liberalization can have positive effects.¹⁰⁰ The novelty of Part II of the article is that it identifies a paradigm shift in the governance of sustainable development, from top-down to bottom-up solutions.

With the right policies, trade law can be a tool to help mitigate climate change and enhance sustainable energy. We all know that, thanks to trade,¹⁰¹ countries grow economically in an evolutionary manner, as evidenced by empirical and theoretical research.¹⁰² Hence, the triple benefit of trade. This hypothesis may be replicated in other governance issues,¹⁰³ such as human rights, by banning trade

98. See JOYCE WONG & RYAN SCHUCHARD, ADAPTING TO CLIMATE CHANGE: A GUIDE FOR THE CONSUMER PRODUCTS INDUSTRY 1–2 (2010) (reporting on climate risk in 2009 by 62 consumer products companies to Carbon Disclosure Project); see also M. S. V. Prasad & B. Sandhya Sri, *Corporate Response to Climate Change: What do Stakeholders Expect?*, 2 AUSTRALASIAN ACCT. BUS. & FIN. J. 67 (2008) (analyzing the effect of stakeholders in Indian corporations).

99. See Hepler & Grady, *supra* note 91.

100. See generally DANIEL C. ESTY, GREENING THE GATT: TRADE, ENVIRONMENT, AND THE FUTURE (1994).

101. Gregory Mankiw states that trade improves average living standards. See Gregory Mankiw, *Why Economists Are Worried About International Trade*, N.Y. TIMES, (Feb. 16, 2018), <https://www.nytimes.com/2018/02/16/business/trump-economists-trade-tariffs.html>.

102. See generally the work by the political economist Joseph Schumpeter. *But see* Robert Ayres, *Limits to the growth paradigm*, 19 ECOLOGICAL ECON. 117 (1996) (arguing that “trade was at best a minor contributor to growth in the past and is probably now contributing negatively to both national wealth and equity, hence to welfare”).

103. One can think, for instance, of the argument that, if China and India bring millions of people into the middle class, the world will not be sustainable due to higher levels of consumption (of goods, food, energy) in these two countries. However, Sustainable Development Goal 12 (ensure sustainable consumption and production patterns) is about “promoting resource and energy efficiency, sustainable infrastructure, and providing access to basic services, green and decent jobs and a better quality of life for all.” See *Goal 12: Ensure Sustainable Consumption and Production Patterns*, U.N. SUSTAINABLE DEVELOPMENT GOALS, <http://www.un.org/sustainabledevelopment/sustainable-consumption-production/> (last visited Oct. 26, 2018).

of certain goods such as those used for capital punishment, torture or other cruel, inhuman or degrading treatment or punishment.¹⁰⁴

Several investigations have concluded that trade agreements undermine climate change mitigation efforts,¹⁰⁵ and so they have negative effects. In the words of Cossar-Gilbert, “Trade agreements are often stumbling blocks for action on climate change. Current trade rules limit governments’ capacity to support local renewable energy, undermine clean technology transfer and empower fossil fuel companies to attack climate protection in secret courts. Trade policies are preventing a sustainable future.”¹⁰⁶

The concept of using the trading system to mitigate climate change and enhance sustainable energy, therefore, will transform our understanding of trade in the context of environmental protection. It will shift the current paradigm from trade as a major cause of environmental harm (for example, aviation¹⁰⁷ and shipping¹⁰⁸) to trade as a tool for environmental protection (for example, via the inclusion of legally binding and enforceable provisions on sustainable development and clean energy in Regional Trade Agreements (“RTAs”)).¹⁰⁹ There is literature that reports that countries engaged in the largest RTAs/FTAs and international investment agreements are the ones with the highest levels of GHG emissions.¹¹⁰ Equally, there is literature that analyzes the impacts of climate change on international trade.¹¹¹

104. See Council Regulation 1236/2005, 2005 O.J. (L 200) 1 (EC).

105. BEN LILLISTON, INST. FOR AGRIC. AND TRADE POL’Y, *THE CLIMATE COST OF FREE TRADE: HOW THE TPP AND TRADE DEALS UNDERMINE THE PARIS CLIMATE AGREEMENT* 1 (2016).

106. Climate News Network, *Trade Rules Trump Climate Action: U.S. Blocks India’s Ambitious Solar Plans*, ECOWATCH (Feb. 26, 2016, 10:11 AM), <https://www.ecowatch.com/trade-rules-trump-climate-action-u-s-blocks-indias-ambitious-solar-pla-1882181449.html>.

107. It is the case that, with the rise of the middle class in heavily populated countries such as China and India, Chinese and Indians are travelling internationally more than ever as tourists. As a result, the levels of GHG emissions from aviation/shipping will only go up. See *China Whirl*, THE ECONOMIST, Apr. 14, 2018, at 32–34.

108. Shipping, like aviation, was not included in the Paris Climate Agreement, surprisingly, since both industries are combined responsible for 8% of global GHG emissions. The aim of the International Maritime Organization is for the shipping industry to cut its GHG emissions by 50% by 2050 based on the 2008 emission levels. See *Smoke on the Aater*, THE ECONOMIST, Apr. 14, 2018, at 58.

109. See, e.g., Rafael Leal-Arcas & Eduardo Alvarez Armas, *The Climate-Energy-Trade Nexus in EU External Relations*, EU CLIMATE DIPLOMACY: POLITICS, TECHNOLOGY AND NETWORKS 153–54 (Stephen Minas & Vassilis Ntousas eds., 2018). For further analysis, see J. ANTHONY VANDUZER, *Sustainable Development Provisions in International Trade Treaties*, in SHIFTING PARADIGMS IN INTERNATIONAL INVESTMENT LAW: MORE BALANCED, LESS ISOLATED, INCREASINGLY DIVERSIFIED 142 (Steffen Hindelan & Markus Krajewski, eds., 2016).

110. KEVIN P. GALLAGHER, *Trade, Investment, and Climate Policy: The Need for Coherence, in TRADE IN THE BALANCE: RECONCILING TRADE AND CLIMATE POLICY* 7 (Kevin P. Gallagher ed., 2017).

111. See, e.g., Rob Dellink, et al., *International trade consequences of climate change* (OECD Trade and Environment Working Papers 2017/01), <https://www-oecd-ilibrary-org.proxygt-law.wrlc.org/docserver/9f446180-en.pdf?expires=1540255126&id=id&accname=guest&checksum=6F9D0021E791F8F89A07FC20D62AD414>.

The 20th century was characterized by a top-down approach to the governance of climate action (for example, the Kyoto Protocol), energy (for example, inter-governmental energy agreements), and international trade (for example, inter-governmental trade agreements). The twenty first century, however, offers a bottom-up approach, marking one of the mega-trends of the twenty first century: in *climate action*, the implementation of the Paris Agreement on Climate Change is done from the bottom up via citizens, NGOs, mayors, governors, businesses, or smart cities.¹¹² Similarly, in *energy governance*, we see energy democratization by decentralizing the governance of energy security and creating new energy actors, namely prosumers¹¹³ and renewable energy cooperatives.

How about the governance of *international trade*? How can it be governed from the bottom up so that there is an open trading system in political, legal, and economic terms? How can we have greater involvement of civil society? How can we empower citizens in trade diplomacy? Traditionally, trade policy has been conducted by trade diplomats. Should we not listen to citizens' concerns and those of small and medium enterprises? So, in addition to the top-down process, we propose a bottom-up process, with greater citizen participation, which has been a big and unanticipated success since 2016 in the climate change field.

To get there, a fundamental question needs to be answered: How can the trading system increase economic well-being while promoting climate change mitigation and enhancing sustainable energy?¹¹⁴ This question can be broken into four sub-questions:

1. Why do States create overlapping institutions in a field governed by a specific institution?
2. What lessons can the renewables governance system learn from other governance regimes?
3. Why would States cooperate regionally/globally on common concerns?

112. It is remarkable to see the transformation of climate change agreements in terms of governance structure in such a short period of time: in less than 20 years, the 1997 Kyoto Protocol as an example of a top-down approach to climate change mitigation, and the 2015 Paris Climate Agreement as an example of a bottom-up approach to climate change mitigation. For an analysis of the Paris Climate Agreement, see Daniel Bodansky, *The Paris Climate Change Agreement: A New Hope?*, 110 AM. J. OF INT'L L. 288 (2016); see also Bryan H. Druzin, *A Plan to Strengthen the Paris Climate Agreement*, 84 FORDHAM L. REV. RES GESTAE 18 (2016).

113. It is interesting to see the conceptual evolution of this phenomenon over time. Initially, one referred to an energy user, then consumer, then customer, and now prosumer. For an analysis of prosumers, see Rafael Leal-Arcas, Feja Lesniewska & Filippos Proedrou, *Prosumers: New Actors in EU Energy Security*, 48 NETH. Y.B. OF INT'L L. 139 (2017).

114. 'The international trade system—the World Trade Organization (“WTO”) as well as regional and bilateral trade agreements—has often been criticised from a climate policy perspective, with trade rules perceived by some as a barrier to stronger climate ambition. Yet trade rules can also be looked at as something that could potentially help to achieve transformative change in climate policy.' CLIMATE STRATEGIES, *Summary: The trade system and climate action: ways forward under the Paris Agreement 2* (2016), <https://climatestrategies.org/wp-content/uploads/2016/10/Trade-and-Paris-Agreement-Summary.pdf>.

4. What legal and political-economy instruments can promote sustainable energy?

Part II of this Article answers these questions by offering a paradigm shift in thinking about international trade. Traditionally, trade has been understood as a stumbling block to sustainable energy.¹¹⁵ We argue that trade is a building block and that the international community should capitalize on the proliferation of RTAs and Bilateral Trade Agreements (“BTAs”) to enhance energy security via renewable energy and achieve clean energy.¹¹⁶ Both can be achieved with the inclusion of strong chapters on trade in goods and services related to sustainable development and renewable energy in RTAs. Traditionally, the thinking has been that more trade meant more energy consumption and therefore higher levels of greenhouse gas (“GHG”) emissions. But it does not have to be that way. Trade can be part of the solution to reducing GHG emissions by providing preferential treatment to green goods/services in trade agreements, leading consumers to buy green goods such as electric cars.

Moreover, politicians in Western liberal democracies suffer from short-termism for obvious electoral reasons. This phenomenon, however, is not the case for entrepreneurs, who have proven time and time again that they have a long-term approach to their vision and actions. We argue that this approach will expedite the necessary change to mitigate climate change and enhance international trade.

We further argue that greater (regional) cooperation and greater citizen participation will lead to climate change mitigation and energy security. But to have regional cooperation, one needs a certain degree of harmonization.

The EU is the first region in the world to set up the ambitious target of decarbonizing its economy by 2050. It currently relies on energy-rich countries for its energy needs and urgently needs to diversify its energy supply, as illustrated by these two facts: the EU imports 53% of its energy; and six EU countries depend 100% on Russia for their gas.¹¹⁷ In addition, many of the EU’s energy suppliers are politically and economically fragile. This makes the EU vulnerable, as we saw in the recent Russia-Ukraine gas disputes. Moreover, EU companies pay more for energy than their competitors. All of this has consequences for the EU’s economy and quality of life. As a result, there is a push to turn to renewable energy as a way to secure a sustainable supply of energy. The European Innovation Union, the Energy Community, the Energy Union, and the Europe 2020 initiative address energy security as a priority. Achieving sustainable energy

115. See, e.g., Glen Peters & Edgar Hertwich, *Pollution Embodied in Trade: The Norwegian Case*, 16 GLOB. ENVTL. CHANGE 379 (2006).

116. On the links between climate change and trade, see generally Rafael Leal-Arcas, CLIMATE CHANGE AND INTERNATIONAL TRADE (2013).

117. Rafael Leal-Arcas, *How Governing International Trade in Energy Can Enhance EU Energy Security*, 6 RENEWABLE ENERGY L. & POL’Y REV. 202 (2015).

requires a fresh and comprehensive approach to legal and political-economy instruments.

A. IMPEDIMENTS AND OPPORTUNITIES FOR TRADE AND CLIMATE/RENEWABLE ENERGY

For the international trading system to contribute effectively to climate action, we will need strong institutional coordination. Currently, significant overlap exists between the various relevant institutions and regimes. This results in a lack of cohesion that is not conducive to tackling climate change effectively. This section proposes mapping the macro-level to identify key impediments and possible adjustments as well as opportunities for cooperation between trade and climate change/renewable energy within current institutions,¹¹⁸ regulatory frameworks,¹¹⁹ and policies to improve access to sustainable energy.¹²⁰ There is a large body of institutions and instruments of trade and sustainable energy. However, there is insufficient research, and researchers are working in silos.

So what are the obstacles, and how can we have a win-win situation for trade and climate action? What are the criteria for an effective policy on trade and climate action? Is one criterion the enforceability of climate change agreements?¹²¹ Or the harmonization of climate action goals? How can the trading system help with the implementation of the Paris Climate Agreement? Identifying the gaps and opportunities for cooperation between these two regimes is crucial for a new normative framework on how the trading system can help mitigate climate change and enhance energy security.¹²² This analytical framework needs to be

118. Already in 1990 there was debate on the long-term interaction between the economy and the environment. See Malte Faber et al., *Economy-Environment Interactions in the Long-Run: A Neo-Austrian Approach*, 2 *ECOLOGICAL ECON.* 27 (1990).

119. See generally DANIEL BODANSKY, JUTTA BRUNNÉE & LAVANYA RAJAMANI, *INTERNATIONAL CLIMATE CHANGE LAW* (2017); BENOIT MAYER, *THE INTERNATIONAL LAW ON CLIMATE CHANGE* (2018); KATI KULOVESI, *Climate Change and Trade: At the Intersection of Two International Legal Regimes*, in *CLIMATE CHANGE AND THE LAW* 419 (Erkki J. Hollo, Kati Kulovesi & Michael Mehling eds., 2013); PIERRE-MARIE DUPUY & JORGE E. VIÑUALES, *Environmental Protection and International Economic Law*, in *INT'L ENV'T'L L.* 452 (2018); VESSELIN POPOVSKI, *THE IMPLEMENTATION OF THE PARIS AGREEMENT ON CLIMATE CHANGE* (2018).

120. See generally Rafael Leal-Arcas, *Unilateral Trade-Related Climate Change Measures*, 13 *THE J. OF WORLD INV. AND TRADE* 875 (2012); Rafael Leal-Arcas & Stephen Minas, *Mapping the International and European Governance of Renewable Energy*, 35 *OXFORD Y.B. OF EUR. L.*, 621 (2016); Gary Clyde Hufbauer & Jisun Kim, *The World Trade Organization and Climate Change: Challenges and Options* 1–17 (Peterson Inst. for Int'l Econ., Working Paper 09-9, 2009).

121. Such a question raises the following issue: do climate change agreements suffer from weak enforcement capacities that ultimately undermine their credibility as instruments of environmental protection? Conversely, are free-trade agreements surprisingly more likely to encourage compliance with environmental commitments than climate change agreements due to a system of encouragement and reward, driven by preferential market access?

122. See Charles E. Di Leva & Xiaoxin Shi, *The Paris Agreement and the International Trade Regime: Considerations for Harmonization*, 17 *SUSTAINABLE DEV. L. & POL'Y* 20 (2016); COMMENTARY ON THE ENERGY CHARTER TREATY (Rafael Leal-Arcas ed., Edward Elgar, 2018); RAFAEL LEAL-ARCAS, CONSTANTINO GRASSO & JUAN ALEMANY RÍOS, *ENERGY SECURITY, TRADE AND THE EU: REGIONAL AND INTERNATIONAL PERSPECTIVES* 2 (2016); see generally RESEARCH HANDBOOK ON EU

placed in a political context of non-cooperation by a major international actor, namely the US. The Trump administration's position regarding multilateral trade and the Paris Climate Agreement brings new challenges for the trade-climate nexus.

To help us understand the impediments and opportunities for interaction between these two different but related epistemic communities (for example, trade and climate change), this section is divided into two sub-sections: overlapping institutions between these two communities and what lessons can be learned from other governance regimes.

1. Overlapping Institutions

Many instruments connect both the trade and climate regimes: the World Trade Organization ("WTO") via its case law on environmental protection,¹²³ the European Union ("EU") with its regulation on how trade should protect the environment, the nationally determined contributions,¹²⁴ which are now part of the post-2020 Paris climate architecture, and the Environmental Goods Agreement, which is a plurilateral WTO agreement, to name but a few. As a result, it is necessary to understand how WTO rules can contribute to the design of effective climate policies internationally and how climate action can be made compatible with WTO rules.¹²⁵ Equally, it is imperative to evaluate trade rules to see how they support climate action without compromising on trade liberalization.¹²⁶ In addition, there are overlapping institutions and processes from both the trade and climate regimes. As a result, closer cooperation between these institutions and

Energy Law and Policy (Rafael Leal-Arcas & Jan Wouters eds., 2017); RAFAEL LEAL-ARCAS, *THE EUROPEAN ENERGY UNION: THE QUEST FOR SECURE, AFFORDABLE AND SUSTAINABLE ENERGY* (2016).

123. For example, these cases involving China, see *DS419: China—Measures Concerning Wind Power Equipment*, WORLD TRADE ORG., https://www.wto.org/english/tratop_e/dispu_e/cases_e/ds419_e.htm (last visited Dec. 1, 2018) (raised by the US against China in relation to subsidies for wind turbines); the United States, see *DS437: United States—Countervailing Duty Measures on Certain Products from China*, WORLD TRADE ORG., https://www.wto.org/english/tratop_e/dispu_e/cases_e/ds437_e.htm (last visited Dec. 1, 2018) (launched by China against the US in relation to the price of Chinese solar panels and wind towers); the European Union, see *DS452: European Union and Certain Member States—Certain Measures Affecting the Renewable Energy Generation Sector*, WORLD TRADE ORG., https://www.wto.org/english/tratop_e/dispu_e/cases_e/ds452_e.htm (last visited Dec. 1, 2018) (in which China requested WTO consultations with the EU, Greece, and Italy on several feed-in-tariff programs in support of solar energy generation that allegedly contained local content requirements ("LCRs")); and India, see *India—Certain Measures Relating to Solar Cells and Solar Modules*, WORLD TRADE ORG., https://www.wto.org/english/tratop_e/dispu_e/cases_e/ds456_e.htm (last visited Dec. 1, 2018) (which was initiated by the US against Indian LCR provisions pertaining to solar cells and solar modules).

124. The nationally determined contributions are an example of a bottom-up approach to climate change governance: it is up to countries to decide what is best for them in the fight against climate change and how to do it.

125. Fabio Morosini, *Trade and Climate Change: Unveiling the Principle of Common but Differentiated Responsibilities from the WTO Agreements*, 42 *GEO. WASH. INT'L L. REV.* 713 (2010).

126. See generally SUSANNE DRÖGE ET AL., *GER. INST. FOR INT'L AND SEC. AFF., MOBILISING TRADE POLICY FOR CLIMATE ACTION UNDER THE PARIS AGREEMENT* (2018).

processes would be necessary, especially when it comes to coherence in the interpretation of environmental agreements included in sustainable development chapters of free-trade agreements (“FTAs”).

Because the regulation of renewable energy in international law is fragmented and largely incoherent,¹²⁷ it is essential to understand the overall trade and renewable energy systems and determine their net effect in terms of sustainable energy. There are competing interests in different jurisdictions, which may explain why new international organizations are created that overlap. This Part will analyze how the different institutions govern renewables and where there are overlaps, interactions, and fragmentation between them. For example, is the inter-institutional relationship hierarchical or is it polycentric? This section will focus on mapping the regulatory competences of all of the institutions which play a role in regulating renewable energy and trade so as to identify gaps and overlaps (see [Figure 1](#)).

In the case of the EU, currently it is unable to act the way a sovereign actor such as China or the U.S. would in promoting their energy security.¹²⁸ For the EU, therefore, improving energy security will involve taking regulatory and policy measures which address the internal-external cleavage. This section aims to propose ways in which gaps could be filled and overlaps eliminated whilst remaining true to the high-level normative framework, concentrating on those measures which would enhance EU sustainable energy.

Addressing the roots and ramifications of, say, energy trade governance fragmentation requires advancing the existing theoretical groundwork towards a comprehensive understanding that will pave the way for further research.¹²⁹ Global legal pluralism seems to be an appropriate theory in that it helps to describe and explain comprehensively the various institutions and processes of trade and renewable energy.

2. Learning Lessons from Other Governance Regimes

Trade agreements offer a powerful platform from which to affect change. Since the beginning of the 1990s, the EU has been using human-rights conditionality clauses in its trade agreements to protect human rights or democratic principles.¹³⁰ Such a practice has had major implications for the application and respect

127. For suggestions on how to promote renewable energy effectively, see Richard Haas et al., *How to Promote Renewable Energy Systems Successfully and Effectively*, 32 ENERGY POL’Y 833, 834 (2004); Richard Haas et al., *Efficiency and Effectiveness of Promotion Systems for Electricity Generation from Renewable Energy Sources – Lessons from EU Countries*, 36 ENERGY 2186 (2011); Anne Held, Mario Ragwitz & Reinhard Haas, *On the Success of Policy Strategies for the Promotion of Electricity from Renewable Energy Sources in the EU*, 17 ENERGY & ENV’T 849 (2006).

128. See Rafael Leal-Arcas & Andrew Filis, *Conceptualizing EU Energy Security Through an EU Constitutional Law Perspective*, 36 FORDHAM INT’L L. J. 1225, 1227 (2013).

129. See generally Rafael Leal-Arcas & Andrew Filis, *The Fragmented Governance of the Global Energy Economy: A Legal-Institutional Analysis*, 6 J.L. WORLD ENERGY 348, 348–405.

130. See LORAND BARTELS, *HUMAN RIGHTS CONDITIONALITY IN THE EU’S INTERNATIONAL AGREEMENTS* (Oxford U. Press, 2005).

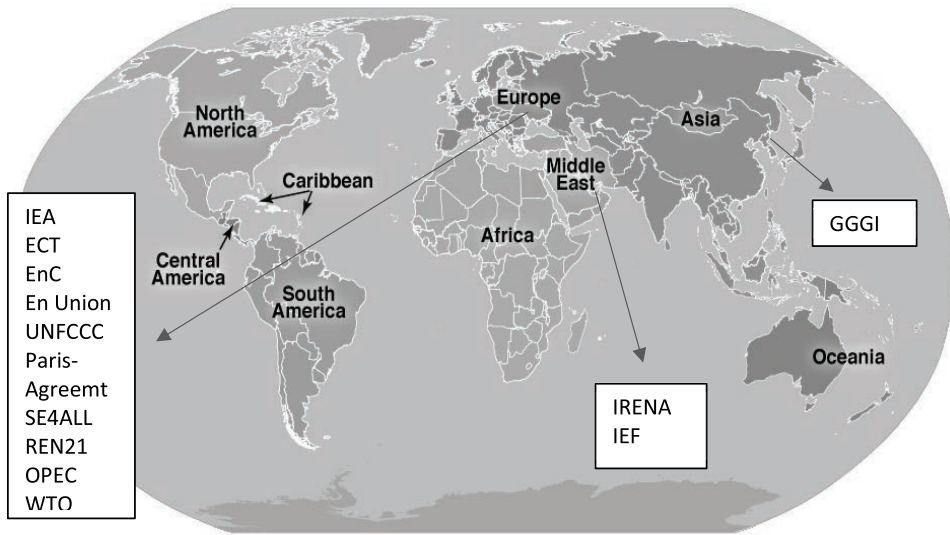


FIGURE 1: Institutions and Instruments of International Trade and Renewable EnergySource: The author (Rafael Leal-Arcas); what follows is an explanation of each acronym used in the graph. IEA: International Energy Agency; ECT: Energy Charter Treaty; EnC: Energy Community; En Union: Energy Union; UNFCCC: UN Framework Convention on Climate Change; SE4All: Sustainable Energy for All; REN21: Renewable Energy Policy Network for the 21st Century; OPEC: Organization of the Petroleum Exporting Countries; WTO: World Trade Organization; IRENA: International Renewable Energy Agency; IEF: International Energy Forum; GGGI: Global Green Growth Institute.

of human rights,¹³¹ even if some countries objected on the grounds that trade agreements should only be about trade. So why not use conditionality clauses in trade agreements for climate action?

When establishing the balance between global economic integration and domestic regulatory autonomy, the complexities of trade,¹³² investment¹³³ and the environment are different.¹³⁴ However, the tools used to manage their

131. See Lachlan McKenzie, *Overcoming Legacies of Foreign Policy (Dis)interests in the Negotiation of the European Union-Australia Free Trade Agreement*, 72 AUSTL. J.L. INT'L AFFAIRS 255, 255–71 (2018).

132. See RAFAEL LEAL-ARCAS, *THEORY AND PRACTICE OF EC EXTERNAL TRADE LAW AND POLICY* (Cameron May, 2008).

133. See RAFAEL LEAL-ARCAS, *INTERNATIONAL TRADE AND INVESTMENT LAW: MULTILATERAL, REGIONAL AND BILATERAL GOVERNANCE* (Edward Elgar, 2010).

134. See Taishi Sugiyama & Jonathan Sinton, *Orchestra of Treaties: A Future Climate Regime Scenario with Multiple Treaties Among Like-Minded Countries*, 5 INT'L ENVTL. AGREEMENTS: POL. L. & ECON. 65, 65–88, (2005); See generally SCOTT BARRETT, *CLIMATE CHANGE AND INTERNATIONAL TRADE: LESSONS ON THEIR LINKAGE FROM INTERNATIONAL ENVIRONMENTAL AGREEMENTS*, CTR. FOR TRADE & ECON.

complexities often coincide: taxes,¹³⁵ tariffs, regulations, and subsidies¹³⁶—all of which are instruments to mitigate climate change and move forward the energy transition.¹³⁷ This section proposes as a future research agenda to look at various issues addressed by global governance regimes, including investment, climate change, and trade.¹³⁸ Its purpose is to analyze how these regimes developed, determine which theories guided their evolution, and find areas of comparison to the governance of renewable energy. It further proposes an examination of whether similar fragmentation exists within these other regimes and whether it has impacted their focal point areas. Can the governance of renewables find parallels and shape itself accordingly to better promote sustainable energy?¹³⁹ How

Integration, GRADUATE INST., GENEVA (2010); Rafael Leal-Arcas, *The Multilateralization of International Investment Law*, 35 N.C.J. INT'L L. & COM. REG. 33, 133–35 (2009).

135. In the case of the environment, one can think of a carbon tax, where the consumer of goods, and not the producer, is taxed. Such a tax would place the burden on the west (which is the main consumer of goods), as opposed to the rest. For an analysis of how taxes protect the environment, see William Baumol & Wallace Oates, *The Use of Standards and Prices for Protection of the Environment*, 73 SWED. J. OF ECON. 42 (1971); William Baumol, *On Taxation and the Control of Externalities*, 62 AM. ECON. REV. 307 (1972); Paul Ekins, *The Impact of Carbon Taxation on the UK Economy*, 22 ENERGY POL'Y 571 (1994); Paul Ekins, *European Environmental Taxes and Charges: Recent Experience, Issues and Trends*, 31 ECOLOGICAL ECON. 39 (1999); PAUL EKINS, RESOURCE PRODUCTIVITY, ENVIRONMENTAL TAX REFORM AND SUSTAINABLE GROWTH IN EUROPE, ANGLO-GERMAN FOUND. FOR THE STUDY OF INDUS. SOC'Y 4 (2009); R.K. Turner et al., *Green Taxes, Waste Management and Political Economy*, 53 J. OF ENVTL. MGMT. 121 (1998).

136. In the fight against climate change, something as basic as transferring subsidies from the fossil-fuel industry to the renewables industry would be a very effective way to mitigate climate change and invest public funding intelligently. For an analysis of the funding spent on fossil fuel subsidies by the G7, see SHELAGH WHITLEY ET AL., G7 FOSSIL FUEL SUBSIDY SCORECARD: TRACKING THE PHASE-OUT OF FISCAL SUPPORT AND PUBLIC FINANCE FOR OIL, GAS, AND COAL, ODI (2018).

137. See Jason Bardoff, *International Trade Law and the Economics of Climate Policy: Evaluating the Legality and Effectiveness of Proposals to Address Competitiveness and Leakage Concerns*, in CLIMATE CHANGE, TRADE AND COMPETITIVENESS: IS A COLLISION INEVITABLE? (Lael Brainard & Isaac Sorokin eds., Brookings Institution Press, 2009); Keith Kendall, *Carbon Taxes and the WTO: A Carbon Charge Without Trade Concerns?*, 29 ARIZ. J. INT'L & COMP. L. 49 at 51–52; see generally Jennifer Hillman, *Changing Climate for Carbon Taxes. Who's Afraid of the WTO?*, THE GER. MARSHALL FUND OF THE U.S., CLIMATE & ENERGY POLICY PAPER SERIES 3 (2013); Joseph Stiglitz, *A New Agenda for Global Warming*, 3 THE ECONOMISTS' VOICE 1 (2006); Gavin Goh, *The World Trade Organization, Kyoto and Energy Tax Adjustments at the Border*, 38 J. OF WORLD TRADE, 395; see generally, Mustafa Babiker & Thomas Rutherford, *The Economic Effects of Border Measures in Subglobal Climate Agreements*, 26 ENERGY JOURNAL 99 (2005); POOST PAUWELYN, *Carbon Leakage Measures and Border Tax Adjustments Under WTO Law*, in RESEARCH HANDBOOK ON ENVIRONMENT, HEALTH AND THE WTO 448–506 (Edward Elgar, 2012); J.P.M. Sijm and A.W.N. van Dril, *The Interaction between the EU Emissions Trading Scheme and Energy Policy Instruments in the Netherlands: Implications of the EU Directive for Dutch Climate Policies*, INTERACT (2003); Daniel Peat, *The Wrong Rule for the Right Energy: the WTO SCM Agreement and Subsidies for Renewable Energy*, 24 ENVTL LAW & MGMT. 3, 3–10 (2012); Benjamin Sovacool, *Reviewing, Reforming, and Rethinking Global Energy Subsidies: Towards a Political Economy Research Agenda*, ECOLOGICAL ECONOMIST 150 (2017).

138. See, e.g., JAMES BACCHUS, TRIGGERING THE TRADE TRANSITION: THE G20'S ROLE IN RECONCILING RULES FOR TRADE AND CLIMATE CHANGE, INT'L CTR. FOR TRADE & SUSTAINABLE DEV. (2018).

139. See, e.g., INT'L RENEWABLE ENERGY AGENCY, UNTAPPED POTENTIAL FOR CLIMATE ACTION: RENEWABLE ENERGY IN NATIONALLY DETERMINED CONTRIBUTIONS, (2017).

are other global issues governed and can renewable energy extract any lessons in this regard?

Regarding clean energy, the potential of solar energy is phenomenal: solar energy today represents only around 0.3% of global energy;¹⁴⁰ one hour of sun can generate energy for the whole Earth for an entire year;¹⁴¹ in 14.5 seconds, the sun emits enough energy to power the Earth for an entire day;¹⁴² and “we could power the entire world if we covered less than 3% of the Sahara Desert with solar panels.”¹⁴³ So there is hope and great research and business opportunities.¹⁴⁴ Moreover, predictions are that the fastest-growing occupation until 2028 will be that of solar installer.¹⁴⁵

That said, commentator Varun Sivaram brings forward three reasons that might impede a long-term clean-energy transition:

1. Some environmental groups in different countries are putting pressure on governments to close down nuclear reactors, which are a source of clean energy;
2. There seems to be less support in the US regarding innovation in solar energy; and
3. There is lobbying for barriers to free trade of solar components, which will make the deployment of solar power more expensive.¹⁴⁶

As for promoting the use of renewable energy,¹⁴⁷ it is one of the most pressing concerns for climate change and long-term sustainability at a global level. Analyzing how international trade law can contribute to promoting renewable

140. THE ECONOMIST, *Solar Frontiers*, YOUTUBE (Dec. 1, 2015), <https://www.youtube.com/watch?v=4-m9OR9vcaM>.

141. *Id.*

142. Zachary Shahan, *In 14 and a Half Seconds, the Sun Provides as Much Energy to Earth as Humanity Uses in a Day*, 18 CLEANTECHNICA (2012), <https://cleantechnica.com/2012/04/18/in-14-and-a-half-seconds/>.

143. See CNN TRANSCRIPTS, *Global Lessons: The GPS Road Map for Powering America*, CNN (Oct. 21, 2012), <http://transcripts.cnn.com/TRANSCRIPTS/1210/21/cp.01.html>.

144. See VARUN SIVARAM, *TAMING THE SUN: INNOVATIONS TO HARNESS SOLAR ENERGY AND POWER THE PLANET* (MIT Press, 2018).

145. *Trade Tariffs: Duties Call*, THE ECONOMIST, Jan. 2018, at 12.

146. Varun Sivaram, *The dark side of solar: How the rising solar industry empowers political interests that could impede a clean energy transition*, BROOKINGS INSTITUTION PRESS (2018) at 2.

147. Morocco is building a large solar-power plant in the Saharan Desert. See Arthur Neslen, *Morocco to Switch on First Phase of World's Largest Solar Plant*, THE GUARDIAN (Feb. 4, 2016), <https://www.theguardian.com/environment/2016/feb/04/morocco-to-switch-on-first-phase-of-worlds-largest-solar-plant>. Dubai is doing the same. See Bernd Debusmann, *Dubai's \$3.8bn Solar Park Continues to Break World Records*, ARABIAN BUSINESS (Mar 20, 2018), <https://www.arabianbusiness.com/energy/392315-dubais-38bn-solar-park-continues-to-break-world-records>. These investments will help increase the electricity supply and cut energy subsidies.

energy addresses an important social, political, and legal challenge.¹⁴⁸ We need a deep understanding of the current systemic aspects of energy trade governance and their implications for sustainable energy to achieve effective change.

Our world faces two major challenges when it comes to energy. First, as of 2016, one person in five on the planet still lacked access to electricity,¹⁴⁹ and almost three billion people still use wood, coal, charcoal or animal waste for cooking and heating.¹⁵⁰ The other main global energy challenge is that, in places with access to modern energy services, the lion's share of energy usage stems from environmentally damaging fossil fuels.¹⁵¹ We use fossil fuels because there is demand for it: the situation is demand-driven. Proposals for an alternative way forward have been discussed.¹⁵²

B. IMPROVING THE INTERNATIONAL TRADING SYSTEM

Well-known benefits of trade are cheap imports and higher productivity. From energy transit, to technology transfer,¹⁵³ to investment protection, renewable energy and trade present interplays across various fields. This section proposes an investigation of the basis for how new trade agreements can better address issues of common concern. For instance, this section proposes looking at what improvements can be made to the international trading system to promote climate

148. On the role of the law for the promotion of sustainable development, see Omorogbe, Y.O., *Promoting Sustainable Development Through the Use of Renewable Energy: The Role of the Law*, in BEYOND THE CARBON ECONOMY: ENERGY LAW IN TRANSITION (Oxford Scholarship Online, 2008).

149. INT'L ENERGY AGENCY, WEO 2016 ELECTRICITY ACCESS DATABASE (2016), <http://www.worldenergyoutlook.org/resources/energydevelopment/energyaccessdatabase/> [<https://perma.cc/MZP7-BU5Z>].

150. WORLD HEALTH ORG., FUEL FOR LIFE: HOUSEHOLD ENERGY AND HEALTH 4 (2006), http://apps.who.int/iris/bitstream/handle/10665/43421/9241563168_eng.pdf?sequence=1&isAllowed=y.

151. This view is in contrast with that of Scott Pruitt, head of the Environmental Protection Agency under President Donald Trump. Mr. Pruitt believes in true environmentalism, namely "using natural resources that God has blessed us with." See *Lexington: Salting the Earth*, THE ECONOMIST, Jan. 27, 2018 at 40. A similar example is the planning of extraction of coal from Pakistan's Thar Desert, which has the financial help of the China-Pakistan Economic Corridor. See *Engro: That's coal in the desert*, THE ECONOMIST, Feb. 3, 2018, at 55–56. On the other hand, one would need to extract natural resources, many of which will come from developing countries, to make green technologies and therefore tech-based decarbonization efforts. This means that there will be an increase in the demand for such minerals. Therefore, the challenge is extracting the essential minerals and leaving fossil resources in the ground and doing so in a sustainable manner. For an opposite view, see generally Ehab Abu Gosh & Rafael Leal-Arcas, *The Conservation of Exhaustible Natural Resources in the GATT and WTO: Implications for the Conservation of Oil Resources*, 14 THE J. OF WORLD INV. & TRADE 480 (2013).

152. See SKYMINING, ABOUT US (2018), <https://skymining.com/index.html> (example of a company that proposes to replace fossil fuels).

153. See, e.g., Thomas Brewer., *Climate change technology transfer: A new paradigm and policy agenda*, 8 CLIMATE POLICY, 516–26 (2011).

action,¹⁵⁴ sustainable energy, and more efficient energy markets.¹⁵⁵ There are very few trade agreements with sustainable-development chapters, even fewer with strong and meaningful sustainable-development chapters.¹⁵⁶ Moreover, there is a lack of scholarship that can inform practice. We claim that trade agreements can be a vehicle to address global common concerns. How can the trading system create a regulatory framework that encourages environmental innovation and shifts consumption patterns towards sustainable goods and services?

Section 1 below focuses on how market cooperation can better address issues of common concern. Section 2 focuses on concrete ways in which sustainability can be promoted by global trade.

1. Regional and Global Cooperation on Issues of Common Concern

The so-called “tragedy of the commons”¹⁵⁷ is a well-known example of a collective-action problem. How do we balance the personal interest of costs and benefits for individuals of an outcome against the common good of a collective group? Is the current situation one where we overweigh the value of downside risks because it is direct and personal? Equally, do we underweigh the value of benefits because they are diffuse and general?¹⁵⁸

Matters of common concern such as climate change and economic crises have far-reaching and devastating effects.¹⁵⁹ There is a need to clarify the relationship between the legal principle of common concern, the economic concept of public goods, and legal scholarship on the governance of global public goods.¹⁶⁰ Most

154. Rafael Leal-Arcas *International Trade for Climate Action and Inclusive Green Growth*, GREEN GROWTH KNOWLEDGE, Feb 1, 2018.

155. See Rafael Leal-Arcas, *Climate Change Mitigation from the Bottom Up: Using Preferential Trade Agreements to Promote Climate Change Mitigation*, 7 CARBON & CLIMATE L. REV. 34 (2013); Rafael Leal-Arcas, *Trade Proposals for Climate Action*, 6 TRADE, L. & DEV. 11 (2014); Rafael Leal-Arcas, *Working Together: How to make trade contribute to climate action*, INT’L CTR. FOR TRADE & SUSTAINABLE DEV., INFORMATION NOTES NO. 18 (Nov. 2013), <https://www.ictsd.org/sites/default/files/downloads/2013/11/working-together-how-to-make-trade-contribute-to-climate-action1.pdf>.

156. That said, the number of multilateral environmental agreements (“MEAs”) referred to in trade agreements is increasing. This is done for various reasons: to determine hierarchy between agreements or for purposes of interpretation, ratification or implementation of MEAs. See Jean-Frederick Morin & Corentin Bialais, *Strengthening Multilateral Environmental Governance through Bilateral Trade Deals*, CTR. FOR INT’L GOVERNANCE INNOVATION (2018).

157. Garrett Hardin, *The Tragedy of the commons*, 162 SCIENCE 1243 (1968).

158. See Brian Efrid, *The political economy of a regional electricity market*, KAPSARC PowerPoint presentation, May 10, 2018, at 3 (on file with author Rafael Leal-Arcas).

159. See, e.g., Frederick Soltau, *Common concern of humankind*, in THE OXFORD HANDBOOK OF INTERNATIONAL CLIMATE CHANGE LAW (K. Gray, R. Tarasofsky & C. Carlarne eds., 2016).

160. See generally Rafael Leal-Arcas, *Sustainability, Common Concern and Public Goods*, 49 GEO. WASH. INT’L L. REV. 801 (2017); GLOBAL PUBLIC GOODS (Inge Kaul ed., Edward Elgar, 2016); MULTILEVEL GOVERNANCE OF INTERDEPENDENT PUBLIC GOODS: THEORIES, RULES AND INSTITUTIONS FOR THE CENTRAL POLICY CHALLENGE IN THE 21ST CENTURY (Ernst-Ulrich Petersmann ed., European Univ. Inst. Working Papers, 2012); Fabrizio Cafaggi & David Caron, *Global Public Goods amidst a Plurality of Legal Orders: A Symposium*, 23 EUROPEAN J. OF INT’L L. 643 (2012).

countries are energy-dependent, so it is necessary to cooperate to find ways to enhance sustainable energy via the trading system. Issue-linkages provide a way to increase cooperation on global common concerns by increasing participation in regional/global institutions.¹⁶¹ Yet, this raises a timely question: Why would, say, EU Member States cooperate towards the creation of an Energy Union when the EU is facing integration challenges?¹⁶²

At the regional level, the EU seems to be one of the most committed regions in the world to climate change mitigation. With great potential for solar energy in the south and wind energy¹⁶³ in the north of Europe—two of several sources of renewable energy—the EU is in a position to make use of renewables to mitigate climate change and to gradually become more energy independent and efficient,¹⁶⁴ following the theory of comparative advantage,¹⁶⁵ thereby making energy affordable and reliable. In addition, the EU's Partnership Instrument¹⁶⁶ promises to be pivotal when dealing with cooperation on issues of common concern. Its aim is to support “public diplomacy, people to people contacts, academic cooperation and outreach activities to promote the Union's values and interest.”¹⁶⁷ The Partnership Instrument aims at greater interaction between the EU and countries that “play an increasingly prominent role in global affairs, international economy and trade, multilateral fora and global governance and in addressing challenges of global concern.”¹⁶⁸

Moreover, this section puts forth the unconventional view that, in addition to climate change, sustainable energy is ultimately a common concern. An example is Sub-Saharan migration to the EU because of the consequences of climate change and energy poverty in sub-Saharan Africa. How can trade agreements address such issues?¹⁶⁹ Greater access to sustainable energy could be done

161. Timothy Meyer, *Global Public Goods, Governance Risk, and International Energy*, 22 DUKE J. OF COMP. & INT'L L. 319 (2012); PATRICK LOW, *HARD LAW AND 'SOFT LAW': OPTIONS FOR FOSTERING INTERNATIONAL COOPERATION*, INT'L CTR. FOR TRADE AND SUSTAINABLE DEV. & THE WORLD ECON. FORUM (2015).

162. For an interesting explanation of environmental cooperation from a game-theory point of view, see Moshe Hirsch, *Game Theory and International Environmental Cooperation* 27 J. OF ENERGY & NAT. RES. L. 503, 503–10 (2009).

163. To see the various areas of high wind in the world for wind power generation, see Global Wind Atlas, available at <https://globalwindatlas.info/>.

164. From an economic perspective, see R. Ayres, *On economic disequilibrium and free lunch*, 4 ENVTL. & RES. ECON. 435 (1994).

165. DAVID RICARDO, *ON THE PRINCIPLES OF POLITICAL ECONOMY AND TAXATION* (London: John Murray, 1817).

166. *Partnership Instrument*, EUROPEAN COMM'N, INT'L COOPERATION & DEV., https://ec.europa.eu/europeaid/funding/funding-instruments-programming/funding-instruments/partnership-instrument_en (last visited Dec. 1, 2018).

167. *Id.*

168. *Id.*

169. The European Union is already committed to referencing its participation in the Paris Agreement on Climate Change in its trade agreements. See, e.g., the Japan-EU Economic Partnership Agreement (“JEEPA”), the first trade agreement that makes explicit reference to the Paris Agreement.

regionally via the trading system. There is a clear growth in energy demand due to population growth, high immigration rates in certain regions of the world, economic growth,¹⁷⁰ and large infrastructure projects. One could make use of economies of scale in energy generation, whether renewable energy or gas. One could also increase economic efficiency, harmonize regional policies, and improve governance. Through energy cooperation, one could have further market integration.

2. Promoting Sustainability Through Trade: A Counter-Intuitive Conundrum

A major aim of the international community is to decarbonize the economy.¹⁷¹ Renewable energy has many advantages over fossil fuels in terms of health and the environment.¹⁷² With the rise of renewables, international trade in energy and in renewable technologies is likely to increase because renewables are intermittent and the trading system will be necessary to export electricity from where it is plentiful to where it will be necessary. How can the trading system help existing green technologies be implemented at scale? What are the regulatory barriers to doing so? There is a lot of potential for exporting renewables from developed to developing countries. Most of the renewable-energy work is done in developed countries, although China is an exception. In turn, the trading system can be a major vehicle towards moving away from fossil fuels to renewable energy.¹⁷³ It can provide fair competition, economies of scale and knowledge transfer.¹⁷⁴

It has been reported that trade-related GHG emissions account for 26% of global emissions.¹⁷⁵ Very little research has been conducted on the impact of

See EU and Japan finalize Economic Partnership Agreement, EUROPEAN COMM'N (Dec. 8, 2017), http://europa.eu/rapid/press-release_IP-17-5142_en.htm. Moreover, the EU has clearly stated that the US's continued participation in the Paris Climate Agreement is essential if the two sides are to resume formal trade talks on the Trans-Atlantic Trade and Investment Partnership. See *EU Officials: US Participation in Paris Climate Deal Key for Resuming Trade Talks*, 22 BRIDGES, 5 (Feb. 15, 2018); see also E.A. Crunden, *EU will only make trade deals with nations that ratify Paris climate agreement*, THINKPROGRESS (Feb. 6, 2018), <https://thinkprogress.org/eu-paris-us-decd4aad9145/>. Moreover, in November 2017, the Inter-American Court of Human Rights recognized the right to a healthy environment as fundamental to human existence. Advisory Opinion OC-23/17 (Nov. 15, 2017).

170. *But see*, Robert Costanza & Herman Daly, *Natural capital and sustainable development*, 6 CONSERVATION BIOLOGY, 37 (1992).

171. DEEP DECARBONIZATION PATHWAYS PROJECT, *PATHWAYS TO DEEP DECARBONIZATION 2015 REPORT – EXECUTIVE SUMMARY* (2015). For a comprehensive analysis on the topic, see JAMES BACCHUS, *THE WILLING WORLD: SHAPING AND SHARING A SUSTAINABLE GLOBAL PROSPERITY* (Cambridge Univ. Press, 2018).

172. RICHARD OTTINGER, *RENEWABLE ENERGY LAW AND DEVELOPMENT: CASE STUDY ANALYSIS* (Edward Elgar, 2013).

173. SIMONE TAGLIAPIETRA, *THE GEOECONOMICS OF SOVEREIGN WEALTH FUNDS AND RENEWABLE ENERGY* (Claeys & Casteels eds., 2012).

174. See JOINT STATEMENT ON TRILATERAL MEETING OF THE TRADE MINISTERS OF THE UNITED STATES, JAPAN AND THE EUROPEAN UNION (2018), http://trade.ec.europa.eu/doclib/docs/2018/may/tradoc_156906.pdf (regarding what new WTO rules might look like when it comes to addressing non-market-oriented policies, in the fight against unfair competition).

175. Robbie Andrew, Steven Davis & Glen P. Peters, *Climate Policy and Dependence on Traded Carbon*, 8 ENVTL. RESEARCH LETTERS 1 (2013).

preferential trade agreements (“PTAs”)¹⁷⁶ in addressing climate change mitigation/environmental protection and energy security.¹⁷⁷ The North American Free Trade Agreement (NAFTA) of 1994 was the first PTA to include a side-agreement to that effect, namely the North American Agreement on Environmental Cooperation.¹⁷⁸ The European Union’s RTAs have been incorporating environmental provisions since the mid-1990s.

Even so-called mega-RTAs are incorporating environmental provisions: Chapter 20 of the Trans-Pacific Partnership, Chapter 24 of the Comprehensive Economic and Trade Agreement, and there is a chapter on trade and sustainable development in the Trans-Atlantic Trade and Investment Partnership negotiations.¹⁷⁹ RTAs of emerging economies are also converging to this ‘green’ race, especially when the agreements involve countries that belong to the Organization for Economic Cooperation and Development.¹⁸⁰ A case in point is the Peru-Korea FTA, whose Article 19.8.1 recognizes that climate change is a common concern and states that “the Parties agree to promote joint measures to limit or reduce the adverse effects of the climate change.”¹⁸¹ The PTAs-trend seems

176. Regional trade agreements (“RTAs”) and preferential trade agreements (“PTAs”) are used interchangeably in this Article.

177. See RAFAEL LEAL-ARCAS & WILMARTH CM, *Strengthening Sustainable Development Through Preferential Trade Agreements*, in ENSURING GOOD GLOBAL GOVERNANCE THROUGH TRADE: EU POLICIES AND APPROACHES 92–123 (Wouters, J. & Edward Elgar, et al. eds., 2015); ROBERT FALKNER & NICO JASPERS, *Environmental Protection, International Trade and the WTO in THE ASHGATE RESEARCH COMPANION TO INTERNATIONAL TRADE POLICY* (Ken Heydon & Stephen Woolcock eds., 2012); Rafael Reuveny, *On Free Trade, Climate Change, and the WTO*, 1 J. OF GLOBALIZATION STUD. 90 (2010); CLIMATE AND TRADE POLICY: BOTTOM-UP APPROACHES TOWARDS GLOBAL AGREEMENT (Carlo Carraro & Christian Egenhofer eds., Edward Elgar, 2007) (discussing the viability of various trade agreements as a means of reaching global consensus around climate change).

178. See North American Agreement on Environmental Cooperation - Preamble, COMM’N FOR ENVTL. COOPERATION, <http://www.cec.org/about-us/NAAEC> (last visited Dec. 1, 2018); IDA BASTIAENS & EVGENY POSTNIK, GREENING UP: THE EFFECTS OF ENVIRONMENTAL STANDARDS IN EU AND US TRADE AGREEMENTS 4 (2015), <http://aei.pitt.edu/78868/>. For further details, see GENE M. GROSSMAN & ALAN B. KREUGER, *Environmental Impacts of a North American Free Trade Agreement*, in THE MEXICO-U.S. FREE TRADE AGREEMENT 13, 13-56 (Peter M. Garber ed., 1993).

179. See, e.g., Rafael Lael-Arcas, *Mega-Regionals and Sustainable Development: The Transatlantic Trade and Investment Partnership and the Trans-Pacific Partnership*, 4 RENEWABLE ENERGY L. & POL’Y REV. 248, 249 (2016).

180. AXEL BERGER ET AL., TOWARDS “GREENING” TRADE? TRACKING ENVIRONMENTAL PROVISIONS IN THE PREFERENTIAL TRADE AGREEMENTS OF EMERGING MARKETS 1 (Deutsches Institut für Entwicklungspolitik, Discussion Paper 2/2017).

181. Article 19.8.2 of the Peru-Korea FTA (“KPTFTA”) is more specific on how to tackle climate change by stating: “. . . each Party, within its own capacities, shall adopt policies and measures on issues such as:

- (a) improvement of energy efficiency;
- (b) research, promotion, development and use of new and renewable energy, technologies of carbon dioxide capture, and updated and innovative environmental technologies that do not affect food security or the conservation of biological diversity; and
- (c) measures for evaluating the vulnerability and adaptation to climate change.” Peru-Korea Free Trade Agreement art. 19.8(2), Peru-S. Kor., Nov. 10, 2010, http://www.sice.oas.org/TPD/PER_KOR/PER_KOR_Texts_e/PER_KOR_ToC_e.asp

irreversible and is likely to persist, given the current crisis in the multilateral trading system. We argue the reason for this crisis is that citizens were absent from the process of decision-making.

Cleaner shipping and aviation technology exists; in fact, zero-carbon fuels are already entering the market¹⁸² and known technology may make it possible to almost entirely decarbonize shipping by 2035.¹⁸³ But it seems that powerful lobbyists are interfering with the process of greening the shipping industry: a report by InfluenceMap noticed that 31% of countries were represented at a 2017 International Maritime Organization meeting by direct business interests.¹⁸⁴ Strong reactions to such a blocking position by lobbyists have come from the highest political levels: the president of the Marshall Islands co-authored an op-ed in the *New York Times* calling for immediate and determined action.¹⁸⁵ A further paradigm shift is the concept that renewable energy is part of energy security enhancement.

At the regional level, through its network of PTAs, the EU can move towards greater energy independence as renewable energy becomes increasingly economically viable. For instance, by including chapters on renewable energy, EU trade agreements will enhance secure and clean energy. This is a way to promote trade in green goods and services. Another way is via subsidies for renewables:¹⁸⁶ green taxes to increase the price of oil. Renewables could then become popular by increasing the price of oil to such an extent that countries would find renewables-investment more attractive.¹⁸⁷ A further option is for governments to limit the wholesale supply of fossil fuels.¹⁸⁸

Moreover, we argue that fossil fuels subsidies discourage investments in renewables, and that a multilateral scheme for renewables subsidies may fall under permissible subsidies under the WTO's Agreement on Subsidies and

182. *Smoke on the water: The shipping industry attempts to cap carbon emissions*, THE ECONOMIST, Apr. 14, 2018, at 62.

183. INT'L TRANSP. FORUM, DECARBONISING MARITIME TRANSPORT: PATHWAYS TO ZERO-CARBON SHIPPING BY 2035 (2018), <https://www.itf-oecd.org/sites/default/files/docs/decarbonising-maritime-transport.pdf>.

184. *Corporate Capture of the IMO*, INFLUENCEMAP: REPORTS, <https://influencemap.org/report/Corporate-capture-of-the-IMO-902bf81c05a0591c551f965020623fda> (last visited Oct. 20, 2018).

185. See Hilda Heine & Christiana Figueres, *Polluters on the High Seas*, THE N.Y. TIMES: OPINION (Apr. 6, 2018), <https://www.nytimes.com/2018/04/06/opinion/greenhouse-gases-international-shipping.html>.

186. See Virginia R. Hildreth, *Renewable Energy Subsidies and the GATT*, 14 CHI. J. INT'L L. 702, 704–05 (2014). In 2018, China is implementing a policy that encourages automakers to produce longer range electric vehicles. See Tim Dixon, *Chinese Electric Vehicle Subsidy Changes In 2018—The Details*, CLEANTECHNICA (Jan. 6, 2018), <https://cleantechnica.com/2018/01/06/chinese-electric-vehicle-subsidy-changes-2018-details/>.

187. However, the opposite seems to be the case as of late 2017 in the US, where the energy secretary, Rick Perry, has a plan to subsidize coal-fired and nuclear plants. See *Abuse of power: Regulators should reject Perry's plan for coal in America*, THE ECONOMIST, Dec. 14, 2017, at 11–12.

188. See Mikael Höök & Xu Tang, *Depletion of fossil fuels and anthropogenic climate change—A review*, 52 ENERGY POL'Y 797 (2013) (concluding that gains in efficiency are insufficient to address anthropogenic climate change and favoring a supply-limiting approach).

Countervailing Measures.¹⁸⁹ Furthermore, since the price of oil is very low, countries should have no reason to subsidize the fossil fuel industry.¹⁹⁰ The article also argues that an Agreement on Trade in Energy will enhance energy flows. It further argues that there is great benefit to lowering technical barriers to trade in renewable energy-related goods and services, including in relation to technological goods and services that could encourage the proliferation of renewables and therefore enhance sustainable energy. The Government Procurement Agreement or even the General Agreement on Trade in Services Annex on Telecommunications may be used as WTO model agreements.

It is also worth exploring the potential of incorporating strong and meaningful chapters addressing climate change mitigation and promoting renewable energy within PTAs, for which major trade actors could make use of their vast network of PTAs. Based on empirical evidence, it seems that trade agreements are stricter on environmental protection (see, for instance, the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (“CPTPP”) chapter on environment in relation to a low-emissions economy¹⁹¹) than climate change agreements such as the Paris Climate Agreement. That the CPTPP is enforceable on the reduction of GHG emissions,¹⁹² whereas the Paris Climate Agreement is not,¹⁹³ enhances those stricter provisions.

That trade agreements may be more effective legal instruments than environmental agreements for environmental-protection purposes is both counter-intuitive and surprising.¹⁹⁴ This is due to the fact that environmental agreements lack a dispute settlement system that trade agreements offer regarding enforcement. There are several ways to remedy this deficit:

189. For a discussion on subsidies and renewable energy, see Daniel Peat, *The Wrong Rules for the Right Energy: The TWO SCM Agreement and Subsidies for Renewable Energy*, 24 ENVTL. L. & MGMT. 3, 4–5 (2012).

190. The International Monetary Fund and the Organization for Economic Cooperation and Development have done useful work on the question of defining and measuring fossil fuel subsidies. See David Coady *et al.*, *How Large Are Global Energy Subsidies?*, (IMF Working Paper WP/15/105, at 4, 20), (May 2015). A useful tool on questions of defining and categorizing various types of subsidies is the WTO Agreement on Agriculture.

191. Compare CPTPP art. 20.15, Jan. 26, 2016, <https://www.tpp.mfat.govt.nz/> (last visited Oct. 24, 2018), with Paris Agreement art. 4(2), <https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement> (last visited Oct. 24, 2018).

192. See Trans-Pacific Partnership art. 20.15, ¶ 2, Feb. 4, 2016 (creating mandatory duty of signatories).

193. See Paris Agreement art. 6(4), Dec. 12, 2015 (creating a Conference of the Parties for use by parties on a voluntary basis).

194. One would think that environmental agreements, and not trade agreements, would be the solution to environmental protection. However, they lack enforceability. A case in point is the Paris Climate Agreement, which does not have a dispute settlement system, unlike the WTO. Moreover, U.S. FTAs seem to be more innovative and effective legal instruments than EU FTAs when it comes to the enforceability of their environmental provisions. This phenomenon is due to the fact that the environmental-protection provisions in EU FTAs are not enforceable. A solution would be to make sure that the relevant environmental-protection provisions are covered by the dispute settlement chapter of a given EU FTA. See Leal-Arcas & Alvarez Armas *supra* note 109.

1. A ‘name and shame’ approach used in environmental agreements could be interpreted as an enforcement mechanism;
2. A cooperative approach, as opposed to sanctions, for the enforcement of agreements;
3. A sanctions-based approach;
4. Invoking Article 60 of the Vienna Convention on the Law of Treaties on the termination or suspension of the operation of a treaty as a consequence of its breach.¹⁹⁵

An example of how one could promote sustainability¹⁹⁶ through trade is the Comprehensive Economic and Trade Agreement (“CETA”), a free-trade agreement (“FTA”) between the EU and Canada, under provisional application since 2017.¹⁹⁷ In October 2017, the French government approved an action plan on CETA following a report by independent experts on CETA’s impact on the environment, climate change, and health.¹⁹⁸ Although the report “did not identify any immediate risks in the provisions of CETA which were likely to stand in the way of the provisional application of the agreement,” concerns remain on how the Agreement will work in practice.¹⁹⁹ CETA seems to lack ambition regarding transnational cooperation on climate issues. The action plan has three main objectives:

1. Ensuring that climate regulations are protected from any abusive challenges made by foreign investors;
2. Strengthening international cooperation on climate issues; and
3. Making sure that trade agreements are fully consistent with European policies that contribute to sustainable development.²⁰⁰

However, an innovative feature of CETA appears in Article 24.5.1²⁰¹ and

195. For access to the Vienna Convention on the Law of Treaties, see Vienna Convention on the Law of Treaties art. 60, May 23, 1969, 1155 U.N.T.S. 331, <https://treaties.un.org/doc/publication/unts/volume%201155/volume-1155-i-18232-english.pdf>.

196. There are studies on how to measure sustainability. See Giuseppe Munda, “*Measuring Sustainability*”: A Multi-Criterion Framework, 7 ENV’T, DEV. & SUSTAINABILITY 117, 117–134 (2005).

197. Press Release IP/17/3121, European Commission, EU-Canada trade agreement enters into force (Sept. 20, 2017).

198. *An Action Plan for the Robust Implementation of CETA*, GOUVERNEMENT.FR: LATEST NEWS (Oct. 26, 2017), <https://www.gouvernement.fr/en/an-action-plan-for-the-robust-and-ambitious-implementation-of-ceta>.

199. *Id.*

200. *Id.*

201. Comprehensive Economic and Trade Agreement (“CETA”) Between Canada, of the One Part, and the European Union art 24.5.1, 2017 O.J. (L 11) 23, reads: “The Parties recognise that it is inappropriate to encourage trade or investment by weakening or reducing the levels of protection afforded in their environmental law.”

Article 24.5.3,²⁰² which state that the contracting Parties may not reduce levels of environmental protection and may not fail to effectively enforce their environmental law to encourage trade or investment. These declarations are promising features for the protection of the environment via international trade, demonstrating that the protection of the environment comes first.²⁰³

On the links between trade and climate action, the French government has made its position clear to the US government: “No Paris Agreement, no trade agreement.”²⁰⁴ This stance makes the point that, as a result of the US’s decision to withdraw from the Paris Climate Agreement,²⁰⁵ there will be no conclusion of the Trans-Atlantic Trade and Investment Partnership (“TTIP”), a proposed FTA between the US and the EU. The French government’s position is in line with the views of the EU commissioner for trade, who, in February 2018, tweeted: “Paris deal reference needed in all EU trade agreement today.”²⁰⁶

Commentators Mathilde Dupre and Samuel Lere propose a two-stage process of integrating the Paris Climate Agreement with recent and future trade agreements:

- First, new provisions could be inserted in trade agreements to allow for these agreements (or parts thereof) to be suspended if a Party fails to meet its GHG emissions reduction commitments or to regularly upgrade them. Such a provision would be a very concrete step towards subjecting trade law to environmental law;²⁰⁷

202. CETA, *supra* note 201, at art. 24.5.3, reads: “A Party shall not, through a sustained or recurring course of action or inaction, fail to effectively enforce its environmental law to encourage trade or investment.”

203. See also *Non paper of the Commission services: Feedback and way forward on improving the implementation and enforcement of Trade and Sustainable Development chapters in the EU Free Trade Agreements 1* (2018), http://trade.ec.europa.eu/doclib/docs/2018/february/tradoc_156618.pdf (proposing ways to enforce the commitments under the trade and sustainable development chapters in EU FTAs).

204. Janina Lazo-Cruz, *France to US: “No Paris Agreement, No Trade Agreement,”* THE GREEN OPTIMISTIC –GREEN POLICY (Feb. 8, 2018), <https://www.greenoptimistic.com/france-paris-agreement-no-trade-agreement-20180206/#.W9J2CBNKhTZ>.

205. Without the participation of the US in the Paris Climate Agreement, the Agreement will, nevertheless, cover around 80% of global GHG emissions. The US is responsible for around 16% of global GHG emissions. See Mengpin Ge, Johannes Friedrich, & Thomas Damassa, *6 Graphs Explain the World’s Top 10 Emitters*, WORLD RES. INSTIT. (Nov. 25, 2014), <https://www.wri.org/blog/2014/11/6-graphs-explain-world-s-top-10-emitters>.

206. Cecilia Malmström (@MalmstromEU) replying to Mathilde Dupré (@Mathilde_Dupre_), TWITTER (Feb. 1, 2018, 9:41 AM), https://twitter.com/Mathilde_Dupre_/status/959112642429423616.

207. See Ernst-Ulrich Petersmann, *From ‘Negative’ to ‘Positive’ Integration in the WTO: Time for ‘Mainstreaming Human Rights’ Law into WTO Law?*, 37 COMMON MARKET L. REV. 1363, 1363–82 (2000) (arguing for a shift from negative integration found in the GATT 1947, such as the elimination of technical barriers to trade, to positive integration found in the TRIPs Agreement, when it comes to integrating human rights into WTO law). This concept of positive integration based on the TRIPs Agreement can be emulated in the WTO context by setting global standards for CO2 emissions-reduction incentives.

- Second, to make such a provision operational, trade agreements could create an ad hoc committee composed of scientists and NGO representatives to assess to what extent countries have met their climate commitments (based on information provided to the UN Framework Convention on Climate Change) and propose appropriate trade sanctions, if necessary.²⁰⁸

Mathilde Dupre and Samuel Lere further suggest that FTAs remove all provisions that damage the environment.²⁰⁹

Recent EU FTAs contain stronger and more detailed provisions on the links between trade and climate change than those EU FTAs negotiated before the 2015 Paris Climate Agreement.²¹⁰ Such is the case of the ‘trade and sustainable development’ chapters in the EU-Singapore,²¹¹ EU-Vietnam,²¹² and EU-Japan FTAs.²¹³

The EU-Singapore FTA expressly aims to facilitate trade in climate-friendly goods and services.²¹⁴ Moreover, Chapter seven of the Agreement is dedicated to

208. Mathilde Dupré & Samuel Léré, *Trade and climate: How the EU can protect the Paris Agreement*, EURACTIV: OPINIONS (Feb. 28, 2018), <https://www.euractiv.com/section/climate-environment/opinion/trade-and-climate-how-the-eu-can-protect-the-paris-agreement/>.

209. *Id.*

210. For analyses of trade and sustainable development prior to the conclusion of the Paris Climate Agreement, see Rafael Leal-Arcas, *Mega-regionals and Sustainable Development: The Transatlantic Trade and Investment Partnership and the Trans-Pacific Partnership*, 6 RENEWABLE ENERGY L. & POL’Y 248, 252 (2015).

211. Proposal for a Council Decision on the conclusion of the Free Trade Agreement between the European Union and the Republic of Singapore, annex 1: EU-Singapore Free Trade Agreement (EUSFTA) art. 12.10(f), COM (2003) 196 final (Apr. 4, 2018), https://eur-lex.europa.eu/resource.html?uri=cellar:04c776da-4322-11e8-a9f4-01aa75ed71a1.0003.02/DOC_2&format=PDF.

212. Proposal for a Council Decision on the conclusion of the Free Trade Agreement between the European Union and the Socialist Republic of Vietnam, annex 1: EU-Vietnam Free Trade Agreement art. 13, COM (2018) 691 final (Oct. 17, 2018), <https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1540561842533&uri=CELEX:52018PC0691>.

213. On 6 July 2018, the EU Council of Ministers adopted a package of decisions on the Economic Partnership Agreement between the EU and Japan (“EPA”), including a decision on the signature of the Agreement and a decision to request the consent of the European Parliament for the conclusion of the Agreement. See Council Decision (EU) 2018/966 of July 6, 2018, The signing, on behalf of the European Union, of the Agreement between the European Union and Japan for Economic Partnership, 2018 O.J. (L 174) 1, <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32018D0966>. The Council also adopted a decision on the signing and provisional application of a Strategic Partnership Agreement (“SPA”) between the EU and Japan on 26 June 2018. “The SPA is the first-ever framework agreement between the EU and Japan. It seeks to strengthen cooperation and dialogue across a broad range of bilateral, regional and multilateral issues. It highlights the shared values and common principles that constitute the basis for the deep and long-lasting cooperation between the EU and Japan as strategic partners, including democracy, the rule of law, human rights and fundamental freedoms.” European Council Press Release 438/18, EU-Japan: Council adopts decision to sign trade agreement (July 6, 2018), <http://www.consilium.europa.eu/en/press/press-releases/2018/07/06/eu-japan-council-adopts-decision-to-sign-trade-agreement/>.

214. Not yet signed; not yet in force. As of June 2018, and based on the findings in Opinion 2/15 of Advocate General Sharpston of the Court of Justice of the EU with respect to the EU-Singapore FTA, the EU is currently deciding whether all EU Member States should ratify the Agreement or whether to have a separate agreement with all the provisions that are outside the scope of the EU’s exclusive

non-tariff barriers to trade and investment in renewable energy generation. Specifically, Article 7.4(a) in Chapter seven of the Agreement states that Parties shall “refrain from adopting measures providing for local content requirements or any other offset affecting the other Party’s products, service suppliers, investors or investments.” In addition, Chapter thirteen of the Agreement deals with trade and sustainable development. In it, Article 13.11.3 states that “the Parties share the goal of progressively reducing subsidies for fossil fuels,” thereby including a provision about the reduction of trade distortions as a consequence of fossil fuel subsidies.²¹⁵

This section also proposes as a future research agenda for international economic law to examine whether a General Agreement on Trade in Energy would promote sustainable energy worldwide.²¹⁶ Equally interesting would be to see to what extent it would be possible to create a Sustainable Energy Trade Agreement, as suggested by the International Centre for Trade and Sustainable Development.²¹⁷ Such an agreement would cover the liberalization of trade in climate-friendly goods and services and would be a plurilateral agreement under Annex 4 of the WTO Agreement that would include a critical mass of major economies and GHG emitters, either in the context of the WTO or outside of the WTO. All forms of energy should be subject to the same rules. Energy may become part of the WTO agenda in the near future. Given that current WTO rules are far from addressing all the needs of energy trade today, is it necessary to have an Agreement on Trade in Energy in the WTO context? If so, can and should the Energy Charter Treaty be used as a model? Could one invoke GATT Article XX (b) and (g)²¹⁸ as exceptions for renewables-related trade in goods and services?

competence. For further analysis on mixed agreements, see RAFAEL LEAL-ARCAS, *THEORY AND PRACTICE OF EC EXTERNAL TRADE LAW AND POLICY* 293–360 (Cameron May 2008).

215. For an analysis of this issue, see Bradley J. Condon, *Disciplining Clean Energy Subsidies to Speed the Transition to a Low-Carbon World*, 51 *J. OF WORLD TRADE* 675, 690 (2017); Thijs Van de Graaf & Harro van Asselt, *Introduction to the special issue: at the intersection of climate, energy, and trade governance*, 17 *INT’L ENVTL. AGREEMENTS* 313, 313–26 (2017); Chris Wold, Grant Wilson, & Sara Foroshani, *Leveraging Climate Change Benefits Through The World Trade Organization: Are Fossil Fuel Subsidies Actionable?*, 43 *GEO. J. INT’L L.* 635, 694 (2012); Jean-Marc Burniaux & Jean Chateau, *Greenhouse Gases Mitigation Potential and Economic Efficiency of Phasing-Out Fossil Fuel Subsidies*, 140 *INT’L ECON.* 71, 71–88 (2014); David Coady et al., *The Unequal Benefits of Fuel Subsidies Revisited: Evidence for Developing Countries*, IMF Working Paper WP/15/250 (Nov. 2015), <http://www.imf.org/external/pubs/ft/wp/2015/wp15250.pdf>; David Coady et al., *How Large Are Global Energy Subsidies?*, IMF Working Paper WP/15/105 (May 2015).

216. See generally Thomas Cottier, Garba Malumfashi, Sofya Matteotti-Berkutova, Olga Nartova, Joëlle De Sépibus, & Sadeq Z. Bigdeli, *Energy in WTO Law and Policy*, NCCR TRADE REGULATION: WORKING PAPER No 2009/25, SWISS NATIONAL CENTRE OF COMPETENCE IN RESEARCH (2009); Thomas Cottier, et al., *Panel VII: Towards a WTO Framework Agreement on Trade in Energy*, Working Paper No. 2010/40, SOCIETY OF INT’L ECON. LAW 2 (July 8-10, 2017).

217. INT’L CTR. FOR TRADE AND SUSTAINABLE DEV., *FOSTERING LOW CARBON GROWTH: THE CASE FOR A SUSTAINABLE ENERGY TRADE AGREEMENT* 3 (2011).

218. General Agreement on Tariffs and Trade art. XX(g), Oct. 30, 1947, 61 Stat. A-11, 55 U.N.T.S. 195 [*hereinafter* GATT], reads as follows:

Should one have an evolutionary interpretation of GATT Article XX(g) so that the locution ‘exhaustible natural resources’ encapsulates environmental resources?

Moreover, now that Russia has joined the WTO and that energy is one of its greatest assets in economic terms, would this be the right time to include energy trade as part of the WTO Agreements? The few energy-rich countries that are not yet WTO Members (i.e., Iraq, Iran, Sudan, Azerbaijan, Equatorial Guinea, Algeria, and Lybia), but wish to become WTO Members, will most likely follow Russia. These countries should prioritize the conclusion of negotiations to enter the WTO in order to integrate fully into the global trading system and protect their growing interests on world markets. WTO membership will certainly help eliminate any discrimination against them in their trade in sustainable energy.

As energy-rich countries try to diversify their economies away from the fossil-fuel industry, what is the role of green energy? An impressive example of an energy-rich country that is trying to aggressively diversify its economy by investing \$45 billion in solar energy is the Kingdom of Saudi Arabia.²¹⁹ Once built, this would be the world’s largest solar project, “about 100 times larger than both the recently announced Solar Choice Bulli Creek PV Plant in Australia and the Helios PV Plant Phase 1 in Greece and more than double what the photovoltaic industry supplied [in 2017].”²²⁰ The project will triple Saudi Arabia’s electricity generation capacity,²²¹ it will create around 100,000 jobs and reduce power costs by \$40 billion.²²²

C. A PARADIGM SHIFT IN THE GOVERNANCE OF SUSTAINABLE DEVELOPMENT: CITIZENS’ EMPOWERMENT

In addition to top-down governance, climate change mitigation and energy security has been increasingly shaped by the bottom-up influence of increased citizen participation. This section first explains the shift from top-down to bottom-up governance. It then offers a new concept of empowering citizens in three key areas of sustainability: international trade, energy transition, and climate action.

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:

[...] (g) relating to the conservation of exhaustible natural resources if such measures are made effective in conjunction with restrictions on domestic production or consumption;

219. *The \$100bn bet: The Meaning of the Vision Fund*, THE ECONOMIST, May 12, 2018, at 11.

220. *The World’s Largest Solar Project*, LEADERS K.S.A., Issue 17, May 2018, at 8.

221. *Id.*

222. *Id.*

1. From Top-Down to Bottom-Up Governance

Multilateralism²²³ does not seem to be doing well these days.²²⁴ Arguably, sometimes one needs unilateralism to improve multilateralism. The US intends to withdraw from the Paris Agreement on Climate Change and President Trump questions the validity of the US contribution to the UN; multilateral trade negotiations at the WTO seem to go nowhere and the WTO's dispute settlement system is stagnated.²²⁵ It seems as if the WTO has not been up to par with economic change. State-centricity seems to be making people unhappy. There seems to be a fundamental lack of trust in current governance structures.

All of this puts into question the hegemonic stability theory that predicates that the international system is most likely to be stable when a single state is the dominant power in the world. Based on the view that one should never waste a crisis to reach reform, would it be the right time to think of alternative ways of governance? It is often the case that what citizens think is overlooked by policymakers. Would greater involvement of citizens make a difference for a better and more effective global economic governance? Big crises can lead to big reforms and positive developments.

A top-down guidance to sustainable development will come from inter-governmental decisions²²⁶ (i.e., high level of abstraction),²²⁷ whereas a bottom-up

223. See RAFAEL LEAL-ARCAS, INTERNATIONAL TRADE AND INVESTMENT LAW: MULTILATERAL REGIONAL AND BILATERAL GOVERNANCE 39 (Edward Elgar 2010) ("Multilateralism is the stage of multiple-state interactions which international law entered into fully with the creation of the United Nations in 1945, and where to a large extent it remains today. By definition, multilateralism distinguishes itself from bilateralism in the number of States to an agreement: whereas a bilateral treaty is an agreement between two (or, in the case of plurilateral treaties, a few) States, a multilateral treaty is an agreement accepted by many, if not most, States.")

224. The U.S. has been withdrawing from a number of multilateral fora since President Trump came to office. As of June 2018, the most recent example was the withdrawal from the UN Human Rights Council. See Gardiner Harris, *Trump Administration Withdraws U.S. From U.N. Human Rights Council*, THE N.Y. TIMES: POLITICS (June 19, 2018), <https://www.nytimes.com/2018/06/19/us/politics/trump-israel-palestinians-human-rights.html>.

225. US Trade Representative Robert Lighthizer has repeatedly made the point that the WTO needs to be reformed and that US trade policy has gone in the wrong direction since the creation of the WTO. See Shawn Donnanfirst, *We Need to Talk About the Lighthizer Doctrine*, FINANCIAL TIMES (Feb. 12, 2018), <https://www.ft.com/content/7335e48c-0fe7-11e8-8cb6-b9ccc4c4dbbb?desktop=true&segmentId=7c8f09b9-9b61-4fbb-9430-9208a9e233c8#myft.notification:daily-email:content>.

226. On theories of decision, See generally Bernard Roy & Daniel Vanderpooten, *An Overview on "The European School of MCDA: Emergence, Basic Features and Current Works,"* 99 EUR. J. OF OPERATIONAL RES. 26, 26-27 (1996); Edwin Hinloopen & Peter Nijkamp, *Qualitative Multiple Criteria Choice Analysis: The Dominant Regime Method*, 24 QUALITY & QUANTITY 37, 37-56 (1990).

227. For academic literature on top-down approaches, whether in the field of energy or climate change, See RESEARCH HANDBOOK ON EU ENERGY LAW AND POLICY, (Rafael Leal-Arcas & J. Wouters eds., Edward Elgar 2017); COMMENTARY ON THE ENERGY CHARTER TREATY (Rafael Leal-Arcas ed., Edward Elgar 2018); PETER D CAMERON, INTERNATIONAL ENERGY INVESTMENT LAW: THE PURSUIT OF STABILITY (Oxford Univ. Press 2010); BODANSKY, BRUNNÉE & RAJAMANI, *supra* note 119, at 22-23; CINNAMON PflON CARLARNE, CLIMATE CHANGE LAW AND POLICY: EU AND US APPROACHES (Oxford Univ. Press 2010); MICHAEL BARRETT ET AL., LEGAL ASPECTS OF CARBON TRADING: KYOTO,

approach means that action/implementation will happen from consumers'/citizens' participation (i.e., low level of abstraction).²²⁸ National governments are essential, but are no longer the only key actors. This raises the question whether cities²²⁹ can make effective change if national governments do not deliver. At what point should businesses have to step up if politicians fall short? Businesses have taken on a leadership role in climate change mitigation and cities around the world are demonstrating innovative strategies for advancing solutions to climate change. Via this bottom-up approach to governance, citizens can ask states for reform.

In the case of international trade, during the WTO Ministerial Conference in Seattle in 1999 large crowds of people angrily demonstrated on the streets, asking trade technocrats to be transparent and share the outcome of multilateral trade negotiations that were happening behind closed doors. Those were the days when controversy made multilateral trade interesting and sexy. More recently, with the rise of mega-regional trade agreements (as examples of plurilateralism, which seems to be the way forward in international trade)²³⁰ such as the Comprehensive

Copenhagen, and beyond (David Freestone & Charlotte Streck eds., 2009); SCOTT BARRETT ET AL., *THE NEW ENERGY PARADIGM* (Dieter Helm ed. 2007); MATTHEW J. HOFFMANN, *CLIMATE GOVERNANCE AT THE CROSSROADS: EXPERIMENTING WITH A GLOBAL RESPONSE AFTER KYOTO* (Oxford Univ. Press 2011); GRAEME HUGE ET AL., *CLIMATE CHANGE AND DISPLACEMENT: MULTIDISCIPLINARY PERSPECTIVES* (Jane McAdam ed., 2010); RALPH BODLE ET AL., *THE PARIS AGREEMENT ON CLIMATE CHANGE: ANALYSIS AND COMMENTARY* (Daniel Klein et al., eds. 2017); CATHERINE BANET ET AL., *BEYOND THE CARBON ECONOMY: ENERGY LAW IN TRANSITION* (Don Zillman, Catherine Redgewell, Yinka Omorogbe, and Lila K. Barrerra-Hernández eds., 2008); FINN ARNESEN ET AL., *ENERGY LAW IN EUROPE: NATIONAL, EU AND INTERNATIONAL REGULATION* (Martha M. Roggenkamp, Catherine Redgewell, Anita Rønne & Iñigo del Guayo eds., 3rd ed. 2016); JORGE E. VÍRUALES, *FOREIGN INVESTMENT AND THE ENVIRONMENT IN INTERNATIONAL LAW* (James Crawford & John S. Bell eds., 2012).

228. For a previous analysis, see generally Rafael Leal-Arcas, *A Bottom-up Approach for Climate Change: The Trade Experience*, 2 *ASIAN J. L. & ECON.* 2011 1, 1–54; See generally UNIVERSITY INITIATIVES IN CLIMATE CHANGE MITIGATION AND ADAPTATION (Walter Leal Filho & Rafael Leal-Arcas eds. 2018); BURNS H. WESTON & DAVID BOLLIER, *GREEN GOVERNANCE: ECOLOGICAL SURVIVAL, HUMAN RIGHTS, AND THE LAW OF THE COMMONS* (Cambridge Univ. Press, 1st ed., 2013).

229. There is a vast body of literature on sustainable cities. See generally Kenneth Button, *City management and urban environmental indicators*, 40 *ECOLOGICAL ECON.* 217, 217–33 (2002); EDUARD LÓPEZ MORENO ET AL., *HUMAN SETTLEMENT PROGRAMME (UN-HABITAT), STATE OF THE WORLD'S CITIES 2008/2009: HARMONIOUS CITIES* (Earthscan 2008); Arnim Wiek and Claudia Binder, *Solution Spaces for Decision-Making—A Sustainability Assessment Tool for City-Regions*, 25 *ENV'TL. IMPACT ASSESSMENT REV.* 589, 589–608 (2005); See also *United 4 Smart Sustainable Cities*, INT'L TELECOMMUNICATIONS UNION, <https://www.itu.int/en/ITU-T/ssc/united/Pages/default.aspx> (last visited Oct. 26, 2018).

230. The following is evidence that plurilateralism, as opposed to multilateralism, seems to be the way forward in international trade negotiations: In December 2017, during the WTO Ministerial Conference in Buenos Aires, some, but not all, WTO Members (therefore, making this procedure an example of plurilateralism) issued joint statements that were signed by subgroups of WTO Members. The aim of these plurilateral statements was to deal with specific topics, including informal work programs for Micro, Small and Medium Enterprises (WT/MIN(17)/58/Rev.1), investment facilitation (WT/MIN(17)/59), electronic commerce (WT/MIN(17)/60), fossil fuel subsidies (WT/MIN(17)/54), as well as on services domestic regulation (WT/MIN(17)/61) within the WTO Working Party on Domestic

and Progressive Agreement for Trans-Pacific Partnership (“CPTPP”),²³¹ there have been large demonstrations on the streets of the US, UK,²³² Germany, and Austria against the Trans-Pacific Partnership (in the case of the US) and the Trans-Atlantic Trade and Investment Partnership [TTIP] (in the case of the other countries). All of this shows an increasing interest among citizens in international trade negotiations, who are concerned that the outcome of such negotiations may affect their daily life negatively as a result of “openness to investment from other members, the protection of patents, and environmental safeguards.”²³³ So in addition to the top-down process to trade governance, we propose a bottom-up process, with greater citizen participation.

Softer, informal tools of governance, rather than treaties, seem to be central to the current crisis/transformation of multilateral governance. In the field of energy governance, regulatory alignment, technology alignment, and building common institutions might all help enhance sustainable energy.²³⁴ New actors are emerging. One of them is the citizens.

2. New Concept: Empowering Citizens

Empowering citizens has implications for societal change as it provides a human element to governance.²³⁵ More direct participation by citizens is increasingly necessary to reach good governance. In the field of energy governance, as will be seen in section 2(b) below, one of the aims of this Article is to explore how to effectively place citizens at the center of the transformation of the grid by allowing greater citizen participation and access to information. Citizen participation will bring stability, facilitate citizens’ wellbeing, provide better access to energy, it will put pressure on companies to do the right thing,²³⁶ and provide

Regulation. For an analysis of plurilateral governance in climate change, *See generally* Rafael Leal-Arcas, *Alternative Architecture for Climate Change – Major Economics*, 4 EUR. J. OF LEGAL STUD. 25, 25–56 (2011).

231. After the US decided to withdraw from the Trans-Pacific Partnership, which never entered into force, it was agreed in January 2018 that negotiations would start on a new trade agreement called the Comprehensive and Progressive Agreement for Trans-Pacific Partnership. *See Comprehensive and Progressive Agreement for Trans-Pacific Partnership text*, N.Z. FOREIGN AFFAIRS & TRADE, <https://www.mfat.govt.nz/en/trade/free-trade-agreements/free-trade-agreements-concluded-but-not-in-force/cptpp/comprehensive-and-progressive-agreement-for-trans-pacific-partnership-text/#chapters> (last visited Dec. 1, 2018) Crucial side letters were not yet available as of February 2018.

232. Anecdotally, it is interesting to note that more people signed an anti-TTIP campaign in the UK—which is known as a free-trade country—than in France—which is known as a protectionist nation. *See The Politics of Trade Deals: Not So Global Britain*, THE ECONOMIST, Feb. 10, 2018, at 27.

233. *Banyan: Trading places*, THE ECONOMIST, Jan. 27, 2018, at 47.

234. *See generally* RAFAEL LEAL-ARCAS ET AL., INTERNATIONAL ENERGY GOVERNANCE: SELECTED LEGAL ISSUES (Edward Elgar 2014).

235. Rafael Leal-Arcas, *Empowering Citizens for Common Concerns: Sustainable Energy, Trade and Climate Change*, 6 GSTF J. L. & Soc. SCI., Jan. 2018, at 1.

236. *See, e.g.*, THE CONSUMER GOODS FORUM, <https://www.theconsumergoodsforum.com/> (last visited Dec. 1, 2018); *see also* Archie B. Carroll, *Corporate Social Responsibility: Its Managerial Impact and Implications*, 2 J. BUS. RES. 75 (1974); Archie B. Carroll, *A Three-Dimensional Conceptual Model*

better management of climate change and environmental issues. By doing so, we are moving away from energy poverty towards a transition to energy democracy,²³⁷ energy citizenship,²³⁸ decentralized energy,²³⁹ energy enhancement,²⁴⁰ more effective climate change mitigation (as will be explained below in section 2.c) and greater presence of citizens in trade policy/diplomacy.

Since more prosumers are entering the market, all of this will lead to the creation of scalable micro-grids for prosumers²⁴¹ and utility companies, new policies and regulatory frameworks for smart grids, as well as a better grid management. It will also encourage prosumers towards a more energy-efficient behavior. Further, it will change citizens' attitudes from being passive to active consumers by presenting a variety of local engagement opportunities. Local renewable energy communities are at the grassroots of the movement to change the current energy-security system. For instance, how can legal technical barriers to energy technology²⁴² be reduced or eliminated for smart grids to take off in different jurisdictions?²⁴³ How could the legal environment be developed to benefit

of Corporate Performance, 4 ACAD. MGMT. REV. 497 (1979); Archie B. Carroll, *Corporate Social Responsibility: Evolution of a Definitional Construct*, 38 BUS. & SOC'Y 268 (1999); Stephen Chen, Petra Bouvain, *Is Corporate Social Responsibility Converging? A Comparison of Corporate Social Responsibility Reporting in the USA, UK, Australia, and Germany*, 87 J. BUS. ETHICS 299 (2009); Ina Freeman & Amir Hasnaoui, *The Meaning of Corporate Social Responsibility: The Vision of Four Nations*, 100 J. BUS. ETHICS 419 (2010); Samuel O. Idowu and Brian A. Towler, "A comparative study of the contents of corporate social responsibility reports of UK companies," 15 MGMT. ENVTL QUALITY 420 (2004); Martin O'Connor, Joachim Spangenberg, *A methodology for CSR reporting: Assuring a representative diversity of indicators across stakeholders, scales, sites and performance issues*, 16 J. CLEANER PRODUCTION 1399 (2008); Richard Welford, Clifford Chan & Michele Man, *Priorities for corporate social responsibility: A survey of businesses and their stakeholders*, 15 CORP. SOC. RESP. & ENVTL MGMT. 52 (2007).

237. CRAIG MORRIS & ARNE JUNGJOHANN, *ENERGY DEMOCRACY: GERMANY'S ENERGIEWENDE TO RENEWABLES* (Palgrave Macmillan, 2016).

238. See, e.g., P. DEVINE-WRIGHT, *ENERGY CITIZENSHIP: PSYCHOLOGICAL ASPECTS OF EVOLUTION IN SUSTAINABLE ENERGY TECHNOLOGIES* (Earthscan, J. Murphy ed., 2007).

239. See Kristina Orehounig, Ralph Evins & Viktor Dorer, *Integration of Decentralized Energy Systems in Neighbourhoods Using the Energy Hub Approach*, 154 APPLIED ENERGY 277 (2015).

240. See, e.g., Noshin Omar, *Future and Emerging Technologies: Workshop on Future Battery Technologies for Energy Storage*, LUXEMBOURG: PUBLICATION OFFICE OF THE EUROPEAN UNION (2018), <https://clepa.eu/wp-content/uploads/2018/02/20180209-FET.pdf>.

241. See also Rafael Leal-Arcas, et. al., *Prosumers: New Actors in EU Energy Security*, 48 NETH. Y. B. INT'L L. (2017).

242. See Naim Afgan & Mari Carvalho, *Multi-Criteria Assessment of New and Renewable Energy Power Plants*, 27 ENERGY 739 (2002); M. Pehnt, *Dynamic Life Cycle Assessment (LCA) of Renewable Energy Technologies*, 31 RENEWABLE ENERGY 55 (2006); Reinhard Madlener & Sigrid Stagl, *Sustainability-Guided Promotion of Renewable Electricity Generation*, 53 ECOLOGICAL ECON. 147 (2005).

243. According to Stanford University researchers, 'utilities around the world can rely on multiple methods to stabilize their electricity grids in a shift to 100% wind, solar, and hydroelectricity.' See T. Kubota, *Jacobson Study Shows Multiple Paths to Grid Stability in 100% Renewable Future*, The Energy Mix, (Feb. 14, 2018), <http://theenergymix.com/2018/02/14/jacobson-study-shows-multiple-paths-to-grid-stability-in-100-renewable-future/>.

technology and create, say, a single smart grid in supranational structures like that of the EU?²⁴⁴ Such a system would make energy security cheaper.

The use of behavioral economics in public policy has been increasingly on the agenda. In energy policy, “it has become clear that efforts to steer people towards ‘better’—that is, more energy efficient—choices and behaviours are much needed.”²⁴⁵ As suggested by Lucia Reisch, there is increasing evidence that the right incentives do spur behavioral change.²⁴⁶ This has certainly been the case in Nordic countries, where the so-called Nordic model has failed in top-down policies (such as the creation of common defense policy, a single currency), but has been very successful in the design of bottom-up approaches to policies with the right incentives and market integration.²⁴⁷

This shift in the governance of sustainable development implies putting citizens at the center of this process. One of the mega-trends of the twenty first century²⁴⁸ is what we describe as a ‘bottom-up approach’ to the *democratic*²⁴⁹ implementation of climate change mitigation plans.²⁵⁰ Because the majority of the world population lives in cities²⁵¹ (and this trend is on the rise),²⁵² because 50% of global waste is produced in cities, because 80% of global economic activity takes place in cities,²⁵³ and because between 60% and 80% of GHG emissions

244. For an initiative in this direction towards energy cooperation between the North Seas countries, see *The North Seas Countries’ Offshore Grid Initiative*, ENERGIE, <http://www.benelux.int/nl/kernthemas/holder/energie/nscogi-2012-report/> (last visited Dec. 1, 2018). Similar thinking is taking place for the creation of a single, shared 5G wireless network. See *Telecoms: Next-Generation Thinking*, THE ECONOMIST (Feb. 10, 2018), at 11–12.

245. L. Reisch, *Nudging Europe’s Energy Transformation*, THE GLOBALIST (Aug. 20, 2012), <https://www.theglobalist.com/nudging-europes-energy-transformation/>.

246. *Id.*

247. HANS-ARILD BREDESEN, TERJE NILSEN, ELIZABETH S. LINGJÆRDE, *POWER TO THE PEOPLE: THE FIRST 20 YEARS OF NORDIC POWER-MARKET INTEGRATION* (2013).

248. Daniel Esty of Yale Law School has developed 10 mega-trends of the 21st century, one of which is a bottom-up approach to climate action. John Naisbitt popularized the term ‘megatrends’ with his book *MEGATRENDS: TEN NEW DIRECTIONS TRANSFORMING OUR LIVES* (New York: Warner Books, 1982).

249. In the true sense of the term, namely that power remains with the citizens. For analyses of democracy, see PATRICK DENEEN, *WHY LIBERALISM FAILED* (Yale U. Press, 2018); DAVID FRUM, *TRUMPOCRACY: THE CORRUPTION OF THE AMERICAN REPUBLIC* (Harper, 2018); STEVEN LEVITSKY & DANIEL ZIBLATT, *HOW DEMOCRACIES DIE: WHAT HISTORY TELLS US ABOUT OUR FUTURE* (Crown, 2018).

250. A creation of the Paris Agreement, which has become the locomotive of climate action.

251. See *World’s Population Increasingly Urban with More than Half Living in Urban Areas*, U.N. DEP’T OF ECON. & SOC. AFFAIRS (Jul. 10, 2014), <http://www.un.org/en/development/desa/news/population/world-urbanization-prospects-2014.html>.

252. By 2050, 70% of the world’s population is expected to live in cities. See Mark Wilson, *By 2050, 70% of the World’s Population Will Be Urban. Is That a Good Thing?*, CO.DESIGN (Mar. 12, 2012), <https://www.fastcodesign.com/1669244/by-2050-70-of-the-worlds-population-will-be-urban-is-that-a-good-thing>.

253. RICHARD DOBBS ET AL., *URBAN WORLD: MAPPING THE ECONOMIC POWER OF CITIES*, (McKinsey Global Institute, 2011).

comes from cities,²⁵⁴ this new mega-trend of climate action at the city level with much greater citizen participation is very promising.²⁵⁵

So why should cities (and therefore citizens) take climate action? Because today the majority of the world's population lives in cities,²⁵⁶ and this trend to urban migration is on the rise;²⁵⁷ because cities are the main polluters and the main implementers of legislation;²⁵⁸ and because mayors of cities are pragmatic with global issues such as climate change, poverty or terrorism.²⁵⁹ Also because such issues are too big for nation-states and because cities arguably offer better governance on these matters. Moreover, mayors tend to come from the cities they govern and therefore have a much higher level of trust than politicians at the national level.

What should be the role of citizens in the shift towards a circular economy (i.e., recycling and reusing products) and in trade diplomacy? What should be the role of the emerging environmental goods and services sector? As can be seen in section II.A, in the specific case of international trade, one could imagine as citizens' empowerment the involvement of civil society, as stakeholders of trade agreements, in committees on trade and environment via their participation during the negotiation process of future trade agreements. Moreover, with the rise of e-commerce, one could think of the increasing participation of micro, small and medium enterprises via apps on their smartphones. How can trade policy have more contact with private companies that are involved in international trade? Regarding the process of negotiation of trade agreements, potential areas for improvement and participation at the grassroots level are transparency,²⁶⁰ NGO involvement, the implementation of trade agreements, information asymmetry, and due process, among others.

254. U.N. ENV'T PROGRAM, CITIES AND BUILDINGS: UNEP INITIATIVES AND PROJECTS 5 (2013) http://www.oas.org/en/sedi/dsd/Biodiversity/Sustainable_Cities/Sustainable_Communities/Events/SC%20Course%20Trinidad%202014/ModuleVI/2.%20Cities%20and%20Buildings%20%E2%80%93%20UNEP%20DTIE%20Initiatives%20and%20projects_hd.pdf [<https://perma.cc/QZC9-V8TR>].

255. Jochen Monstadt, *Urban Governance and the Transition of Energy Systems: Institutional Change and Shifting Energy and Climate Policies in Berlin*, 31 INT'L J. URB. & REGIONAL RES 326 (2007).

256. See *World's Population Increasingly Urban with More than Half Living in Urban Areas*, U.N. DEP'T OF ECON. & SOCIAL AFFAIRS (July 10, 2014), <http://www.un.org/en/development/desa/news/population/world-urbanization-prospects-2014.html>.

257. *Id.* (stating that by 2050 seventy percent of the world's population is expected to live in cities); see Mark Wilson, *By 2050, 70% of the World's Population Will Be Urban. Is That a Good Thing?*, CO. DESIGN (Mar. 12, 2012), <https://www.fastcodesign.com/1669244/by-2050-70-of-the-worlds-population-will-be-urban-is-that-a-good-thing>.

258. REGIONS OF CLIMATE ACTION, <http://regions20.org/> (last visited Dec. 1, 2018).

259. *Mayors Get Things Done. Should They Run the World?*, THE GLOBE & MAIL (Mar. 11, 2014), <http://www.theglobeandmail.com/opinion/ideas-lab/should-mayors-lead-the-world/article17275044/>.

260. See, e.g., The Green Paper of May 3, 2006 on European transparency initiative, COM(2006) 194 final, Official Journal C 151 of 29 June 2006.

Following the so-called Thünen's model of agricultural land,²⁶¹ one can think of the following graphic representation of concentric circles to describe citizens' priorities when it comes to their empowerment in trade, energy transition, and climate action:

Figure 2 explains that, in the priorities of empowering citizens, trade comes first because it is a daily need with the widest and most tangible impact, unlike access to energy (which is desirable, but not essential for survival) or being a victim of the consequences of climate change (which is the least tangible and most abstract of the three concepts). Let us now, in turn, deal with each one of the three concepts in the context of empowering citizens.

Let us look at each of the three areas where we propose citizens' empowerment to reach sustainability: international trade, energy transition, and climate action.

a. International Trade

Citizens' empowerment is a relatively new concept in global governance. In December 2017, the EU Commission announced the creation of a new advisory group on EU trade agreements.²⁶² The aim of the group is to increase transparency and inclusiveness in EU trade policy. The EU Commission is committed to this cause.²⁶³ The perspective of this wide group of stakeholders²⁶⁴ (consumer groups, trade unions, and other non-governmental organizations) on EU trade policy will certainly help towards better trade policymaking in the future. The EU Commission has also acknowledged elsewhere EU citizens' expectations that EU trade agreements should support sustainable-development objectives such as climate action.²⁶⁵

261. The Thünen's model of agricultural land, named after Johann Heinrich von Thünen, is the first serious treatment of spatial economics and economic geography, connecting it with the theory of rent. The model made the following assumptions: The city is located centrally within an "isolated State;" the isolated State is surrounded by wilderness; the land is completely flat and has no rivers or mountains; soil quality and climate are consistent; farmers in the isolated State transport their own goods to market via oxcart, across land, directly to the central city. There are no roads; and finally farmers behave rationally to maximize profits. See *Johann Heinrich von Thünen*, WIKIPEDIA.COM, https://en.wikipedia.org/wiki/Johann_Heinrich_von_Th%C3%BCnen#Th%C3%BCnen's_model_of_agricultural_land (last visited Nov. 4, 2018).

262. Commission Decision of 13.9.2017 setting up the Group of Experts on EU Trade Agreements, 2017 O.J. (C6113), <http://ec.europa.eu/transparency/regexpert/index.cfm?do=groupDetail.groupDetailDoc&id=34613&no=1>.

263. See *President Jean-Claude Juncker's State of the Union Address 2017*, EUROPEAN COMM'N (Sep. 13, 2017), http://europa.eu/rapid/press-release_SPEECH-17-3165_en.htm; see also, COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS: A BALANCED AND PROGRESSIVE TRADE POLICY TO HARNESS GLOBALISATION, COM(2017) 492 FINAL, EUROPEAN COMM'N (2017), <https://ec.europa.eu/transparency/regdoc/rep/1/2017/EN/COM-2017-492-F1-EN-MAIN-PART-1.PDF>.

264. EXPERT GROUP ON EU TRADE AGREEMENTS (E03555), LIST OF MEMBERS, EUROPEAN COMM'N, http://trade.ec.europa.eu/doclib/docs/2017/december/tradoc_156487.pdf.

265. TRADE AND SUSTAINABLE DEVELOPMENT CHAPTERS IN EU FREE TRADE AGREEMENT, NON-PAPER OF THE EUROPEAN COMMISSION SERVICES (2017) http://trade.ec.europa.eu/doclib/docs/2017/july/tradoc_155686.pdf.

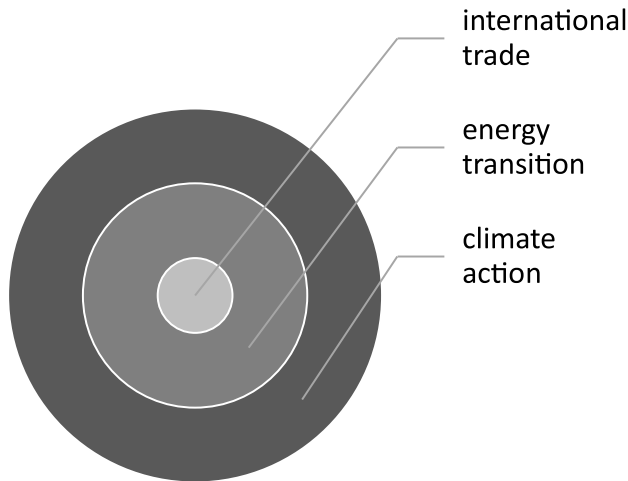


FIGURE 2: Conceptualizing the empowerment of citizens in trade, energy and climate

The role of citizens and micro, small and medium-sized enterprises (“MSMEs”) in international trade governance is another example of a bottom-up approach to sustainable development governance that would shift the current paradigm. A report authored by the WTO Secretariat states how the current trade governance system can support MSMEs in their participation in the international trading system:

1. By helping them meet sustainability standards and conforming with other international regulations to take advantage of the opportunities resulting from global supply chains;
2. By ensuring that MSMEs can trade their goods and services in a timely and competitive manner, which will result in greater consumer confidence; and
3. By making sure that trade finance is available. Doing so will contribute to gender equality, increasing economic growth, fostering innovation, and increasing participation in international trade.²⁶⁶

Trading is not possible without trust. Trust is based on incentives. Citizens need to have the necessary framework that engenders in them the required trust to believe in a trading system where they can be participants. For instance, green consumer behavior in trade (such as gradually getting rid of using fossil fuels) will help towards the mitigation of climate change. The more harmonized the market, greater economic incentives will derive from it. A key ingredient to improving trade (in energy) is better and more efficient connection between

266. WORLD TRADE ORG., MAINSTREAM TRADE TO ATTAIN THE SUSTAINABLE DEVELOPMENT GOALS 64 (2018), https://www.wto.org/english/res_e/booksp_e/sdg_e.pdf.

markets. All of this can be achieved if markets work towards “zero tariffs, zero non-tariff barriers and zero subsidies.”²⁶⁷

b. Energy Transition: The Role of Citizens

As was just alluded to, citizens can play an active role in harmonizing markets and shaping both the energy transition and the economic forces that underpin it. The energy transition, which is happening at a slow pace, is an opportunity to protect the planet, as is also an opportunity to create jobs and provide economic growth. The long-term goal in the energy field is 100% energy use from wind, solar, and hydropower. Since the energy sector and the economy go hand in hand, the future of the energy transition and the future of countries’ economies will inevitable go hand in hand. There are several factors to take into account in the energy transition: circularity/cradle-to-grave principle (recycling over and over again), consumer’s engagement, decarbonisation, long-term thinking, minimizing social impact on consumers, multilevel governance (at local, regional, national, supranational, international level), simplicity, speed (namely making sure that the energy transition happens within a reasonable timeframe), affordability, and transparency with data.

Moreover, one can think of five “D’s” when analyzing what is shaping the economy and the energy transition:

- Decentralization;
- Democratization;
- Decarbonization;
- Digitalization; and
- De-regulation.

But what are the main drivers of the energy transition in the energy market? Several factors seem to come to mind: access to information; communication; energy decentralization which, as a result, brings energy democratization²⁶⁸ via a multilevel governance system; citizens’ empowerment²⁶⁹ aiming at a state of autarky (in as much as this is possible) in a customer-centered system that enables them to exploit market opportunities; new business models; innovation; stronger and smarter grids; better and smarter regulation aiming at reducing or eliminating

²⁶⁷. Donald Trump agrees to cease fire in the trade war with the EU, *THE ECONOMIST* July 28, 2018, at 27.

²⁶⁸. By energy democratization, we mean a situation where regions and consumers gradually become more self-sufficient in their access to energy.

²⁶⁹. Rafael Leal-Arcas, *Empowering citizens for common concerns: Sustainable energy, trade and climate change*, 6 *GSTF J. L. & Soc. Sci.* 1 (2018).

technical barriers;²⁷⁰ and electrification because it drives the deployment of renewable energy.

What is the role of the market in securing a successful energy transition? It is, among other things, to set price signals, to provide regulatory adjustments to new situations, to influence the drivers that will make the energy transition a reality, to provide a level playing field, to act as an enabler for business models, to drive competition, to provide further economic liberalization, to drive consumer behavior (and vice versa, i.e., consumer behavior will drive the market), and to enable innovation.

The implementation of the energy transition will inevitably vary from country to country, based on access to technology and economic conditions.²⁷¹ It will require the convergence of centralized with decentralized energy systems. For instance, in the case of the EU, it will require solar and wind energy integration for the implementation of the energy transition. Greater flexibility will be necessary for cross-border energy trade and for local/regional smart grids.

The energy mix is changing to low carbon and is getting cheaper. Moreover, in addition to the power sector, heating, cooling, and transport are sectors where fossil fuels need to be gradually replaced with renewables. Sector coupling may be a way to make this possible within the energy sector and between the energy sector and other sectors.²⁷² In addition, reducing energy demand may not be an option in the future, given our life style in the West, which is increasingly replicated in the rest of the world. Instead, what is needed is a smart policy design for energy demand, which needs to be complemented with technological and institutional improvements on the supply side. If we succeed at a more efficient and sustainable energy system, energy imports and energy dependency will gradually fall, costs will be cut and GHG emissions reduced. One can also provide incentives for CO₂ emissions reduction.²⁷³

How can we get there? By empowering citizens in access to energy. Gordon Walker has identified four types of community-owned means of renewable-energy production in the UK: 1) cooperatives, 2) community charities, 3) development trusts, and 4) renewable-energy projects with shares owned by a local

270. Rafael Leal-Arcas, *et al.*, *Smart Grids in the European Union: Assessing energy security, regulation & social & ethical considerations*, 24.2 COLUM. J. EUR. L. (2018).

271. Think for instance of the polymer problem, where having proper waste-management systems makes a difference to solve it. *See The known unknowns of plastic pollution*, THE ECONOMIST, Mar. 3, 2018, at 50-52; *see generally* Shinichiro Nakamura, *An interindustry approach to analysing economic and environmental effects of the recycling of waste*, 28 ECOLOGICAL ECON. 133 (1999); Shinichiro Nakamura & Yasushi Kondo, *A waste input-output life-cycle cost analysis of the recycling of end-of-life electrical home appliances*, 57 ECOLOGICAL ECON. 494 (2006).

272. *See, e.g.*, COMMUNICATION FROM THE COMMISSION: CLEAN ENERGY FOR ALL EUROPEANS, EUROPEAN COMM'N (Nov. 30, 2016), <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM:2016:0860:FIN>.

273. California is considering the possibility of subsidies to remove CO₂. *See generally The power of negative thinking*, THE ECONOMIST 78 (June 9, 2018).

community organization.²⁷⁴ In addition, there are examples of cooperative models for wind turbine companies in several EU countries (namely Austria, Germany, Denmark, The Netherlands), which are illustrations of innovative models of citizens' participation and community involvement in energy production.²⁷⁵ What citizens want from the grid is security of supply, lower bills, protecting the environment, and smartness.

Moving forward, several key challenges seem to emerge:

- A modern and clean energy economy: The energy transition trend has been from a centralized system in the past to a current decentralized system and smart technologies, to a future smart, data-centric system and electrification of transport. This will happen with innovation and if the appropriate investment will take place to empower prosumers and renewable energy cooperatives and to manage data;
- A fair energy system with access to energy for all: No one and no country should be left behind. In other words, the energy transition must be designed in a fair manner;
- The enhancement of existing regional cooperation at all levels of governance: The current normative complexity would need further cooperation between various parties involved in the energy-transition process and at all levels, whether it is the EU, national level, regulators, distributors, stakeholders, or transmission system operators ("TSOs")²⁷⁶;
- Digitalization: Cyber security in energy will inevitably have cascading effects in other sectors such as finance and transport;²⁷⁷ and
- A global level playing field: The Paris Climate Agreement is a case in point. The objectives of the Paris Agreement would need to be in alignment with the objectives of future legislation on clean energy. But what about international trade and investment?²⁷⁸ How can the objectives of the Paris Agreement be aligned with those of future trade agreements?

274. Gordon Walker, *What are the barriers and incentives for community-owned means of energy production and use?*, 36 ENERGY POL'Y, 4401, 4401-402 (2008).

275. Thomas Bauwens, Boris Gotchev & Lars Holstenkamp, *What drives the development of community energy in Europe? The case of wind power cooperatives*, 13 ENERGY RES. & SOC. SCI. 136 (2016).

276. A lot of these TSOs are naturally regional, not national.

277. An example is the potential risks of cyber-attacks associated with autonomous vehicles. *See Autonomous vehicles are just around the corner*, THE ECONOMIST, Mar. 1, 2018.

278. For the specific case of energy trade, *see* Rafael Leal-Arcas *et al.*, *Energy trade in the MENA Region: Looking beyond the Pan-Arab electricity market*, 10 WORLD ENERGY L. & BUS. 520 (2017); Rafael Leal-Arcas, *Energy transit in the Caucasus: A legal analysis*, 6 CAUCASUS INT'L 52 (2016); Rafael Leal-Arcas, *How governing international trade in energy can enhance EU energy security*, 6 RENEWABLE ENERGY L. & POL'Y REV. 202 (2015); Rafael Leal-Arcas, Costantino Grasso & Juan Alemany Rios, *Multilateral, regional and bilateral energy trade governance*, 6 RENEWABLE ENERGY L. & POL'Y REV. 38 (2015).

c. Climate Action

International cooperation is crucial for climate change mitigation. A promising way forward is bringing together environmental NGOs and businesses for greater and close cooperation on issues of climate action.²⁷⁹ A case in point that became a surprising fact is the very well-organized social movement in the US to implement the Paris Climate Agreement as soon as President Trump announced his intention to withdraw from that Agreement. Cities, states and businesses gathered together for climate action. Outside the main conference building of the 2017 UN climate summit, a coalition of people gathered under the heading “We are still in.”²⁸⁰ Equally, joint actions between countries could have a “trickle-down effect” from governments to citizens and businesses for the promotion of business opportunities in clean energy, especially for small and medium enterprises (SMEs), the facilitation of trade and investment in environmentally friendly goods and services such as energy efficient goods and services, and cooperation on trade-related aspects of climate change mitigation.²⁸¹

CONCLUSION

The Paris Agreement on Climate Change is undoubtedly one of the greatest diplomatic achievements of the Obama-Kerry administration. But under the Trump presidency, it is under threat of being dismantled, like other international agreements such as the Trans-Pacific Partnership. This article has explained that such dismantling will be hard to achieve because the success of the Paris Agreement does not rest only in its negotiation phase, but also is supported through a bottom-up approach in the implementation phase and the potential of the international trading system. With an analysis of the climate regime’s negotiation and implementation, this Article has demonstrated why dismantling the Paris Agreement will be hard and not favored by the plurality of actors involved in the process.

No solution to the above challenges is possible without cooperation among governments, companies, researchers (whose role is to provide good information to create good policy), and mobilization of individuals. Business may have a role to play when politicians fall short to help decarbonize the economy at large.

279. See UNIVERSITY INITIATIVES IN CLIMATE CHANGE MITIGATION AND ADAPTATION (Walter Leal Filho & Rafael Leal-Arcas eds., 2018); see also ANDREW GUZMAN, OVERHEATED: THE HUMAN COST OF CLIMATE CHANGE (2014).

280. Oliver Milman & Jonathan Watts, *One nation, two tribes: opposing visions of US climate role on show in Bonn*, THE GUARDIAN (Nov. 9, 2017), <https://www.theguardian.com/environment/2017/nov/09/bonn-climate-change-talks-us-two-tribes>).

281. Rafael Leal-Arcas, *Unilateral Trade-related Climate Change Measures*, 13 J. WORLD INV. & TRADE 875 (2012); FEEDBACK AND WAY FORWARD ON IMPROVING THE IMPLEMENTATION AND ENFORCEMENT OF TRADE AND SUSTAINABLE DEVELOPMENT CHAPTERS IN EU FREE TRADE AGREEMENTS, NON-PAPER OF THE EUROPEAN COMMISSION SERVICES (2018) http://trade.ec.europa.eu/doclib/docs/2018/february/tradoc_156618.pdf.

Elected politicians may be too shy to risk failure and seem to suffer from short-termism. On the other hand, entrepreneurs seem to be riskophiles and persistent with long-term vision, especially multibillionaire entrepreneurs—for instance, Elon Musk’s companies Space X and Tesla. Change may come sooner than later thanks to them. Technology seems to be the resource of success. To that, one should add the optimism of Steven Pinker that things will only get better in the future because people generally think reasonably and logically,²⁸² and that the geopolitics of clean energy may make the world more peaceful and stable.

Further, a number of policy changes may make a difference moving forward:

- Decreasing/cutting fossil-fuel subsidies and promoting energy efficiency to reduce fossil-fuel emissions;
- Educating consumers and corporations on sustainable energy/climate change to reduce the demand and supply, respectively, of non-green goods and services, and to embrace a minimalist approach to life;²⁸³
- Implementing new regulation that favors green trade as a policy objective;
- Boosting renewable-energy development by increasing renewable-energy subsidies, promoting investment in climate-friendly technologies, and gradually prohibiting the use of fossil fuels to generate energy; and
- Providing financial mechanisms (such as emissions trading schemes and carbon taxes/border carbon measures) and eco-labelling schemes, leading consumers to buy green goods/services such as electric cars. Equally, making a policy shift from taxing labor to taxing natural resources.

Regarding the energy transition, as the world reduces its oil dependence, the winners in this race will be those that will be able to produce and export green technology and rely on clean energy, whereas the losers will be those that will continue to depend mainly on fossil fuels. Two ingredients may help move forward the energy transition: international collaboration and energy decentralization. Potential international collaboration can be achieved in the field of technology, for which international trade will certainly play a major role. Initiatives such as the “Breakthrough Energy Coalition”²⁸⁴ of visionary billionaires determined to provide energy that is reliable, affordable, and carbon-less are an excellent way forward. Another initiative called Mission Innovation²⁸⁵ brings together a group of twenty-three countries and the EU²⁸⁶ and aims to reinvigorate

282. STEVEN PINKER, ENLIGHTENMENT NOW: THE CASE FOR REASON, SCIENCE, HUMANISM, AND PROGRESS, (2018)

283. Helmi Yusof, *The Pursuit of Less*, THE BUSINESS TIMES (Jan. 19, 2018), <https://www.business-times.com.sg/lifestyle/feature/the-pursuit-of-less>.

284. See BREAKTHROUGH ENERGY COALITION, <http://www.breakthroughenergycoalition.com/en/index.html> (last visited Dec. 1, 2018).

285. MISSION INNOVATION, <http://mission-innovation.net/> (last visited Nov. 4, 2018).

286. *Members*, MISSION INNOVATION, <http://mission-innovation.net/countries/> (last visited Dec. 1, 2018).

and accelerate clean energy innovation throughout the world to make clean energy affordable for all. As for energy decentralization, the emergence of micro-/mini-grids dealing with locally produced wind and solar energy, as well as electric-vehicle batteries, is the way forward. All of this will not only help to provide better access to energy, but it will also decentralize economies.

When it comes to the fight against climate change, winning slowly is the same as losing the fight. However, when opportunity meets willingness, action takes place. Change in behavior by citizens (and businesses) is key to make the economy more sustainable because policy targets come from governments but policy implementation will be done by citizens. Change in behavior implies enabling people with the choices of change. There is evidence that young people want to consume in a sustainable manner, which is a positive change and will make the future brighter. Equally, as pointed out by David Korten, changing the story will change the future.²⁸⁷ So citizens need to have a voice to change the story of their future. Being pragmatic and practical at the city/company level will help.

Lastly, two counter-intuitive trade-related points deserve to be mentioned. First, that trade agreements may be more effective legal instruments than environmental agreements for environmental-protection purposes is both counter-intuitive and surprising. Just as the huge improvement in quality of life after World War II was largely due to the expansion of world trade by lowering technical barriers, one can use the international trading system (whether regionally, bilaterally, plurilaterally, multilaterally or in any other form) to help mitigate climate change and enhance sustainable energy. If multilateralism is currently in crisis, plurilateralism might be an effective platform to work on the links between trade and climate action. How? By making sure that major GHG emitters execute mega-FTAs with major economies where they commit to the liberalization of green goods and services.

Second, on the trade-climate change nexus, whether clean-energy technology eventually triggers healthy competition or geopolitical friction will depend on international trade. If the Trump administration ends up creating a trade war, there will be less trade and, therefore, less international shipping for the transnational movement of goods. Thus, fewer emissions of GHGs will result, which is good for mitigating climate change. Accordingly, a trade war would be beneficial for climate change from the point of view of GHG emission reduction; but it will make the world poorer. So if climate change mitigation is about money, how can a trade war help fix the climate change problem? Moreover, a trade war may help with the reduction of GHG emissions but would prevent global access to clean goods.

All of this would need to be implemented in terms of bottom-up governance. Recent examples of citizens' discontent in EU governance show the apathy

287. DAVID KORTEN, *CHANGE THE STORY, CHANGE THE FUTURE: A LIVING ECONOMY FOR A LIVING EARTH* (2015).

among voters for supranational parliamentary elections, whose participation has decreased in each election since 1979. Instead, there is an increasing interest in national/sub-national parliamentary politics, as exemplified by Brexit and the Catalanian independent movement, which are closer to the citizens than metanational/supranational/international entities. Greater use of social media (Twitter, Facebook, videos on YouTube) could be a very effective means to educate youth—which is the segment of society that makes most use of it—on the links between trade and climate change, to raise awareness, and to involve them in parliamentary elections.