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Lisa Benjamin

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Renewable Energy and Trade: Meeting the Paris Agreement's Goals Through a Two-Step Jurisprudential Advance

Lisa Benjamin*

Trade and climate change are at a crossroads. For the world to meet the long-term temperature goals under the Paris Agreement, all nations must actively engage with greening their economies and energy supplies. The fastest way to achieve this is to allow, or even encourage, green industrial policies which incentivize the manufacture and diffusion of renewable energy. These policies often include elements such as renewable portfolio standards, requirements for mixing biofuels with gasoline, as well as local content requirements. These types of policies are particularly important and relevant for developing countries as they aim to reduce poverty, improve economic development, and mitigate the adverse effects of climate change.

Where these policies include protectionist measures such as local content requirements, they violate basic World Trade Organization (WTO) rules and principles of non-discrimination. Emerging economies in the developing world have been on the losing end of most of the recent energy disputes at the WTO, but are an increasingly large site of greenhouse gas emissions globally. Given the existing friction between the trade and climate change regimes, countries are likely to engage in strategic compliance in order to preserve their domestic policy aims, at least in the short term.

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One of the challenges facing policy makers in emerging economies at the intersection of climate and trade is how to dramatically increase the manufacture, dissemination, and export of renewable energy technology through green industrial policy making without violating trade rules. This article proposes a two-step jurisprudential advance to this problem. First, it highlights a broader range of defenses under Article XX available to emerging economies connected with the climate crisis. Second, it offers a set of general principles that the WTO's own dispute settlement mechanism could introduce in the context of climate change. These solutions ultimately have broader import than just to developing countries (the locus of the case studies), as developed countries engage in their own industry policy battles and consider implementing green new deals.

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INTRODUCTION

Trade conflicts burgeoned under the Trump Administration, particularly with China. President Trump imposed tariffs on a number of imports, including solar cells, and engaged in trade conflicts with both allies and rivals of the United States in an attempt to revive ailing domestic manufacturing industries.¹ At the same time, US states are implementing their own policies to incentivize the transition to renewable energy. Imagine a state allowed its power company to pay its customers for electricity those customers produced using renewable energy. The state then provided the power company credits against its public utility commission taxes equal to the amounts it paid customers for renewable energy. Those customers could obtain additional incentive payments if they used solar inverters, solar modules, Stirling converters, or wind blades manufactured in that state to produce their renewable energy. Or imagine that a state provided a tax incentive for production of ethanol to be blended in gasoline, and required a minimum percentage of that ethanol to be produced from products originating from that state. Both of these programs incentivize the manufacture and diffusion of renewable energy, and assist the United States in tackling the problem of climate change. In fact, these are programs from Washington (the Renewable Energy Cost Recovery Incentives Payment Program) and Montana (Tax Incentive for Ethanol

1. TIMOTHY MEYER & GANESH SITARAMAN, A BLUEPRINT FOR A NEW AMERICAN TRADE POLICY 8 (2018).

Production), which were both held to violate trade rules in June 2019.²

This example demonstrates that the World Trade Organization (WTO)³ and the new climate regime under the Paris Agreement⁴ have conflicting aims. The WTO focuses on free trade, non-discrimination, and disciplining domestic protectionism, with limited policy exceptions provided to countries under Article XX of the General Agreement on Trade and Tariffs (GATT).⁵ Article XX provides countries with several exceptions to allow discriminatory treatment which would otherwise violate WTO rules, including on the basis of environmental reasons (Article XX(g)) or health reasons (Article XX(b)).⁶ Under the Dispute Settlement Mechanism of the WTO, parties have engaged in selective enforcement by only bringing suits against renewable energy domestic policies and not against fossil fuel subsidies.⁷ This selective enforcement imposes additional costs on renewable energy's "ability to compete in the marketplace[,] and may slow the investment in [necessary] innovation," and "subsidizes products with large social costs" such as fossil fuels.⁸

The Paris Agreement aims to incentivize ambitious action by all countries at the national level to keep long-term temperature increases well below 2° C above pre-industrial levels (with an aspirational goal of 1.5° C) in order to avoid catastrophic climate change.⁹ Countries contribute to these collective goals

2. Panel Report, *United States—Certain Measures Relating to the Renewable Energy Sector*, WTO Doc. WT/DS510/R (adopted June 27, 2019). The United States has appealed the decision. Joe Biden's "Build Back Better Plan" focuses on manufacturing clean energy components domestically, illustrating that protectionist approaches to trade and renewable energy are not entirely partisan issues. *The Biden Plan to Build a Modern, Sustainable Infrastructure and an Equitable Clean Energy Future*, <https://joebiden.com/clean-energy> (last visited Jan. 13, 2021) [hereinafter Biden Energy Plan].

3. WORLD TRADE ORGANIZATION, <https://www.wto.org/> (last visited Sept. 30, 2020).

4. Paris Agreement to the United Nations Framework Convention on Climate Change, Dec. 12, 2015, T.I.A.S. No. 16-1104 [hereinafter Paris Agreement].

5. General Agreement on Tariffs and Trade 1994, Apr. 15, 1994 [hereinafter GATT 1994]; Marrakesh Agreement Establishing the World Trade Organization, Annex 1A, 1867 U.N.T.S. 187 [hereinafter WTO Agreement Annex 1A].

6. GATT 1994, *supra* note 5.

7. Timothy Meyer, *Free Trade, Fair Trade and Selective Enforcement*, 118 COLUM. L. REV. 491, 494–95 (2018) [hereinafter Meyer, *Free Trade*].

8. *Id.* at 497–98.

9. Paris Agreement, *supra* note 4, art. 2(a).

through the submission of nationally determined contributions, which are supposed to reflect decreasing greenhouse gas emissions over time.¹⁰ The trade and climate change regimes exist within silos, but the systemic nature of climate change forces a reconsideration of the nexus between trade and climate change. Climate action at the national level is often implemented by developed and developing countries through green industrial policy making around energy,¹¹ which as illustrated above, often involves both environmental and economic and developmental objectives. Many of these policies have been on the losing end of disputes at the WTO, but arguably should be allowed under Article XX exceptions. These energy disputes demonstrate global wrangling to achieve economic dominance in clean energy industries. All of these disputes fall against a backdrop where liberalizing trade in clean energy is grounded in comparative advantage theory: removing barriers to international trade in theory would allow the most efficient, competitive producers of clean energy to prevail.¹²

The first (albeit tentative) phase of the bilateral trade agreement between the United States and China signals a further decline in multilateral trade relationships under the WTO.¹³

10. *Id.* art. 3.

11. See, e.g., *Brazil–Country Profile*, GREEN FISCAL POL. NETWORK (Mar. 30, 2017), https://greenfiscalspolicy.org/policy_briefs/brazil-country-profile-2/ (“Several national policies aimed at greening Brazil’s power sector have been launched, such as the Alternative Energy Source Incentive Program (PRO-INFA), the National Energy Conservation Program (PROCEL), the National Program for the Rational Use of Oil and Natural Gas, the National Biodiesel Production, and Usage Program (PNBP).”).

12. Christopher M. Dent, *Clean Energy Trade Governance: Reconciling Trade Liberalism and Climate Interventionism?*, 23 NEW POL. ECON. 728, 730 (2017).

13. Economic and Trade Agreement Between the Government of the United States of America and the Government of the People’s Republic of China, Jan. 15, 2020, U.N.T.S. forthcoming; Don Lee & Alice Su, *US and China Agree to Partial Trade Deal, but Few Details Are Released*, L.A. TIMES (Dec. 13, 2019), <https://www.latimes.com/business/story/2019-12-13/u-s-and-china-agree-to-partial-trade-deal-but-few-details-are-released>; Ryan Woo & Jeff Mason, *China, US Sign Initial Trade Pact but Doubts and Tariffs Linger*, REUTERS (Jan. 15, 2020), <https://www.reuters.com/article/us-usa-trade-china/china-u-s-sign-initial-trade-pact-but-doubts-and-tariffs-linger-idUSKBN1ZE0I1>; cf. Susanne Droege, Harro van Asselt, Kasturi Das & Michael Mehling, *The Trade System and Climate Action: Ways Forward Under the Paris Agreement* CLIMATE STRATEGIES 4, 30 (Climate Strategies, Working Paper, Oct. 2016) (noting that “regional trade agreements are a promising way forward for introducing and testing new rules on climate and trade”); Kathleen Claussen, *Dispute*

Bilateral, regional and mega-regional trade arrangements have over the years led to the declining influence of the WTO. This decline, combined with the blocking by the United States of the appointment of appellate judges in the Dispute Settlement Mechanism (DSM),¹⁴ mean that the ability (and relevance) of the DSM to adjudicate multilateral trade disputes is now questionable.¹⁵ These developments may lead developing (and developed) countries to engage in or continue existing strategic compliance (delaying compliance until trade remedies are imminent). The trade remedies phase at the WTO can take a long time to complete, and so the system provides ample opportunities for countries to engage in strategic compliance. This provides countries with economic and policy space to pursue goals they consider to be the most beneficial to them nationally. This strategic compliance approach is often motivated by a convenient compliance approach (complying only when it is convenient and benefits existing domestic policies). Finally, countries may simply ignore the outcome of disputes and never comply, and instead employ more domestic protectionist measures to implement and entrench domestic green industrial policy making.

While these approaches could have some climate benefits where countries' green industrial policies have demonstrable climate impacts, they also undermine the multilateral system of trade. This could lead to escalating trade conflicts and a de-emphasis on multilateral trade rules, which could spill over to

Settlement Under the Next Generation of Free Trade Agreements, 46 GA. J. INTL. & COMP. L. 661, 615 (2018) (noting that “[r]egional and bilateral agreements have eclipsed the WTO in importance”). The first phase of the agreement contains a bilateral dispute settlement mechanism designed to avoid disputes being submitted to the WTO dispute settlement mechanism.

14. Jens Lehne, *Crisis at the WTO: Is the Blocking of Appeals to the WTO Appellate Body by the United States Legally Justified?*, in 6 SUI GENERIS 3 (Daniel Hürlimann & Marc Thommen eds., 2019) (asserting that US arguments of judicial overreach and disregard of the WTO rules by Appellate Body judges used to block appointments to the Appellate Body since mid-2017 are not legally justifiable). As of December 2019, the number of Appellate Body judges dropped to one, below the three required for a quorum. *Id.* at 133–34; see also Press Release, World Trade Organization, Members Reiterate Joint Call to Launch Selection Process for Appellate Body Members (Nov. 22, 2019), https://www.wto.org/english/news_e/news19_e/dsb_22nov19_e.htm.

15. A number of countries have agreed to an ad-hoc workaround to the current stasis. See Beatriz Rios, *China, WTO Members Join EU's Ad-Hoc Appellate Body in Davos*, EURACTIV (Jan. 24, 2020), <https://www.euractiv.com/section/economy-jobs/news/china-wto-members-join-eus-ad-hoc-appellate-body-in-davos/>.

political conflicts; failure to align the WTO and UNFCCC regimes could also undermine the legitimacy and effectiveness of both the trade and climate regimes. Conversely, efforts within the trade regime to “promote sustainability as well as eliminate poverty, reduce income inequality, protect workers, and advance public health might well help to rebuild confidence in trade as a pathway to a better future.”¹⁶

Developing countries hold more than half of the world’s renewable energy capacity,¹⁷ and they are anticipated to bear the brunt of the impacts of climate change.¹⁸ Given that the outcomes of most of the DSM disputes on energy have been negative for developing and developed countries so far, in the short term strategic compliance may not be so detrimental for the climate if countries implement urgent and progressive renewable energy policies. In the longer term, if the WTO and its DSM is reinvigorated, a more synergistic relationship between trade and climate change is needed in order to reduce the existing friction between these two regimes. Part of a revised relationship between trade and climate change could be achieved jurisprudentially through the DSM. The existing dispute mechanism has the flexibility to accommodate emerging global issues and cater its jurisprudence accordingly, within the limits of the language of the WTO agreements. In fact, Article XX has previously been

16. Daniel C. Esty & Susan Biniaz, *Introduction to COOL HEADS IN A WARMING WORLD: HOW TRADE POLICY CAN HELP FIGHT CLIMATE CHANGE* vii, (Daniel Esty & Susan Biniaz eds., Yale Ctr. Envtl. L. & Pol., 2019), <https://envirocenter.yale.edu/cool-heads-warming-world-how-trade-policy-can-help-fight-climate-change>.

17. See RENEWABLE ENERGY POLICY NETWORK FOR THE 21ST CENTURY, GLOBAL STATUS REPORT 4 (2010), https://www.ren21.net/Portals/0/documents/activities/gsr/REN21_GSR_2010_full_revised%20Sept2010.pdf (discussing governmental utilization of renewables); INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE (IPCC), RENEWABLE ENERGY SOURCES AND CLIMATE CHANGE MITIGATION: SUMMARY FOR POLICY MAKERS 9 (2013), <https://www.ipcc.ch/report/renewable-energy-sources-and-climate-change-mitigation/> (“Collectively, developing countries host 53% of global [renewable energy] electricity generation capacity.”).

18. INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, CLIMATE CHANGE 2014: SYNTHESIS REPORT 15–16 (2014), https://www.ipcc.ch/pdf/assessment-report/ar5/syr/AR5_SYR_FINAL_SPM.pdf; Ilona M. Otto et al., *Social Vulnerability to Climate Change: A Review of Concepts and Evidence*, 17 REG’L ENV’T CHANGE 1651, 1658 (2017) (discussing the effects of climate change on vulnerable communities); David J. Wrathall et al., *Problematising Loss and Damage*, 8 INT’L J. GLOB. WARMING 274, 282–85 (2015) (discussing monetary compensation difficulties in traditional and indigenous societies).

subject to progressive interpretation by the DSM,¹⁹ and there is no reason why this approach cannot be adopted in disputes involving renewable energy. This paper suggests a two-step jurisprudential approach that could be adopted by both developing countries and the DSM.

It is at the nexus of climate change and trade that this paper focuses on emerging economies in the developing world through the lens of energy disputes at the WTO. The actions of these countries in the context of both climate change and energy are critical to global energy transitions and climate stabilization efforts anticipated by the Paris Agreement. Emerging economies such as BASIC countries²⁰ are introducing public stimulus programs and making investments in infrastructure, rural development, and urban planning in order to achieve green growth. While increased incorporation of renewables into domestic electricity grids is an important part of the energy transition, this paper focuses on manufacture, implementation, and diffusion of green technology, which also faces many hurdles.²¹

19. WORLD TRADE ORGANIZATION, *WTO Rules and Environmental Policies: GATT Exceptions*, https://www.wto.org/english/tratop_e/envir_e/envt_rules_exceptions_e.htm (noting that Article XX has been interpreted to allow “measures that are inconsistent with GATT disciplines,” such as “policies aimed at reducing the consumption of cigarettes, protecting dolphins, reducing risks to human health posed by asbestos, [and] reducing risks to human, animal and plant life and health arising from the accumulation of waste tyres [sic]”) (last visited Oct. 12, 2020).

20. BASIC countries are four newly industrialized countries which still self-identify as developing countries under most international treaties: Brazil, South Africa, India and China. Defining the groupings of non-industrialized countries in the world has been subject to much debate. The terms “Third World,” “developing world,” and “Global South” originated in different periods and have been contested in terms of their appropriateness and accuracy. Today, the terms “Global South” and “Global North” have become the favored option by scholars and policy makers, based on an earlier “North-South” distinction of the 1980s with the prefix “global” clarifying that this is not a purely geographical categorization of the world, but one based on economic inequalities. See SYLVIA CHANT & CATHY MCILWAINE, *GEOGRAPHIES OF DEVELOPMENT IN THE 21ST CENTURY: AN INTRODUCTION TO THE GLOBAL SOUTH* 6, 11 (2009) (discussing the different methods of classifying areas of the world). This paper will continue to use the terms “developed” and “developing countries” as these terms are identified and used in the WTO system.

21. Electricity markets are predominantly local, crossing borders between countries where significant grid infrastructure exists or could be built and so are subject to physical restraints, but renewable energy technology is a more global market and traded across borders and so is more vulnerable to WTO trade disciplines. Ilaria Espa & Gracia Marín Durán, *Renewable Energy*

Environmental externalities are not well reflected in markets, there is inadequate information on products, and behavioral barriers persist.²² In addition, continuous reinvestment in non-green infrastructure can lead to path dependency on fossil fuels and challenges regarding sources of finance.²³ Lock-in of fossil fuel technology and infrastructure as well as market failures are difficult to surmount.²⁴

This paper takes a novel approach by examining the strategies of emerging economies at the WTO across a set of disputes which fall into two main categories: renewable energy and bio-fuels. Very few academics have explored these renewable energy disputes through the lens of climate change, and even fewer from the perspective of developing countries. The record of success of developing countries in these disputes is mixed, although largely unsuccessful both in law and “in fact” (in terms of trade remedies). This paper will suggest some understandings of why this may be the case, based on inherent inadequacies of the trade system to accommodate climate objectives, and how these inadequacies could be overcome.

While this paper focuses on emerging economies, the analysis has relevance for developed economies as well, as they consider their own form of domestic protectionism, green industrial policy making, and green new deals (for example, see Joe Biden’s “Build Back Better” platform).²⁵ The nature of energy disputes has shifted over time. Energy policies of developed countries are also becoming subject to the DSM. India recently won a panel decision regarding renewable energy regulations in California, Minnesota, Texas, Montana, Michigan, Washington, and

Subsidies and WTO Law: Time to Rethink the Case for Reform and Beyond Canada—Renewable Energy/Fit Program, 21 J. Int’l Econ. L. 625–26 (2018).

22. Rene Kemp & Babette Never, *Green Transition, Industrial Policy, and Economic Development*, 33 OXFORD REV. ECON. POL’Y 66, 66 (2017) (discussing challenges of developing and implementing green technologies in both industrialized and developing nations).

23. *Id.*

24. *Id.* at 67.

25. See, e.g., Biden Energy Plan, *supra* note 2; Recognizing the Duty of the Federal Government to Create a Green New Deal, H.R. Res. 109, 116th Cong. (2019) (calling for the creation of a Green New Deal); *Communication from the Commission to the European Parliament, the European Council, the Council, the European Economic and Social Committee and the Committee of the Regions: The European Green Deal*, COM (2019) 640 final (Dec. 11, 2019) (calling for and proposing a European Green Deal).

Delaware found to be in violation of WTO rules.²⁶ Given the largely negative outcomes of these disputes for renewable energy and in particular the problem of discriminatory local content requirements, a “pause” in these disputes due to the decline of the DSM may be beneficial for the climate, providing policy space to countries to use local content requirements and other protectionist policies to ramp up climate action and green energy development. Domestic protectionist policies, including subsidies, if well designed, could (and already have)²⁷ decrease costs and increase the production and diffusion of renewable energy both domestically and around the world, including in other developing countries. Assuming the WTO and the DSM continue to operate in the longer term, energy disputes are only likely to increase and so a more synergistic relationship between the WTO and the Paris Agreement will be needed. Countries can (and do) unilaterally impose countervailing and other duties which increase the cost of imports of renewable energy and hamper its diffusion, and so a more comprehensive approach to energy and climate concerns at the WTO will be needed if we are to meet the goals of the Paris Agreement.²⁸

26. *United States—Certain Measures Relating to the Renewable Energy Sector*, *supra* note 2. Meyer argues that it is in fact developed countries that are “clamoring for policy space” in the trading system as they are unable to provide direct subsidies via a centralized, state-based banking system as China can. See Timothy Meyer, *The Law and Politics of Socially Inclusive Trade*, 2019 U. ILL. L. REV. 33, 42 (2019) (discussing the negative impact on trade institutions from developed countries failure to deal with economic inequalities).

27. INTERNATIONAL RENEWABLE ENERGY AGENCY, A NEW WORLD: THE GEOPOLITICS OF THE ENERGY TRANSFORMATION (2019) (summarizing efforts and changes in energy transformation and noting a steep decline in the cost of renewable energy); REN21, RENEWABLES 2019 GLOBAL STATUS REPORT (2019) (summarizing renewable energy efforts and data from around the world).

28. Brian Eckhouse, Ari Natter & Chris Martin, *Trump’s Tariffs on Solar Mark Biggest Blow to Renewables Yet*, BLOOMBERG: CLIMATE CHANGED (Jan. 23, 2018, 3:38 AM), <https://www.bloomberg.com/news/articles/2018-01-22/trump-taxes-solar-imports-in-biggest-blow-to-clean-energy-yet> (discussing tariffs imposed on solar products); Graeme Wearden, *China Fuels Trade War Fears With New Tariffs on US Goods—As it Happened*, THE GUARDIAN (Apr. 4, 2018), <https://www.theguardian.com/business/live/2018/apr/04/china-us-trade-war-tariffs-wpp-markets-eurozone-jobs-business-live> (summarizing the timeline of events China took in response to US tariffs signalling a potential trade war between the US and China); Doug Palmer, *Trump’s Global Trade War*, POLITICO (May 31, 2018), <https://www.politico.eu/article/donald-trump-duties-steel-aluminum-global-trade-war> (discussing the negative impacts to US manufacturers and consumers, and ally relationships, newly imposed tariffs have).

While legislative reform at the WTO has been suggested and would certainly be a more comprehensive approach, this paper suggests a partial solution through a twofold jurisprudential approach, assuming the appellate function of the DSM is revived. In the first instance, existing disputes can provide lessons to developing countries on how to better cater and craft their domestic policies to more easily align with existing defenses available under Article XX in the context of the climate crisis. At the same time, Article XX should be reinterpreted by panels, and the Appellate Body, to allow more policy space for countries to implement and diffuse green energy technology (even with local content requirements), and so reduce the friction between the WTO and the Paris Agreement.

This paper is structured as follows: in section one, a brief overview of the WTO, DSM, and Article XX is provided as background for the analysis of the renewable energy disputes covered in the paper. In section two, the relationship between energy, trade, and climate change is expanded upon, paving the way, in section three, for a historical background of the relationship between energy and the WTO and green industrial policy making. This background provides context for why the legislative gap in terms of energy exists at the WTO, and explains why disputes around renewable energy have arisen through the DSM. As the need for energy transitions towards renewables becomes more urgent in the context of the climate crisis, the inability of the WTO to cater for these renewable energy disputes through the lens of climate change becomes a pressing issue. The traditional trade approach to renewables may impede their development and lead to more strategic or convenient compliance by states. Section four will analyze the strategies used by India and China in renewable energy disputes, and Argentina and Indonesia in biofuels disputes. These countries' approach to green industrial policy making and climate change are critically important if the world is to meet the global temperature goals in the Paris Agreement, and the domestic policies of these countries have been disputed at the WTO. India included local content requirements for solar panels as part of its Jawaharlal Nehru National Solar Mission,²⁹ and China provided subsidies to state owned enterprises

29. Dispute Settlement, *India–Certain Measures Relating to Solar Cells and Solar Modules*, WTO Doc. D.S.456, https://www.wto.org/english/tratop_e/dispu_e/cases_e/ds456_e.htm (last visited Oct. 8, 2020) (discussing India's content requirements for solar panels and subsequent WTO action).

manufacturing wind towers and solar panels.³⁰ Argentina and Indonesia imposed export duties on locally produced raw materials used to manufacture biofuels in order to make their domestically produced biofuels cheaper on the international markets.³¹ The paper will conclude with a focus specifically on how existing defenses under Article XX are being relied upon in these disputes, and evaluate the circumstances under which these countries could tighten their domestic policies in the context of the climate emergency to more closely align with Article XX defenses such as XX(b) and (g).³² It will also advocate for a more climate-friendly interpretation of Article XX by the DSM.

I. THE WTO, DSM, AND ARTICLE XX

The WTO was formally established as an institution in 1995,³³ although its historical roots go back much further in

30. Chen Gang, *China's Solar PV Manufacturing and Subsidies from the Perspective of State Capitalism*, 33 COPENHAGEN J. ASIAN STUDIES 90, 97–100 (2015) (discussing China's subsidies of wind and solar manufacturers to spur increased production).

31. See generally Philip Blenkinsop & Gabriel Burin, *Argentina Says Clinches Deal to Resume Biodiesel Exports to EU*, REUTERS (Jan. 30, 2019, 9:48AM) <https://www.reuters.com/article/us-eu-biodiesel-argentina/argentina-says-clinches-deal-to-resume-biodiesel-exports-to-eu-idUSKCN1PO25B> (discussing the implications of and subsequent actions relating to Argentine export duties on biodiesel); Philip Blenkinsop, *EU Hits Indonesian Biodiesel With Import Duties Over Subsidies*, REUTERS (Dec. 9, 2019, 8:16AM), <https://www.reuters.com/article/us-eu-indonesia-biodiesel/eu-hits-indonesian-biodiesel-with-import-duties-over-subsidies-idUSKBN1YD1HG> (discussing subsequent EU action in response to Indonesian subsidies).

32. GATT 1994, *supra* note 5, at para. B (discussing the “necessary to protect human, animal, or plant life or health” defense); and para. G (discussing the “relating to the conservation of exhaustible natural resources” defense).

33. *The WTO*, WORLD TRADE ORGANIZATION, https://www.wto.org/english/thewto_e/history_e/history_e.htm (last visited Sept. 30, 2020).

time.³⁴ The agreement establishing the WTO³⁵ includes, in its annexes, a number of agreements referred to as “covered agreements,” although they are not stand-alone agreements.³⁶ Countries accede to the WTO as a single-package deal, agreeing to all of the multilateral covered agreements. These include agreements on the trade in goods, including the General Agreement on Trade and Tariffs (GATT 1994), the Agreement on Agriculture (AoA), the Subsidies and Countervailing Measures agreement (SCM), Anti-Dumping Agreement (ADA), and the Agreement on Trade-Related Investment Measures (TRIMS).³⁷ The member states of the WTO must adhere to the provisions of all of these multilateral covered agreements.

The institutional architecture of the WTO includes a robust DSM. Despite the declining influence of the WTO in recent years, the DSM is still critical to its operation. The DSM provides binding interpretive approaches of the main ‘covered agreements’ of the WTO. Some major subject areas of these agreements, which are relevant to this paper, include agreements on subsidies, agriculture, investment, and trade in goods and services. The DSM applies to all of these agreements. The interpretations the DSM provides are integral to the operation of the WTO and parties’ compliance with it.

There are a number of possible exceptions to the provisions of WTO covered agreements, including waivers agreed on by the parties under GATT Article XXV,³⁸ exceptions for developing countries in Article XVIII,³⁹ and most importantly for this paper,

34. The precursor to the WTO was the General Agreement on Trade and Tariffs in 1947. General Agreement on Tariffs and Trade, Oct. 30, 1947, 55 U.N.T.S. 194 [hereinafter GATT 1947]. However, the principles of multilateral trade relationships were established as a result of bilateral friendship, commerce, and navigation treaties between independent nations in the seventeenth and eighteenth centuries, resulting in the 1890 treaty Concerning the Creation of an International Union for the Publication of Customs Tariffs. See JOHN H. JACKSON, *THE WORLD TRADING SYSTEM* 35 (2d ed. 1997). The provisions of GATT 1947 evolved from US bilateral trade agreements. *Id.* at 37. Claussen notes that trade provisions adapt and evolve from other trading agreements and in the labor and environmental fields can achieve normative convergence. Claussen, *supra* note 13 at 615.

35. Marrakesh Agreement Establishing the World Trade Organization, Apr. 15, 1994, 1867 U.N.T.S. 154 [hereinafter WTO Agreement].

36. JACKSON, *supra* note 34, at 46–47.

37. See WTO Agreement Annex 1A, *supra* note 5.

38. GATT 1994, *supra* note 5, art. XXV.

39. *Id.* art. XVIII.

general exceptions included under Article XX of the GATT 1994.⁴⁰ As there is no international environmental court, how the DSM interprets these exceptions, particularly exceptions related to public health and the environment, is critically important to how states will implement provisions and commitments under international environmental treaties,⁴¹ including in relation to climate change. For example, article 3.5 of the United Nations Framework Convention on Climate Change (UNFCCC)⁴² reiterates the language of Article XX of the GATT,⁴³ and the Paris Agreement is silent on trade⁴⁴ so parties largely depend on trade provisions to regulate their domestic climate and energy related policies.⁴⁵ While several WTO parties have begun work on a plurilateral agreement on Climate Change, Trade, and Sustainability,⁴⁶ more uniform and urgent action is needed on this issue. Significant precedent exists for progressive interpretations of Article XX under the DSM in the context of trade and the environment, and this history of the DSM demonstrates the “generative quality” of that body⁴⁷ and its ability to adapt to changing global circumstances.

The Dispute Settlement Understanding (DSU) is considered to be the “linchpin” of the entire trading system, and one of the

40. *Id.* art. XX.

41. CHRIS WOLD, SANFORD GAINES & GREG BLOCK, *TRADE AND THE ENVIRONMENT: LAW AND POLICY* 83 (2d ed. 2011).

42. United Nations Framework Convention on Climate Change, May 9, 1992, 1771 U.N.T.S. 107 [hereinafter UNFCCC].

43. *Compare id.* art. 3.5 (“Measures taken to combat climate change, including unilateral ones, should not constitute a means of arbitrary or unjustifiable discrimination or a disguised restriction on international trade.”), with GATT 1994, *supra* note 5, art. XX (prohibiting measures “which would constitute a means of arbitrary or unjustifiable discrimination between countries where the same conditions prevail, or a disguised restriction on international trade”).

44. Paris Agreement, *supra* note 4.

45. DANIEL BODANSKY, JUTTA BRUNNÉE & LAVANYA RAJAMANI, *INTERNATIONAL CLIMATE CHANGE LAW* 347 (2017) (summarizing the different bodies of law surrounding international climate change and how each country uses them).

46. Ronald Steenblich and Susanne Droege, *Time to ACCTS? Five Countries Announce New Initiative On Trade And Climate Change*, INT’L INST. FOR SUSTAINABLE DEV. (Sep. 25, 2019), <https://www.iisd.org/articles/time-accts-five-countries-announce-new-initiative-trade-and-climate-change>.

47. Andreas Klasen, *Trade: Gridlock and Resilience*, in BEYOND GRIDLOCK 74 (Thomas Hale & David Held eds., 2017) (discussing the benefits and detriments of the DSM).

greatest achievements of the Uruguay Round which led to the agreement of the WTO.⁴⁸ It is a unified system which adjudicates disputes between parties under any of the multilateral agreements. It provides the right of any government to have a panel process⁴⁹ and panel decision initiated, as well as an appellate procedure.⁵⁰ The dispute settlement body (DSB) administers the entire process,⁵¹ and the WTO system eliminates the ability of parties to block adoption of panel or appellate body decisions, providing for a level of “automaticity”⁵² and therefore certainty. Together the system is referred to here as the Dispute Settlement Mechanism or DSM.

A panel consists of three independent trade experts,⁵³ and the Appellate Body consists of a permanent body of seven judges, with a minimum of three required for the body to operate.⁵⁴ Once a dispute has been adjudicated and appealed, the DSM also provides for a remedies phase of the dispute. While voluntary compensation can be provided under Article 22 of the DSU,⁵⁵ this has never been used. Instead, countries will usually seek authorization to suspend concessions or other obligations under the same or another WTO covered agreement.⁵⁶ This can include imposing tariffs equal to any benefits lost as a result of the other country’s noncompliance.⁵⁷ The level of suspension can also be subject to arbitration under the DSM,⁵⁸ although the remedy phase of the DSM can be lengthy.

48. JACKSON, *supra* note 34, at 124.

49. Dispute Settlement Rules: Understanding on Rules and Procedures Governing the Settlement of Disputes, Marrakesh Agreement Establishing the World Trade Organization, Annex 2, art. 6, 1869 U.N.T.S. 401 [hereinafter DSU]; *see also id.*, art. 12 (establishing the procedural rules governing the panel process).

50. *Id.* art. 17.

51. *Id.* art. 2.

52. JACKSON, *supra* note 34, at 125.

53. DSU, *supra* note 49, art. 8.

54. *Id.*, art. 17. The appellate body must only review issues of law covered by the panel. *Id.*

55. *Id.* art. 22.

56. *See e.g.*, Panel Report, *United States–Import Measures on Certain Products from the European Communities*, WTO Doc. WT/DS165/AB/R (Dec. 11, 2000) (summarizing the arguments made in favor for and against suspension of concessions for US imports of certain European commodities).

57. DSU, *supra* note 49, art. 22.

58. *Id.*

The United States started to block the appointment of new appellate judges in 2018, with terms of two of the remaining three judges expiring on December 10, 2019.⁵⁹ This move is partly a reaction to the “barrage of disputes” being initiated against the US due to its tariff wars, and partly due to disappointment by the US administration with the outcome of previous disputes.⁶⁰ The inability of the appellate body to function nullifies the appellate procedure of the system, and could signal the “beginning of the end” of the DSM, an increase in tariffs, and trading relations based on power as opposed to multilaterally agreed rules.⁶¹ Despite this new controversy, the DSM has not been without its flaws, and has been criticized in the past specifically in relation to its inaccessibility by developing countries.⁶²

A. ARTICLE XX – GENERAL EXCEPTIONS

Article XX exceptions act as a safety valve in the WTO system, providing discretion to countries to avoid existing trade requirements such as national treatment or most favoured nation provisions, if national priorities justify such deviations.⁶³ Only some national priorities are exempted from trade disciplines, and these are reflected in the language of the Article XX.⁶⁴ They include exceptions for public health or environmental reasons.⁶⁵ These exceptions provide policy discretion to member states of the WTO, provided those states meet the requirements laid out in Article XX, as interpreted by the DSM. These exceptions could

59. Sabri Ben-Achour, *The Top Body at the WTO is About to Stop Functioning*, MARKETPLACE (Dec. 5, 2019), <https://www.marketplace.org/2019/12/05/the-top-body-wto-stop-functioning/> (arguing the US blocking appointments will end the functionality of the WTO appellate body).

60. Tom Miles, *US Blocks WTO Judge Reappointment as Dispute Settlement Crisis Looms*, REUTERS (Aug. 27, 2018), <https://www.reuters.com/article/us-usa-trade-wto-idUSKCN1LC190> (discussing the possible reasoning and implications of the US decision to block reappointment).

61. *WTO Judge Blockage Could Prove “The Beginning of the End,”* DW (Dec. 10, 2019), <https://www.dw.com/en/wto-judge-blockage-could-prove-the-beginning-of-the-end/a-51613082>.

62. See, e.g., Chad P. Bown & Bernard M. Hoekman, *WTO Dispute Settlement and the Missing Developing Country Cases: Engaging the Private Sector*, 8 J. INT’L ECON. L. 861, 863 (2005) (“Our starting point is that there is likely to be substantial ‘missing’ WTO dispute settlement activity related to developing country trading interests.”).

63. GATT 1994, *supra* note 5, art. XX(b).

64. *Id.*

65. *Id.*

provide critical pathways for developing countries to implement green industrial policies which have climate benefits.

Existing trade disciplines under the WTO covered agreements include national treatment and most favored nations provisions which aim to ensure non-discrimination between WTO member states. Non-discrimination has been called the “cardinal legal principle of the GATT.”⁶⁶ The principle appears most prominently in the “most favored nation” clause (under Article I)⁶⁷ and the “national treatment” clause (under Article III) of the GATT.⁶⁸ Under “most favored nation,” no member state of the WTO can afford preferential treatment to a product of one WTO member unless it offers that same treatment to the “like” products of all WTO members.⁶⁹ “National treatment” is the most relevant in terms of subsidies for renewable energy. Under these provisions, a WTO member cannot treat its own domestic product more favorably than any “like” product of any other WTO member.⁷⁰

Article XX⁷¹ provides countries with a number of general exceptions which can exempt actions which violate “most favored nation” or “national treatment” principles.⁷² Application of

66. WOLD et al., *supra* note 41, at 32.

67. GATT 1994, *supra* note 5, art. I.

68. *Id.* art. III.

69. WOLD et al., *supra* note 41, at 180. Article I of the GATT states that no advantage or privilege can be offered, *see* GATT 1994, *supra* note 5, art. I, and there is extensive jurisprudence at the DSM of what constitutes a “like” product. In the environmental realm, whether product and production methods constitute a “like” product is a difficult area. *See, e.g.*, CHRISTIANE R. CONRAD, PROCESSES AND PRODUCTION METHODS (PPMs) IN WTO LAW: INTERFACING TRADE AND SOCIAL GOALS (2011) (discussing the definitions and characteristics of “like” products under the WTO).

70. GATT 1994, *supra* note 5, art. I & III (illustrating that the jurisprudence on “like” products under both most favored nation and national treatment have been provided with interchangeable applicability).

71. *Id.* art. XX.

72. This paper provides a brief overview only of cases on Article XX, while acknowledging that there is significant literature on the application and interpretation of Article XX in the context of climate change. *See, e.g.*, GARY CLYDE HUFBAUER, STEVE CHARNOVITZ & JISUN KIM, GLOBAL WARMING AND THE WORLD TRADING SYSTEM 86–87 (2009); Luca Rubini & Ingrid Jegou, *Who'll Stop the Rain? Allocating Emissions Allowances for Free: Environmental Policy, Economics, and WTO Subsidy Law*, 1 TRANSNAT'L ENV'T L. 325, 345 (2012); TRACEY EPPS & ANDREW GREEN, RECONCILING TRADE AND CLIMATE: HOW THE WTO CAN HELP ADDRESS CLIMATE CHANGE 144–47 (2010); Thomas Cottier & Tetyana Payosova, *Common Concern and the Legitimacy of the WTO in Dealing with Climate Change*, in 9 RESEARCH HANDBOOK ON CLIMATE CHANGE AND

Article XX involves a two-step process. The measures taken by a country must fall under one of the sub-categories of Article XX, and then must meet the requirements of the opening paragraph (or “chapeau”) of Article XX.⁷³

Trade and environment disputes at the WTO faced a number of criticisms in the 1990s, largely as a result of the *Tuna/Dolphin*⁷⁴ dispute where the United States attempted to impose environmental restrictions on fisheries imports by placing an embargo on tuna imports which were caught using purse seine nets. These nets lead to high levels of dolphin mortality. WTO decisions in this area fueled protests at the 1999 Ministerial Conference in Seattle, with protesters wearing costumes of turtles and dolphins.⁷⁵ Developing countries saw these environmental requirements as “eco-imperialism,”⁷⁶ which served to hamper their exports, and as protectionism by developed countries clothed in environmental regulations. Perhaps in response to these criticisms, the DSM developed more environmentally-friendly approaches under Articles XX(b) and XX(g).⁷⁷

TRADE LAW 28 (Panagiotis Delimatsis ed., 2016); Michael Hertel, *Climate-Change-Related Trade Measures and Article XX: Defining Discrimination in Light of the Principle of Common but Differentiated Responsibilities*, 45 J. WORLD TRADE 653 (2011); JACOB WERKSMAN & TREVOR G. HOUSER, COMPETITIVENESS, LEAKAGE AND COMPARABILITY: DISCIPLINING THE USE OF TRADE MEASURES UNDER A POST-2012 CLIMATE AGREEMENT 3–4 (2008).

73. *WTO Rules and Environmental Policies: GATT Exceptions*, WTO, https://www.wto.org/english/tratop_e/envir_e/envt_rules_exceptions_e.htm (last visited Oct. 1, 2020) (providing a general guidance on performing analysis under GATT Article XX) [hereinafter WTO Rules].

74. See Panel Report, *United States—Restrictions on Imports of Tuna*, WTO Doc. WT/DS29/R (unadopted June 16, 1994) (finding the US restrictions were not justifiable under Article XX(g) as measures relating to the conservation of dolphins); see also Appellate Body Report, *United States—Import Prohibition of Certain Shrimp and Shrimp Products*, WTO Doc. WT/DS58/AB/R (adopted Oct. 12, 1998) (concluding that the US ban fails to meet the requirements of the chapeau of Article XX). There are a number of iterations of these disputes.

75. While part of the protests concerned DSM decisions concluding that the US restrictions were discriminatory, much of the protests concerned the negative impacts of free trade generally, workers’ rights, sustainability, environmental as well as social issues. See, e.g., *World Trade Organization Protests in Seattle*, SEATTLE.GOV, <http://www.seattle.gov/cityarchives/exhibits-and-education/digital-document-libraries/world-trade-organization-protests-in-seattle> (last visited Sept. 20, 2020).

76. BODANSKY ET AL., *supra* note 45, at 335 (pointing out that developing countries have expressed the concern that environmental requirements in trade are “eco-imperialism”).

77. GATT 1994, *supra* note 5, art. XX(b) & (g).

The two main “environmental” subcategories under Article XX are XX(b) and XX(g).⁷⁸ Article XX(b) provides an exception for measures “necessary to protect human, animal or plant life or health”⁷⁹ Article XX(g) provides an exception for measures “relating to conservation of exhaustible natural resources if such measures are made effective in conjunction with restrictions on domestic production or consumption”⁸⁰ There are several other subcategories of Article XX which have been invoked in energy disputes, including Article XX(d) which exempts measures “necessary” to comply with laws or regulations, and Article XX(j) which exempts measures aimed at protecting products which are locally in short supply.⁸¹ The language in the subcategories differs significantly, with some measures required to be “necessary” (e.g., XX(b) and (d)), while others must just “relate to” the domestic measure (e.g., XX(g)).⁸²

B. ARTICLE XX(b)

Public health is one of the most protected areas in domestic policy making, and is highly related to both climate change and the current COVID-19 health crisis. Climate change exacerbates the health impacts of air pollution, and affects some of the most vulnerable communities worldwide.⁸³ The disproportionate impact of the COVID-19 crisis has raised public consciousness of the burdens placed on poor and vulnerable communities.⁸⁴ This

78. *The Relationship Between MEAs and WTO Rules*, [2003] 2 Trade Env't Rev. 104, U.N. Doc. UNCTAD/DITC/TED/2003/4 (“It has become widely accepted that GATT Article XX (General Exception), and particularly paragraphs (b) and (g), provides WTO Member with considerable leeway to protect the environment.”).

79. GATT 1994, *supra* note 5, art. XX(b).

80. *Id.* art. XX(g).

81. *Id.* art. XX(d) & (j).

82. *Compare id.* art. XX(b), and *id.* art. XX(d), with *id.* art. XX(g).

83. See Myles Allen et al., INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE [IPCC], *Summary for Policymakers*, in GLOBAL WARMING OF 1.5°C. AN IPCC SPECIAL REPORT 12 (V. Masson-Delmotte et al eds., 2018), https://www.ipcc.ch/site/assets/uploads/sites/2/2019/05/SR15_SPM_version_report_LR.pdf [<https://perma.cc/3B8Q-GK4D>]; Bruce Bekker et al. ASSOCIATION OF AIR POLLUTION AND HEAT EXPOSURE WITH PRETERM BIRTH, LOW BIRTH WEIGHT AND STILLBIRTH IN THE US. A SYSTEMIC REVIEW, *Environmental Health* (2020), <https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2767260>.

84. *Health Equity Considerations and Racial and Ethnic Minority Groups*, CTRS. FOR DISEASE CONTROL AND PREVENTION (Jul. 24, 2020), <https://www.cdc.gov/coronavirus/2019-ncov/community/health-equity/race->

is also the case in developing countries. Due to its critical relationship with sovereignty and government functions, public health under Article XX(b), has been afforded the most interpretive deference to domestic policy making by the DSM.

There are different applicable tests for these subcategories. In order to be “necessary” under Article XX(b), a country must not have alternative measures which are reasonably available and not inconsistent with the GATT.⁸⁵ Article XX(g) requires corollary activity of restrictions on domestic production and consumption, requiring that countries display some domestic environmental activity.⁸⁶ Two disputes which concerned an import ban on asbestos by France⁸⁷ and an import ban on tires by Brazil⁸⁸ provided generous interpretations of Article XX(b). In these cases, domestic policies designed to reduce risk from asbestos fibers and mosquito-borne diseases respectively were held to fall within the subcategory of Article XX(b), even though alternatives were available. The Appellate Body afforded significant deference to domestic policy making, specifically recognizing that complex public health or environmental problems such as climate change must be tackled with multifaceted and comprehensive policies with interacting measures, the results of which may only manifest over time.⁸⁹ The import ban on retreaded tires was considered in the broader context of Brazil’s comprehensive strategy to deal with waste tires, and the Appellate Body

ethnicity.html (“Inequities in the social determinants of health, such as poverty and healthcare access, affecting these groups are interrelated and influence a wide range of health and quality-of-life outcomes and risks.”).

85. *E.g.*, *United States–Tuna*, *supra* note 74, at ¶ 5.35 (confirming that the term “necessary” in Article XX(b) means a contracting party has no available alternative measure which it could reasonably be expected to employ and which is not inconsistent with other GATT provisions); *see also* Panel Report, *United States–Standards for Reformulated and Conventional Gasoline*, ¶ 6.26–6.29 WTO Doc. WT/DS2/9, (adopted May 20, 1996) (finding the US baseline establishment method not “necessary” under Article XX(b)).

86. *See WTO Rules*, *supra* note 73 (“[I]n order to be justified under Article XX(g), a measure affecting imports must be applied ‘in conjunction with restrictions on domestic production or consumption’ (the even-handedness requirement).”).

87. Panel Report, *European Communities–Measures Affecting Asbestos and Asbestos-Containing Products*, WTO Doc. WT/DS135/R (adopted Sept. 18, 2000).

88. Appellate Body Report, *Brazil–Measuring Affecting Imports of Retreaded Tyres*, WTO Doc. WT/DS332/AB/R (adopted Dec. 3, 2007).

89. *See, e.g., id.* at ¶ 151 (admitting that the import ban tackles certain complex public health or environmental problems).

determined that the import ban did make a material contribution to Brazil's overall domestic objectives.⁹⁰ In *Brazil–Taxation*, the Panel specifically articulated that a policy to reduce carbon emissions would be covered by Article XX(b), as it would be a policy designed to protect human life or health.⁹¹ While the elements of a renewable energy policy targeted at preserving a stable climate are likely to qualify under Article XX(b), economic elements under the same policy such as local content requirements may not be considered a legitimate objective,⁹² and may not be considered “necessary” as set out below.

Existing jurisprudence points to three elements which are relied upon to determine whether a measure is “necessary” under Article XX(b). These include whether the measure is apt to make a “material contribution” to the purpose of the policy.⁹³ A genuine relationship of ends and means should be identified for this element.⁹⁴ Therefore both the renewable energy policy and any protectionist economic measures within it should materially contribute to emissions reductions. This is where empirical evidence put forward by a country of reduced costs and increased dissemination from past local content or other economic elements could be persuasive, even if these occurred over time. The *Brazil–Retreaded Tyres* case gave specific latitude to complex public health or environmental problems such as climate change, stating that the benefits of policies may only manifest over time.⁹⁵

The second element of the test of necessity is whether the measure is proportional to the values the policy seeks to protect—the more vital the interests or values, the easier it would

90. *Id.* at ¶ 154 (“[W]e wish to underscore that the Import Ban must be viewed in the broader context of the comprehensive strategy designed and implemented by Brazil to deal with waste tyres.”).

91. Panel Report, *Brazil–Certain Measures Concerning Taxation and Charges*, ¶ 7.880, WTO Doc. WT/DS472/R (adopted Aug. 30, 2017).

92. See Michael A. Mehling et al., *Designing Border Carbon Adjustments for Enhanced Climate Action*, 113:3 AM. J. INT’L L. 433, 465 (2019) (“By contrast [to the reduction of CO₂ emissions], an economic rationale . . . would not be considered a legitimate objective under the exceptions of Article XX(b).”).

93. See *Brazil–Retreaded Tyres*, *supra* note 88, at ¶¶ 151, 210 (describing the conditions under which an import ban would be permissible under GATT Article XX(b) and held to materially contribute to achieving an objective).

94. See *id.* at ¶ 145 (examining whether “there is a genuine relationship of ends and means between the objective pursued and the measure at issue”).

95. *Id.* at ¶ 151; Mehling et al., *supra* note 92, at 465.

be to pass the necessity test.⁹⁶ The urgency and global attention focused on climate change, the increasing public health emergencies associated with the impacts of climate change, including increased air pollution, and COVID-19, combined with multilateral and almost universal action to ratify the Paris Agreement,⁹⁷ suggest that a policy targeted at addressing climate change would pass this second element.⁹⁸

The third element requires that there is no alternative measure which would achieve the same aim but in a less trade-restrictive manner.⁹⁹ Here the burden shifts to the complainant in a dispute.¹⁰⁰ The Appellate Body has been careful to consider practice and economic needs of developing countries in the context of this third element. In *Brazil–Retreaded Tyres*, expensive technological fixes such as tire recycling facilities were not reasonably available, and therefore the domestic policy of promoting domestic retreading of tires was deemed to be “necessary” under Article XX(b).¹⁰¹ The economic and administrative realities of countries were carefully considered by the DSM in the context of the comprehensiveness and different components of the policy.

C. ARTICLE XX(g)

Article XX(g) is the main environmental exception in the WTO. It has traditionally been given less interpretive deference than Article XX(b), but it has a weaker standard to qualify than XX(b) does. Article XX(g) has its own unique set of tests, and only requires that a domestic environmental policy relates to national conservation aims.¹⁰² The first element of the test is that

96. See, e.g., *EC–Asbestos* *supra* note 87, at ¶¶ 8.172, 8.179, 8.207 (describing necessity in terms of proportional value and availability of alternative measures that would be consistent with the GATT).

97. Paris Agreement, *supra* note 4.

98. See Mehling et al., *supra* note 92, at 466 (asserting that the vital nature of climate issues make broad climate measures likely to be considered proportional).

99. *EC–Asbestos*, *supra* note 87, at ¶ 8.172 (stating that past panels evaluated necessity primarily on if other measures were available either consistent with or less inconsistent with the GATT).

100. See *id.*, at ¶ 8.78–79 (applying GATT rules affirmed in *United States – Shirts and Blouses* in confirming the burden of proof rests on the complainant).

101. *Brazil–Retreaded Tyres*, *supra* note 88, at ¶¶ 162–66, 171–72 (analyzing the alternatives to retreading in Brazil and concluding that none were reasonably available).

102. GATT 1994, *supra* note 5, art. XX(g).

the resource must qualify as an exhaustible natural resource. For example, in the *Shrimp/Turtle* dispute, the Appellate Body confirmed that turtles qualified as an “exhaustible natural resource,” providing a very broad interpretation under Article XX(g) of that term.¹⁰³ The US imposed import restrictions on shrimp unless a turtle excluder device was used to catch them.¹⁰⁴ In the past, clean air was deemed by the DSM to be an exhaustible natural resource in the *US–Gasoline* case.¹⁰⁵ In this case, the US Clean Air Act established baseline rules for gasoline sold on the US market in order to regulate emissions.¹⁰⁶ The Appellate Body took an evolutionary approach to the concept of exhaustible natural resources in this case, in light of contemporary concerns.¹⁰⁷

The second element of the test is that a measure must relate to, or be reasonably related to, the domestic policy goal.¹⁰⁸ The term “relating to” has been deemed to be a lower standard than “necessary,” under Article XX(b), but must be primarily aimed at conservation of an exhaustible natural resource.¹⁰⁹ Again for the protectionist elements of a renewable energy policy, they must clearly relate to the overall objective of the policy.

The third and final element of the test is that the domestic measure must be made in conjunction with domestic restrictions either on production or consumption.¹¹⁰ In *China–Rare Earth*, the US objected to export restrictions imposed by China on the

103. *US–Shrimp*, *supra* note 74, at Appellate Body Report, ¶ 128 (determining that the term was broader than just the inclusion of “mineral” or “non-living” resources).

104. *Id.* at ¶ 2.

105. *US–Gasoline*, *supra* note 85, at ¶¶ 6.21, 6.37.

106. *Id.* at ¶ 2.1.

107. *See US–Shrimp*, *supra* note 74, at ¶129 (noting that the GATT Article XX(g) exception “must be read by a treaty interpreter in the light of contemporary concerns of the community of nations about the protection and conservation of the environment”).

108. *Id.* at ¶ 141 (asserting that the shrimp import restrictions in question were permissible as they were limited in scope and furthered the policy objective, or were “reasonably related to the ends”).

109. *See US–Gasoline*, *supra* 85, at 14–18 (discussing “relating to” and “necessary” in GATT XX(b) and XX(g)).

110. *See, e.g.*, Appellate Body Report, *China–Measures Related to the Exportation of Rare Earths, Tungsten, and Molybdenum*, ¶ 5.132, WTO Doc. WT/DS431/AB/R (adopted Aug. 29, 2014) (“We consider that the phrase ‘made effective in conjunction with’ requires that, when international trade is restricted, effective restrictions are also imposed on domestic production or consumption.”).

export of rare earth materials which are critical components to batteries in renewable energy as well as technology and defense equipment.¹¹¹ Here, the Appellate Body did confirm that a member state must impose “real restrictions” on domestic production or consumption that reinforce and complement the restrictions on international trade, particularly where there is large domestic consumption.¹¹² This is often referred to as the “even-handedness” approach, and may require that domestic restrictions in greenhouse gas emissions be implemented in conjunction with policies to enhance the production of renewables.¹¹³

D. ARTICLE XX—THE CHAPEAU

Once a domestic policy meets the requirements of the individual provisions of Article XX, it must then satisfy the requirements of the “chapeau.” The DSM has a progressive interpretive history in the area of Articles XX(b) and (g) when interpreting the coverage and applicability of the scope of these sub-paragraphs to domestic measures. The more difficult hurdle for countries to overcome is the opening paragraph of Article XX (referred to as the “chapeau”). The chapeau is more targeted not at the content of the measure or the aim of the domestic policy, but in the manner of their application. More specifically, whether the measures are applied in a way that is discriminatory.

The DSM has in the past, through progressive interpretive approaches, provided significant domestic policy space for countries to implement trade-restrictive measures provided they make a material contribution to legitimate domestic policies under Articles XX(b) and (g). Most problematic for protectionist measures would be the chapeau of Article XX. It requires that any measures applied by a party are not applied in a manner that would constitute “a means of arbitrary or unjustifiable discrimination” or “a disguised restriction on international trade.”¹¹⁴ The chapeau does not prohibit discrimination, but only seeks to prevent abusive discrimination.¹¹⁵

Despite the strict language, judicial flexibility has also been applied under the chapeau in the past. While the DSM

111. *Id.* at ¶ 1.2.

112. *Id.* at ¶ 5.132.

113. *See, e.g., id.* at ¶¶ 5.93, 5.101.

114. GATT 1994, *supra* note 5 (requiring that each of these standards must be met, meaning all are applicable).

115. WOLD ET AL., *supra* note 41, at 275.

determined that the US fisheries import restrictions for shrimp not caught using a turtle excluder device fell under Article XX(g) in the *US–Shrimp* dispute, the measure failed the test under the chapeau.¹¹⁶ The US then revised its approach to the import restrictions by attempting to negotiate a multilateral solution with the affected parties. Even though no multilateral solution was agreed upon by all parties, good faith negotiation efforts by the US were sufficient for the revised measure to survive the chapeau test.¹¹⁷ This added a largely procedural component to the chapeau—merely entering into good faith negotiations was sufficient. The emphasis was placed on fairness and due process, which was achieved through the multilateral negotiations. Here, a less stringent approach to the language of the chapeau demonstrates a preference by the Appellate Body for multilateralism.¹¹⁸

Finally under the chapeau, any discriminatory element of a measure will be examined against its ability to be reconciled with or rationally related to its policy objectives as provisionally justified under one of the subparagraphs of Article XX.¹¹⁹ While the climate elements of any renewable energy policy would easily pass muster under the chapeau, the economic portions of such a policy, such as local content requirements, would have to be designed and applied in such a way that it necessarily leads to emissions reductions,¹²⁰ through increased manufacture, installation, and dissemination of renewable technology. While this may be easier to prove through domestic dissemination, export activities may be more difficult to justify under the chapeau. Any blatantly protectionist measure targeted at export activities may struggle to survive some of these tests as it becomes more difficult to tie such restrictions directly to emissions reductions, particularly domestic reductions. However, a policy that is specifically tied to domestic emissions reductions, and therefore

116. *US–Shrimp*, *supra* note 74, at ¶187.

117. Appellate Body Report, *United States–Import Prohibition of Certain Shrimp and Shrimp Products, Recourse to Article 21.5 of the DSU by Malaysia* ¶153–54, WTO Doc. WT/DS58/AB/RW (adopted Oct. 22, 2001) [hereinafter *US–Shrimp Art. 21.5*]; WOLD ET AL., *supra* note 41, at 275.

118. BODANSKY ET AL., *supra* note 45, at 335.

119. Appellate Body Report, *Eur. Communities–Measures Prohibiting the Importation and Marketing of Seal Products*, ¶5.318, WT/DS400/AB/R (adopted June 18, 2014).

120. Mehling et al., *supra* note 92, at 470.

climate benefits, could benefit from progressive treatment under Article XX, including its chapeau.

II. ENERGY, TRADE, AND CLIMATE CHANGE

The relationship between energy, trade, and climate change at the international level is patchy at best, and contradictory at worst. Climate change goals cannot be achieved without major energy transitions away from fossil fuels. After the Paris Agreement, the overlap between trade and climate change has taken on a “new urgency.”¹²¹ However, the “inescapable nexus between trade and climate change . . . is not yet reflected in either of the agendas [or agreements] of the . . . WTO or the United Nations Framework Convention on Climate Change (UNFCCC).”¹²² Without new WTO rules or a revised approach under the DSM, the legitimacy and efficiency of both the trade and climate regimes may be undermined.¹²³

Meeting the long-term temperature goals in the Paris Agreement requires a large-scale, global transition away from fossil fuels and towards renewable energy.¹²⁴ Parties agreed to reach peaking of global greenhouse gases as soon as possible, and achieve a balance between emissions and removals in the second half of the century.¹²⁵ The architecture of the Paris Agreement focuses on national action to reduce greenhouse gas emissions, and while renewable energy is not specifically provided as a mandate under the Agreement, decarbonizing the world’s energy system is “by far the primary method of stabilising global temperature increases.”¹²⁶ The bottom-up architecture of the Paris Agreement also means that its success will rest primarily on domestic implementation on the basis of nationally determined contributions of both developed and developing

121. Michael O. Moore, *Carbon Safeguard? Managing the Friction Between Trade Rules and Climate Policy*, 51 J. World Trade 43, 45 (2017).

122. JAMES BACCHUS, INT’L CTR. FOR TRADE AND SUSTAINABLE DEV., TRIGGERING THE TRADE TRANSITION: THE G20’S ROLE IN RECONCILING RULES FOR TRADE AND CLIMATE CHANGE VI, 1 (2018).

123. *Id.* at 1–2.

124. INT’L RENEWABLE ENERGY AGENCY, RETHINKING ENERGY 2017: ACCELERATING THE GLOBAL ENERGY TRANSFORMATION 23–24 (2017).

125. U.N. Framework Convention on Climate Change, *Adoption of the Paris Agreement*, U.N. Doc. FCCC/CP/2015/L.9/Rev.1, art. 4 (Dec. 12, 2015) (explaining that this provision is commonly understood to mean net zero emissions).

126. Dent, *supra* note 12, at 2.

countries—developing countries are now important partners in the transition to renewable energy.¹²⁷

Nationally determined contributions under the Paris Agreement have a high policy profile and will likely include more government support for renewable energy, putting them in increasing conflict with WTO rules where protectionist policies are involved and at increased risk of scrutiny by trade partners.¹²⁸ The Paris Agreement provides discretion to the parties as to which specific support measures and policy instruments are most appropriate.¹²⁹ However, the WTO does not provide such policy flexibility, as any measure must comply with trade disciplines in the WTO covered agreements, enforceable through the DSM.

International trade not only allows firms to increase production but can also aid in diffusing clean energy technology, which is especially important for developing countries where the “scope for achieving marginal gains in environmental welfare and energy efficiency are generally greatest.”¹³⁰ Promoting international trade in clean energy can make important contributions to climate change mitigation through business and market expansion efforts.¹³¹ A “cascade of climate-friendly, trade-impacting measures” could lead to climate stabilization.¹³² “Climate measures affect trade[,]” but also “[t]rade measures affect the climate.”¹³³ Emerging economies focused on export of subsidized renewable energy technology, have domestic policies which are

127. Provisions under the prior Kyoto Protocol imposed targeted emissions reductions on developed countries only. Kyoto Protocol to the United Nations Framework Convention on Climate Change, Dec. 10, 1997, FCCC/CP/1997/L.7/Add.1 art. 2(1)(a).

128. Moore, *supra* note 121, at 47–48 (describing potential conflicts between climate measures and trade rules).

129. Gracia Marín Durán, *Sheltering Government Support to “Green” Electricity: The European Union and the World Trade Organization*, 67 INT’L. & COMP. L. Q. 130, 134–35 (2018). *But cf.* BODANSKY ET AL., *supra* note 45, at 347–48 (arguing that the UNFCCC regime therefore neither restricts nor condones the use of trade measures and instead refers parties to existing trade law).

130. Dent, *supra* note 12, at 728.

131. *Id.* at 728–29.

132. Juscelino F. Colares, *Paths to Carbon Stabilization: How Foreign Carbon-Restricting Reforms Will Affect US Industry, Climate Policy and the Prospects of a Binding Emission Reduction Treaty*, 47 J. WORLD TRADE 281, 289 (2013).

133. BACCHUS, *supra* note 122, at 1.

likely to violate trade rules, including the SCM Agreement.¹³⁴ This is why many emerging economies have been the subject to WTO disputes in relation to their renewable energy policies. The SCM Agreement focuses on trade flows between a subsidy-providing WTO member and another WTO member.¹³⁵

A. ENERGY, CLIMATE CHANGE, AND DEVELOPING COUNTRIES

Developing countries are now major partners in the implementation of the Paris Agreement, and meeting its global temperature goals. Developing countries have a large role to play in the climate, energy, and trade nexus. Growth in greenhouse gas emissions in the next few decades will come primarily from developing countries, particularly China and India.¹³⁶ As law scholars Wu and Salzman note, “as go India and China with greenhouse gases, so goes the world.”¹³⁷ But the international energy architecture is, as currently formulated, ill-suited to tackle the conflicts between growing energy demands and climate impacts. It is now faced with a number of difficult tasks, including ensuring security of supply and demand, mitigating the effects of climate change, “promot[ing] energy efficiency and renewables[,]” “dampen[ing] price volatility[,]” and “reduc[ing] energy poverty”¹³⁸ “[E]merging economies such as India, China, Russia, Brazil[,] and South Africa play a vital role in influencing the contemporary energy landscape”;¹³⁹ they are increasingly driving global energy demand but are also carving out economic development space in the clean energy arena through green industrial policies.¹⁴⁰

134. See, e.g., Espa & Durán, *supra* note 21, at 624–28 (discussing distinctions important to determining “the WTO compatibility of different categories of [renewable energy] subsidies”).

135. *Id.* at 625.

136. WORLD BANK, INTERNATIONAL TRADE AND CLIMATE CHANGE: ECONOMIC, LEGAL AND INSTITUTIONAL PERSPECTIVES 3 (2008).

137. Mark Wu & James Salzman, *The Next Generation of Trade and Environmental Conflicts: The Rise of Green Industrial Policy*, 108 NW. U. L. REV. 401, 449 (2014).

138. Sijbren de Jong & Jan Wouters, *Institutional Actors in International Energy Law* in RESEARCH HANDBOOK ON INTERNATIONAL ENERGY LAW 18, 19 (Kim Talus ed., Edward Elgar 2014).

139. *Id.* at 25.

140. *Id.* at 25–32 (discussing the influence emerging economies have in discussions of green energy forums).

The switch away from carbon to silicon in renewable energy will have global winners and losers.¹⁴¹ Governments in developing countries are already starting to face litigation from climate-vulnerable constituents.¹⁴² These countries are being sent mixed messages: to reduce emissions while being positioned as a respondent in WTO disputes, largely as a result of disputes initiated by developed countries disputing pro-climate (but also pro-development) policies.¹⁴³ Developing countries have pressing poverty eradication and energy poverty needs and are facing stark energy choices.¹⁴⁴ The need to reduce global GHG emissions has become so dire largely due to developed countries' historic inaction and irresponsibility: not making lifestyle "sacrifices necessary to move toward . . . lower per capita emissions rates."¹⁴⁵ However, many of the world's carbon intensive (or carbon major) corporations are in fact state-controlled corporations located in the developing world.¹⁴⁶

141. See INT'L RENEWABLE ENERGY AGENCY, *supra* note 124, at 9, 20, 23, 25–26 (describing the net-zero relationship between reliance on renewable energy and reliance on traditional fossil fuel energy).

142. See generally Joana Setzer & Lisa Benjamin, *Climate Litigation in the Global South: Constraints and Innovations*, 9 TRANSNAT'L ENV'T L. 77, 78 (2019) (investigating the Global South's role in affecting environmental justice through climate litigation); Jacqueline Peel & Jolene Lin, *Transnational Climate Litigation: The Contribution of the Global South*, 113 AM. J. INT'L L. 679, 679 (2019) (addressing the impact of climate litigation in the Global South on transnational climate litigation); Joana Setzer & Lisa Benjamin, *Climate Change Litigation in the Global South: Filling In Gaps* 114 AM. J. INT'L L. UNBOUND 56, (2020); JACQUELINE PEEL & HARI M. OSOFSKY, CLIMATE CHANGE LITIGATION: REGULATORY PATHWAYS TO CLEANER ENERGY (James Crawford & John S. Bell eds., 2015) (providing an overview of climate litigation generally).

143. Wu & Salzman, *supra* note 137, at 449; See, e.g., Peel & Lin, *supra* note 142, at 702 (writing that cases are being brought in the Global South in part to "seek[] accountability from Global North governments and corporations for their failure to reduce greenhouse gas emissions and decarbonize their economic activities" and to "support[] . . . arguments that the failure to address climate change has far-reaching adverse consequences for vulnerable populations that make a negligible contribution toward causing climate change").

144. See *id.* at 693–94 (noting that many cases in the Global South focus primarily on policy concerns focusing on topics such as economic development and poverty alleviation, with climate change arguments taking a secondary position).

145. Wu & Salzman, *supra* note 137, at 444.

146. For example, Sinopec in China and Saudi Aramco in Saudi Arabia. See generally Richard Heede, *Tracing Anthropogenic Carbon Dioxide and Methane Emissions to Fossil Fuel and Cement Producers, 1854-2010*, 122 CLIMATIC CHANGE 229, 231 (2013) (noting that out of the 90 entities with the largest fossil fuel emissions, 31 are state-owned). See also Thomas Hale, "All Hands on Deck":

Developing countries face additional challenges promoting renewable energy, including limited institutional, financial, and human resources. As a result, government intervention is often required.¹⁴⁷ There has been limited progress in the last two decades on the transition to green economic growth, in part due to the lack of global transition policy frameworks.¹⁴⁸ Transition pathways are most effective if they include long-term visions, interim transition goals, pathways for different actors, and experimental policy learning.¹⁴⁹ This often involves green industrial policy formation in emerging economies.¹⁵⁰ Industrial policy formation experienced a resurgence after the global financial crisis.¹⁵¹ Emerging economies that found themselves in relatively stable macro-economic situations after the 2008 financial crisis were more able to afford large programmatic approaches on green growth.¹⁵² These countries were also keen to adopt industrial policies which could help sustain their growth and spur on new employment creation.¹⁵³ Governments remain one of the main sources of incentives to protect the environment through domestic incentives and environmental public policy making.¹⁵⁴

B. GREEN INDUSTRIAL POLICY MAKING

There has been a reinvigoration of industrial policy making in both developed and developing countries. This has only escalated in the context of both the climate crisis and the COVID-19 crisis, with some public health-related transitions including an emphasis on renewable energy and green industrial policy

The Paris Agreement and Nonstate Climate Action, 16(3) GLOB. ENV'T POL. 12 (2016); THOMAS HALE, THE ROLE OF SUB-STATE AND NON-STATE ACTORS IN INTERNATIONAL CLIMATE PROCESSES, Research Paper (Nov. 2018) (providing an overview of the importance of non-state actors, including corporations, to the new Paris climate regime).

147. Heede, *supra* note 146.

148. Pablo Burkolter & Leisa Perch, *Greening Growth in the South: Practice, Policies and New Frontiers*, 21 S. AFR. J. INT'L AFFS. 235, 235 (2014).

149. Kemp & Never, *supra* note 22, at 69.

150. *See id.*

151. Joseph E. Stiglitz, Justin Yifu Lin & Celestin Monga, *Introduction to THE INDUSTRIAL POLICY REVOLUTION I: THE ROLE OF GOVERNMENT BEYOND IDEOLOGY 1* (Joseph E. Stiglitz & Justin Yifu Lin eds., 2013).

152. Burkolter & Perch, *supra* note 148, at 248.

153. *Id.*

154. Bernard Sinclair-Desgagné, *Greening Global Value Chains: Some Implementation Challenges* 14 (Green Growth Knowledge Platform, Working Paper No. 6613, 2013).

making. In order to make rapid progress towards 2030 emission reduction goals, very large emitters such as the US, EU, China, India, Russia, Brazil, and Indonesia must make significant emissions reductions.¹⁵⁵ Green industrial policy making by developing countries can be an area for real progress in the transition to renewable energy, and litigation of energy disputes is now an important part of the global climate regime.¹⁵⁶ The actions of these countries are important as their domestic policy decisions on energy can significantly affect global climate trajectories.¹⁵⁷ However, these policies can have mixed motives, including both environmental and economic protection,¹⁵⁸ and therefore are vulnerable to trade rules.

Emerging economies are concerned about their own development trajectories and needs.¹⁵⁹ Therefore, the transition to cleaner energy is often intertwined within industrial policies for the protection of domestic industries, and in some cases, with forging an economic pathway to global dominance in clean energy technologies.¹⁶⁰ Developing countries need access to clean energy technology in order “to diversify their energy sources and to reduce their carbon emissions [and aims to do so] without hindering their economic development.”¹⁶¹ “[O]f the [twenty-seven] countries . . . [which] . . . make up 90% of the global green economy, eight are from the [G]lobal South[:]Argentina, Brazil, China, India, Indonesia, Mexico, South Africa[,] and Turkey[.]”¹⁶² A subset of these same countries have green industrial policies that have been disputed by the WTO: Argentina, Indonesia, India, and China.¹⁶³ These countries have adopted a

155. THE FREDERICK S. PARDEE CTR. & THE GLOBAL GOVERNANCE INITIATIVE, *TRADE IN THE BALANCE: RECONCILING TRADE AND CLIMATE POLICY* 19 (Nov. 2016).

156. Wu & Salzman, *supra* note 137, at 474.

157. For example, China is currently facing energy risks due to the Middle East crisis and United States sanctions on Iran. See Michael Lelyveld, *China's Energy Risks Rise with Iran Sanctions*, RADIO FREE ASIA (Oct. 21, 2019), https://www.rfa.org/english/commentaries/energy_watch/risks-10212019112804.html.

158. Carolyn Fischer & Timothy Meyer, *Baptists and Bootleggers in the Biodiesel Trade: EU-Biodiesel (Indonesia)*, 19 *WORLD TRADE REV.* 297, 298 (2020).

159. Wu & Salzman, *supra* note 137, at 473.

160. *Id.* at 473–74.

161. WORLD BANK, *supra* note 136, at 73.

162. Burkolter & Perch, *supra* note 148, at 237.

163. See, e.g., *id.* at 251 (discussing challenges at the WTO to Chinese trade policies on solar panels); see also INT'L INST. FOR SUSTAINABLE DEV., *TRADE AND*

number of strategies across domestic policy making, including local content requirements which seek to foster local employment and competitive domestic industries in the solar energy area, mercantilist export control and export price increases in biofuels, and subsidies and export restraints in wind power.¹⁶⁴ The strategies used by developing countries have to date been unsuccessful at the WTO.¹⁶⁵

Local content requirements in particular make public support for manufacturing of renewable technology subject to a certain percentage of domestically produced components or labour sources. There is mixed evidence on how successful local content requirements in particular are in terms of their environmental aims.¹⁶⁶ While they certainly reduce competition by forcing reliance on local suppliers,¹⁶⁷ there is an argument that supporting local infant industries can allow those industries to mature and become competitive, ultimately lowering prices globally for renewable technology.¹⁶⁸ In addition, in large emerging economies, economies of scale may in fact lead to lower prices for renewables both domestically and internationally.¹⁶⁹ These can in turn

GREEN ECONOMY – A HANDBOOK 93–94 (3d ed. 2014) (discussing the large and increasing number of national trade remedy cases, including one brought against China).

164. See, e.g., *China–Rare Earth*, *supra* note 110 (discussing export controls imposed on important raw materials).

165. See, e.g., *id.* ¶¶ 6.1–6.4 (upholding a panel report finding the Chinese measures violated WTO rules).

166. INT'L INST. FOR SUSTAINABLE DEV., *supra* note 163, at 95.

167. For an example, see generally AARON COSBEY & LUCA RUBINI, DOES IT FIT? AN ASSESSMENT OF THE EFFECTIVENESS OF RENEWABLE ENERGY MEASURES AND OF THE IMPLICATIONS OF CANADA-RENEWABLE ENERGY/FIT DISPUTES (2013); JAN-CHRISTOPH KUNTZE & TOM MOERENHOUT, LOCAL CONTENT REQUIREMENTS AND THE RENEWABLE ENERGY INDUSTRY – A GOOD MATCH? (2013).

168. INT'L INST. FOR SUSTAINABLE DEV., *supra* note 163, at 94–95. Feed-in tariffs for green electricity which are well-designed and well-implemented have been identified as one of the better types of subsidies. INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, *supra* note 17, at 152.

169. Cf. INTERNATIONAL RENEWABLE ENERGY AGENCY *supra* note 27, 40–41 (discussing various ways countries are developing and financially benefiting from renewable energy economies); Charlie Campbell, *China is Bankrolling Green Energy Projects Around the World*, TIME (Nov. 1, 2019, 7:00 AM), <https://time.com/5714267/china-green-energy/> (explaining how China's leading position in the development of renewable technologies allows for national firms to fund energy development worldwide); Dominic Chiu, *The East is Green: China's Global Leadership on Renewable Energy*, 13 NEW PERSP. FOREIGN POLY 6 (2019), <https://www.csis.org/east-green-chinas-global-leadership->

increase competitive advantage, particularly in commodities, even by using imperfect monopoly competition.¹⁷⁰ Consistently applied subsidies can provide certainty to infant and desirable industries such as renewable energy development.¹⁷¹ The International Energy Agency has projected that investment in renewable energy will need to increase substantially in the next decade, reaching \$400 billion by 2030 to meet the goal of limiting the peak of energy-related global greenhouse gas emissions to around 2020.¹⁷² It is likely, therefore, that all countries, including developed countries, will continue to rely on renewable energy subsidies in the near future.

Many developing countries involved in WTO disputes have carved out 'green' industrial policy space which has a dual purpose of protecting and bolstering their own domestic markets in both natural resources and clean energy technology while achieving environmental goals. "[M]any . . . industrial policy measures [are used] to strengthen the domestic production and technological capacities of [domestic] producers," thereby achieving poverty reduction and development goals.¹⁷³ Emerging economies have invested resources in developing green industrial policies to meet both environmental and developmental goals.¹⁷⁴ These goals are often intricately intertwined, and developing

renewable-energy (arguing renewable energy usage will increase globally as a result of China's development of and leadership in the sector); WOLD ET AL., *supra* note 41, at 531 (analyzing how the use of domestic subsidies can lower prices internationally).

170. See generally PAUL R. KRUGMAN, *RETHINKING INTERNATIONAL TRADE* (1990) (explaining a theory of international trade that emphasizes increasing returns and imperfect competition); John Romalis, *Factor Proportions and the Structure of Commodity Trade*, 94 AM. ECON. REV. 67 (2004) (examining how the commodity trade is impacted by the way countries utilize their abundant factors of production).

171. See, e.g., Melissa Powers, *Sustainable Energy Subsidies*, 43 ENV'T L. 211, 231 (2013) (writing that the wind industry would do well (and flourish) with consistent and stable subsidies).

172. See INT'L ENERGY AGENCY, *ENERGY AND CLIMATE CHANGE: WORLD ENERGY OUTLOOK SPECIAL REPORT 13* (2015), <https://webstore.iea.org/weo-2015-special-report-energy-and-climate-change>.

173. See Dent, *supra* note 12, at 732.

174. See, e.g., Dongsheng Zang, *From Environment to Energy: China's Reconceptualization of Climate Change*, 27 WIS. INT'L L. J. 543, 562–64 (2009) (explaining that China reconceptualised climate change from an environmental to an energy issues between 1989 to 2009, primarily due to growing energy needs and energy security concerns as well as growing international pressure to manage emissions).

countries may be loath to remove the developmental aspects of their clean energy policies.¹⁷⁵ There may not be one principal driver behind these policies, but economic, social and environmental benefits may be equally influential.¹⁷⁶ For example, it is estimated that “between 2005 and 2020, thirty million new green jobs . . . will be created in China.”¹⁷⁷ India’s solar mission plan is explicitly concerned with energy security, energy access and energy poverty issues, as well as domestic industry development, combining climate, social, and economic development concerns.¹⁷⁸

Industrial policy mechanisms may have environmental aims but also trigger competitiveness concerns over rent-seeking with domestic industry promotion plans, as governments position their industries for the energy transition.¹⁷⁹ In some disputes, largely in renewable energy and biofuels, developed countries are also employing protectionist methods.¹⁸⁰ Conflicting trade disciplines can hamper the ability of green growth strategies to contribute to poverty alleviation and more equitable and inclusive development within these countries.¹⁸¹

III. ENERGY AT THE WTO

The relationship between developing countries and environmental and energy policies and the WTO has been fractious. Developed country environmental policies which were supported by the DSM were seen as protectionism by developing countries, dressed up in environmental policies. There have also been no disputes at the WTO regarding fossil fuel subsidies, but a

175. *See id.*

176. Burkolter & Perch, *supra* note 148, at 252–53.

177. *Id.* at 239.

178. *See India–Solar*, *infra* section IV.A.3.

179. Bradley J. Condon, *Disciplining Clean Energy Subsidies to Speed the Transition to a Low-Carbon World*, 51 J. WORLD TRADE 675, 677 (2017).

180. *See* Burkolter & Perch, *supra* note 148, at 251.

181. *See id.*, at 252. There has also been progressive economic and regulatory interdependence between countries, leading to diffusion of policy formation from the core to the periphery. *See* Emily Jones and Alexandra Zeitz, *Regulatory Convergence in the Financial Periphery: How Interdependence Shapes Regulators’ Decision*, 63 INT’L STUDS. Q. 908 (2019). Support for renewable energy policy formation could serve as a regulatory diffusion device as well, leading to increased South-South collaboration on renewable energy development and diffusion.

number of disputes on renewable energy policies.¹⁸² Most of these renewable energy disputes at the WTO now involve developing countries' domestic policies. And so the WTO's own approach to renewable energy has been inconsistent at best, and climate-unfriendly at worst. Article XX exceptions have either not been relied upon by developing countries, or dismissed as inapplicable by the DSM in renewable energy disputes. These provisions could be useful in defending domestic renewable energy policies in particular, but they have to be more effectively used by countries, tied more closely to stricter domestic policies, and considered more thoughtfully by the DSM.

Energy was not specifically regulated by the WTO as part of a separate, distinct energy agreement due to historical reasons. At the time of the formation of the GATT, liberalization of the energy market was not a political priority.¹⁸³ At that time, the energy market was heavily cartelized, dominated largely by fossil fuel companies and state-run monopolies.¹⁸⁴ In addition, the WTO has a "market access bias," so the rules place emphasis on reducing import tariffs.¹⁸⁵ However, problems in global energy trade now revolve primarily around export taxes or restrictions, not import tariffs.¹⁸⁶ In the 1970s, the oil crisis did put export restrictions on the WTO negotiating table but no agreement could be reached on the issue.¹⁸⁷ In particular, "resource-endowed countries" were wary of agreeing to "binding rules on trade in natural resources" as well as environmental provisions, due to a fear of green protectionism by developed countries.¹⁸⁸

182. See Part IV, *infra*.

183. See Yulia Selivanova, *The WTO Agreements and Energy*, in RESEARCH HANDBOOK ON INTERNATIONAL ENERGY LAW 275, 275–76 (Kim Talus ed., Edward Elgar Pub. 2014).

184. See Anna Marhold, *The WTO and Energy: Fuel for Debate*, 2 EUR. SOC'Y INT'L. L. REFLECTIONS 1, 2 (Sept. 30 2013), <https://esil-sedi.eu/wp-content/uploads/2013/10/Marhold-ESIL-Reflections.pdf>.

185. *Id.* at 4 (emphasis omitted).

186. See *id.* (discussing that while Article XI of the GATT covers both import and export restrictions, it covers only quantitative export limits but not export duties, taxes or charges); see also ALAN YANOVICH, REGULATION OF ENERGY IN INTERNATIONAL TRADE LAW 1 (Yulia Selivanova ed., 2011). However, the Trump Administration may have reinvigorated the use of tariffs in international trade.

187. Selivanova, *supra* note 183, at 276.

188. *Id.* at 277; Carolyn Deere Birkbeck, *20 Years of Debate on Environment, Trade and Sustainable Development at the WTO: A Literature Review (1995-*

The present-day energy sector is now more complex and stratified and “encompasses fossil and non-fossil fuels and energy including oil, gas, coal, wood, electricity, atomic energy[,] . . . solar, wind, wave and tidal [energy], . . . [and] biofuels.”¹⁸⁹ The changing nature of energy sources means WTO covered agreements are directly applicable to the governance of these energy sources.¹⁹⁰ Despite the diversification of energy sources, energy is still different from other industries due to its physical characteristics, leading to natural monopolies where energy resources are located (often in developing countries).¹⁹¹ The bulk of international energy regulation remains at the domestic level, with the role of international law in addressing energy remaining “unclear and unsettled,”¹⁹² despite the fact that “energy trade has transcended national borders.”¹⁹³

Energy straddles both goods and services at the WTO, as its physical properties are often not severable from the production process and channels of distribution—electricity is dependent upon networks and grids for distribution but renewable energy technology is traded more freely across borders.¹⁹⁴ As such, treatment of energy within the WTO covered agreements is fragmented, leading some commentators to argue it would be better dealt with under a WTO Framework Agreement on Energy.¹⁹⁵ Unfortunately, there is little hope for progressive development of the legislative agenda at the WTO at the moment,¹⁹⁶ and in the absence of a cohesive legislative approach to energy, the Dispute Settlement Mechanism (DSM) has been the main mechanism which has managed the relationship of energy under the WTO.¹⁹⁷

2015) 19–20 (U. of Oxford, Glob. Econ. Governance Programme, Working Paper No. 114, 2016).

189. Thomas Cottier et al., *Energy in WTO Law and Policy* 8 (NCCR Trade Regulation, Working Paper No. 2009/25, 2009), https://www.wto.org/english/res_e/publications_e/wtr10_forum_e/wtr10_7may10_e.pdf.

190. *Id.* at 1.

191. *Id.* at 2.

192. *Id.* at 7.

193. Kim Talus, *Internationalization of Energy Law*, in RESEARCH HANDBOOK ON INTERNATIONAL ENERGY LAW 5 (Kim Talus ed., Edward Elgar 2014).

194. Cottier et al., *supra* note 189, at 8–9.

195. *Id.* at 2–3, 8.

196. *See, e.g.*, Ben-Achour, *supra* note 59 (discussing current US opposition to WTO action).

197. Cottier et al., *supra* note 189 at 1–2.

A. THE DSM AND EMERGING ENERGY DISPUTES

Energy disputes at the WTO are on the rise, but only renewable energy policies have been subject to dispute. Article XX exceptions failed to provide cover for these policies, leading to detrimental climate impacts in some cases. Since 2010, there have been a number of energy-related disputes adjudicated at the DSM. Trade flows as well as trade disputes in clean energy are dominated by a select group of countries, often correlated with the largest global emitters, traders, and markets for clean energy investments.¹⁹⁸ The role and involvement of developing countries in these disputes is increasing, and as a result, new types of arguments, such as the principle of sustainable development, are being employed by these countries in order to attempt to bolster and reorient existing GATT defenses in a more climate-friendly, but especially development-friendly direction. Reliance on the DSM alone to adjudicate conflicts between trade and climate is less than ideal. “The shoddy structure of the SCM Agreement, the poor judgment of WTO tribunals, the consensus blocking squabbling of WTO negotiations, and the mixed signals of energy markets have combined to create a perfect storm for the transition to clean energy.”¹⁹⁹ The parties in these disputes have had to rely on agreements and provisions within the WTO covered agreements, which arguably do not cater specifically for energy, climate change, or sustainable development concerns. Ultimately both legislative amendments and jurisprudential adjustments will be necessary to have a more cohesive approach to trade, energy, and climate change at the WTO.

Despite there being no energy agreement at the WTO, energy jurisprudence has had to be developed at the WTO by necessity, due to the sheer number of disputes being invoked between developed and developing countries, as well as the changing nature of energy sources.²⁰⁰ The first biofuels case

198. Ricardo Meléndez-Ortiz & Mahesh Sugathan, *Enabling the Energy Transition and Scale-Up of Clean Energy Technologies: Options for the Global Trade System- Synthesis of Policy Options*, 51 J. WORLD TRADE 933, 937 (2017).

199. Bradley J. Condon, *Disciplining Clean Energy Subsidies to Speed the Transition to a Low-Carbon World*, 51 J. WORLD TRADE 675, 677–678 (2017). *But see* Espa and Durán, *supra* note 21, at 622 (arguing that there is very little conflict between the WTO and the SCM Agreement and climate change).

200. Droege et al. *supra* note 13, at 3.

occurred in 2012,²⁰¹ and the most recent substantive decision on an energy dispute was published in June 2019.²⁰² Some trends are identified. The original set of energy disputes saw developed countries submitting complaints against the domestic policies of other developed countries. Soon after that, the domestic policies of developing countries became a target, largely for developed countries. More recently, India has disputed renewable policies in eight different US states.²⁰³ In addition, developing countries are now challenging other developing countries in relation to their domestic policies, with Argentina requesting consultations with Peru over domestic biofuels policies.²⁰⁴ As a result, domestic policies of both developed and emerging economies are now vulnerable to challenges.

Article XX defenses, in all cases in which they were invoked by these countries, have failed to justify green industrial policies—largely due to those policies’ protectionist elements.²⁰⁵ In addition, even where developing countries have found success in the biofuels disputes in law, their “successes” are being frustrated by developed countries through use of protectionist measures. These developments mean it is more and more likely that developing countries will employ strategic or convenient compliance strategies in order to further their developmental objectives unless an approach can be adopted which bridges the divide between the green industrial policy aims of these countries and WTO jurisprudence.

IV. RENEWABLE ENERGY DISPUTES AT THE WTO

Energy sources are diverse, and are dealt with in different WTO covered agreements depending on their typology.²⁰⁶ As a result, different and competing forms of energy are subject to strongly divergent international trade rules.²⁰⁷ The first

201. Request for Consultation by Argentina, *European Union and a Member State—Certain Measures Concerning the Importation of Biodiesels*, WTO Doc. WT/DS443/1 (Aug. 17, 2012).

202. *US—Renewable Energy Sector*, *supra* note 2.

203. *Id.*

204. Request For Consultations By Argentina, *Peru—Anti-Dumping And Countervailing Measures On Biodiesel From Argentina*, WTO Doc. G/ADP/D129/1 (Dec. 5, 2018).

205. *See infra* sec. V.A.

206. COTTIER ET. AL., *supra* note 189, at 7.

207. *Id.* For a comprehensive analysis of the various WTO agreements and articles at issue in energy disputes, *see generally* Droege et al. *supra* note 13.

category—renewable energy disputes—largely involves the Subsidies and Countervailing Measures Agreement (SCM Agreement) as well as Article III of the GATT, and the TRIMS Agreement.²⁰⁸ A subsidy exists under the SCM Agreement if there is a financial contribution by a government or public body, which confers a benefit which is specific to certain enterprises.²⁰⁹ Subsidies can be applied to facilitate renewable energy investment and production, but can also provide subsidies for fossil fuel investments and so have important implications for action under the Paris Agreement.²¹⁰ These disputes involve not only subsidies but local content requirements which can constitute discriminatory treatment, and may trigger a subsidy dispute. The SCM does not distinguish between subsidies for renewable energy and non-renewables.²¹¹

The second category of biofuels cases involves the Agreement on Agriculture as well as Article VI of the GATT, as biodiesel and ethanol are included in the HS classification system of agricultural crops.²¹² The Agreement on Agriculture classifies

208. See, e.g., Panel Report, *Canada—Certain Measures Affecting the Renewable Energy Sector/Canada—Measures Relating to the Feed in Tariff Program*, WTO Doc. WT/DS412/R (adopted June 5, 2014); Appellate Body Report, *Canada—Certain Measures Affecting the Renewable Energy Sector/Canada—Measures Relating to the Feed in Tariff Program* WTO Doc. WT/DS412/AB/R (adopted June 5, 2014); Panel Report, *India—Certain Measures Relating to Solar Cells and Solar Modules*, WTO Doc. WT/DS456/R (adopted Oct. 14, 2016); Appellate Body Report, *India—Certain Measures Relating to Solar Cells and Solar Modules*, WTO Doc. WT/DS456/AB/R (adopted Oct. 14, 2016); Panel Report, *US—Countervailing Duty Measures on Certain Products from China*, WTO Doc. WT/DS437/R (adopted Aug. 15, 2019), Appellate Body Report, *US—Countervailing Duty Measures on Certain Products from China*, WTO Doc. WT/DS437/AB/R (adopted Aug. 15, 2019); Article 21.5 Panel Report, *US—Countervailing Duty Measures on Certain Products from China*, WTO Doc. WT/DS437/RW (adopted Aug. 15, 2019).

209. Agreement on Subsidies and Countervailing Measures, 1869 U.N.T.S. 14, Art. 1.2, 2.1(a), 2.2 (1994) [hereinafter SCM Agreement].

210. Droege et al. *supra* note 13, at 36. For an analysis of fossil fuel subsidies generally, see JAKOB SKOVGAARD & HARRO VAN ASSELT, *THE POLITICS OF FOSSIL FUEL SUBSIDIES AND THEIR REFORM* (CUP 2018). No fossil fuel subsidies have ever been the subject of a dispute at the WTO. Meyer, *supra* note 7, at 496.

211. SCM Agreement, *supra* note 209.

212. See, e.g., Panel Report, *EU—Anti-Dumping Measures on Biodiesel from Argentina*, WTO Doc. WT/DS443/R (adopted Oct. 26, 2016); Appellate Body Report, *EU—Anti-Dumping Measures on Biodiesel from Argentina*, WTO Doc. WT/DS443/AB/R (adopted Oct. 26, 2016); Panel Report, *EU—Anti-Dumping Measures on Biodiesel from Indonesia*, WTO Doc. WT/DS480/R (adopted Feb. 28, 2018).

biofuels based on whether the base crop is an industrial or agricultural product.²¹³

A. RENEWABLE ENERGY DISPUTES

All the most recent renewable energy disputes have been unsuccessful. This is largely because in the renewable energy sector they involved protectionist elements which fell afoul of WTO rules. In the biofuels cases, even where the country's domestic policies were WTO-compliant, the opposing side was able to avoid compliance through the WTO system. The first renewable energy dispute in 2012 involved developed countries on both sides as both complainants and respondents. The *Canada–Renewable Energy/FIT* dispute²¹⁴ involved protectionist policies being both employed and contested by developed countries. This case also established important approaches and interpretations by the Panel and Appellate Body to the SCM Agreement, which affected later cases in this vein. However, renewable energy disputes quickly evolved to include developing countries as well. In 2014, the *US–Countervailing Duty Measures on Certain Products from China*²¹⁵ was decided by the Appellate Body with recourse to an Article 21.5 Panel decision published in March 2018,²¹⁶ and in 2016 the *India–Certain Measures Relating to Solar Cells and Solar Modules* was decided by the Appellate Body.²¹⁷ In these two disputes, a developing country has been in

213. FOOD & AGRICULTURE ORG. OF THE U.N., THE STATE OF FOOD AND AGRICULTURE 2008, 52 (2008), <http://www.fao.org/3/i0100e/i0100e00.htm>.

214. See Appellate Body Report, *Canada–Certain Measures Affecting the Renewable Energy Generation Sector*, ¶ 1.1, WTO Doc. WT/DS412/AB/R (adopted May 24, 2013) (outlining Japan and the European Union's problems with the Panel's findings related to Canada's FIT Program). *But see* Request for Consultations by China, *European Union and Certain Member States–Certain Measures Affecting the Renewable Energy Generation Sector*, WTO Doc. WT/DS452/1 (Nov. 7, 2012) (showing that earlier in 2012, China submitted a request for consultations, but the request never proceeded to a dispute).

215. Appellate Body Report, *United States–Countervailing Duty Measures on Certain Products from China*, ¶ 1.4, WTO Doc. WT/DS437/AB/R (adopted Aug. 15, 2019) (describing a dispute in which China was the complainant).

216. Final Panel Report, *United States–Countervailing Duty Measures on Certain Products From China*, WTO Doc. WT/DS437/RW (Mar. 21, 2018); *see also* Recourse to Article 21.5 of the DSU by China, *United States–Countervailing Duty Measures on Certain Products From China*, WTO Doc. WT/DS437/25 (May 4, 2018) (requesting an appeal).

217. Appellate Body Report, *India–Certain Measures Relating to Solar Cells and Solar Modules*, WTO Doc. WT/DS456/AB/R (adopted Oct. 14, 2016) (describing a dispute in which India was a respondent).

both the position of complainant as well as respondent respectively.

Figure 1 below summarizes the renewable energy disputes, and shows that in every case, the challenging country was successful to some degree. In some instances, Article XX was not raised as a defense by the responding country. Where India did raise an Article XX defense against a complainant by the US, it was not successful.

Case	Complainant	Respondent	Articles	Defence	Success
<i>Canada–Renewable Energy</i> , FIT WT/DS412/AB/R AB May 6, 2013	Japan and EU	Canada	GATT III:4; III:8(a); SCM 3.1(b)	No Article XX defence used	EU/Japan successful: Violation of III:4; No violation of III:8(a) or SCM 1.1(b)
<i>US–Countervailing Duty Measures on Certain Products from China</i> WT/DS437/AB/R AB Dec. 18 2014	China	US	SCM Agreement Article 1.1(b), 2.1(a) and 14(d)	None	China successful ²¹⁸
<i>India–Certain Measures Relating to Solar Cells and Solar Modules</i> WT/DS456/AB/R AB Sep. 16 2016	US	India	GATT III:4; TRIMS 2.1	GAT III:8(a); Article XX(j) or XX(d)	US successful: Violates III:4; not protected by III:8(a); Article XX(j) and (d) not applicable. ²¹⁹

218. This appellate body dispute involved solar panels only. Trade remedy disputes to implement the AB outcome were not as successful for China, Final Panel Report, *United States–Countervailing Duty Measures on Certain Products from China*, WTO Doc. WT/DS437/RW (adopted Aug. 15, 2019), and on 4 May 2018 China requested an appeal of this decision in Recourse to Article 21.6 of the DSU by China, *United States–Countervailing Duty Measures on Certain Products From China*, WTO Doc. WT/DS437/25 (May 4, 2018).

219. This dispute is also going to a trade remedy phase. Request for the Establishment of a Panel, *India–Certain Measures Relating to Solar Cells and Solar Modules*, WTO Doc. WT/DS456/20 (Jan. 29, 2018).

<i>United States – Certain Measures Relating to the Renewable Energy Sector</i> WT/DS510/R Panel Jun. 27 2019	India	United States	GATT III:4	None	India successful: US actions violate III:4. ²²⁰
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Figure 1 – Renewable Energy Disputes at the WTO²²¹

1. Canada–Renewable Energy/FIT

The first dispute involved a feed-in-tariff by the Government of Ontario which entered into contractual agreements with producers of solar and wind energy. The feed-in-tariff was constituted by a fixed price per unit of production in order to encourage participation of new generation facilities to replace the phasing out of coal-fired plants, as well as to stimulate local investment in the production of renewable energy equipment.²²² Local investment was stimulated through the requirement, in addition

220. The United States has requested an appeal of this dispute. Notification of an Appeal by the United States, *United States – Certain Measures Relating to the Renewable Energy Sector*, WTO Doc. WT/DS510/5 (Aug. 16, 2019). Given the existing stasis at the Appellate Body it is unclear when an appeal will be heard.

221. A number of disputes have never proceeded beyond the request for consultations stage and therefore have not been covered in detail, such as Request for Consultations by the United States, *China–Measures Concerning Wind Power Equipment*, WTO Doc. WT/DS419/1 (Jan. 6, 2011) where the US challenged grants given by the Chinese government for use of domestic parts by Chinese wind power manufacturers in 2011 and China terminated the program, and Request for Consultations by China, *European Union and Certain Member States–Certain Measures Affecting the Renewable Energy Generation Sector*, WTO Doc. WT/DS452/1 (Nov. 7, 2012), a dispute brought by China against domestic content attached to FIT programs in Europe in 2012. The figures of the disputes summarize only the main aspects and articles involved in the dispute and broad outcomes.

222. Aaron Cosbey & Petros C. Mavroides, *A Turquoise Mess: Green Subsidies, Blue Industrial Policy and Renewable Energy: The Case for Redrafting the Subsidies Agreement of the WTO*, 17 J. INT'L ECON. L. 11, 13 (2014) (describing the fundamental objectives of the FIT Programme); see Henok Birhanu Asmelash, *Energy Subsidies and WTO Dispute Settlement: Why Only Renewable Energy Subsidies Are Challenged*, 18 J. INT'L ECON. L. 261, 283 (2015) (noting that Japan may have initiated the dispute against Canada in response to Canada signing an agreement to use renewable sources to generate electricity with the Korean company, a competitor to the Japanese firms Mitsubishi and Sharp).

to fixed feed-in-tariffs, of a minimum local or domestic content requirement in the development and construction of solar PV panels and wind power facilities.²²³ The EU and Japan sued on the basis that government support to both electricity generators (mainly local suppliers) as well as to green technology products (which can be more easily traded internationally) was discriminatory.²²⁴ They were successful as the Panel held that the local content requirement was deemed to be a violation of Article III of the GATT.²²⁵ The Panel was keen to note the importance of the electricity sector as the “lifeblood of modern society,” and that it was not disputing the public goal of enhancing renewable energy generation, but was focusing instead on the trade distortive elements of the program.²²⁶ The case illustrates the tension between the panel recognizing the policy importance of renewables but that the trade distorting elements of the policy put it in conflict with trade rules.

However, while the Panel decided that there was not sufficient evidence to establish whether a benefit had been provided under the SCM Agreement,²²⁷ the Appellate Body (AB) took a different approach, and defined the relevant product market for the SCM Agreement as separate for conventional energy versus renewable energy.²²⁸ This was justified by the AB on the basis that the renewable energy market, emphasizing supply-side factors such as operating costs, upfront costs, and intermittency, was constructed entirely through government regulation instead

223. Cosbey & Mavroides, *supra* note 222, at 13–14.

224. Espa & Durán, *supra* note 21, at 631; see Patrice Bougette & Christophe Charlier, *Renewable Energy, Subsidies, and the WTO: Where Has the ‘Green’ Gone?*, 51 ENERGY ECON. 407, 411 (2015) (noting that subsidies to renewable energy producers also have “pass through” effects which benefit power generation equipment producers).

225. Panel Report, *Canada—Certain Measures Affecting the Renewable Energy Sector/Canada—Measures Relating to the Feed in Tariff Program*, ¶ 7.167, WTO Doc. WT/DS412/R (adopted June 5, 2014).

226. *Id.* at ¶ 7.7–7.10 (describing the issues and factual background involved in the dispute).

227. *Id.* at ¶ 7.327 (stating that “a comparison between the relevant rates of return” and “the relevant average cost of capital” could be a useful analysis, but additional questions and facts must be addressed to proceed).

228. Appellate Body Report, *Canada—Certain Measures Affecting the Renewable Energy Sector/Canada—Measures Relating to the Feed in Tariff Program*, ¶ 5.176–5.185, WTO Doc. WT/DS412/AB/R (adopted June 5, 2014).

of market forces.²²⁹ The AB was clear in its support for the public policy goals involved, stating:

Governments intervene by reducing reliance on fossil energy resources and promoting the generation of electricity from renewable energy resources to ensure sustainability of electricity markets in the long term. Fossil energy resources are exhaustible, and thus fossil energy needs to be replaced progressively if electricity supply is to be guaranteed in the long term.²³⁰

In subsequent energy cases, no such comments regarding public policy interventions in the transition away from fossil fuels, or in fact climate change, are mentioned by the Panel or the AB again.²³¹ At the time, the AB's approach supporting the renewable energy policy was heavily criticized as "legal acrobatics" to avoid finding that a scheme aimed at a public good is an inconsistent subsidy and for providing the wrong incentive to states to develop "industrial policy unlimited."²³²

As a result of this dispute, critics have called for the SCM Agreement to be renegotiated in order to provide wider policy space for countries to implement public goods of mitigation of climate change,²³³ and to expressly apply environmental defenses under Article XX directly to the SCM Agreement.²³⁴ These suggested amendments involve legislative fixes and should be carried out in conjunction with the jurisprudential approaches suggested here. More progressive interpretations of Article XX could still allow for disputes under the SCM Agreement against domestic subsidies, and so both legislative and jurisprudential adjustments are needed.

229. *Id.*

230. *Id.* at ¶5.186.

231. *But see Brazil-Taxation supra* note 91, at ¶ 7.882 (holding that the reduction of carbon dioxide emissions fall within GATT 1994's environmental exceptions).

232. Cosbey & Mavroidis, *supra* note 222, at 12; *see also* Rajib Pal, *Has the Appellate Body's Decision in Canada-Renewable Energy/Canada-Feed-in Tariff Opened the Door for Production Subsidies?*, 17 J. INT'L ECON. L. 125 (2014); Rolf H. Weber & Rika Koch, *International Trade Law Challenges by Subsidies for Renewable Energy*, 49 J. WORLD TRADE 757, 779 (2015); Luca Rubini, *The Good, the Bad, and the Ugly: Lessons on Methodology in Legal Analysis from the Recent WTO Litigation on Renewable Energy Subsidies*, 48 J. WORLD TRADE 895 (2014). *But cf.* ESPA & DURÁN, *supra* note 21, at 635 (arguing that the case did not have a chilling effect on the use of FIT programs globally and FIT programs are unlikely to be disputed by WTO members in the future).

233. Cosbey & Mavroides, *supra* note 222, at 28–34.

234. *Id.* at 34–35.

After the decision, the Canadian Government did reduce, but did not eliminate, the local content requirement.²³⁵ This reluctance to eliminate local content requirements reflects a broad consensus among countries that renewable energy support is a legitimate form of industrial policy making.²³⁶ While this policy has climate change mitigation and energy security aims, it also has “job creation and domestic technological progress” objectives.²³⁷ The following two sets of disputes involve developing countries, but have attracted much less scholarly attention than the *Canada–Renewable Energy/FIT* dispute.

2. US–Countervailing Duty Measures on Certain Products from China

In 2007, US-based firms, including the US Wind Tower Trade Coalition and the Steelworkers Association, petitioned the United States Trade Representative to initiate an anti-dumping and countervailing duty investigation against imports from China.²³⁸ From 1996–2005, foreign companies dominated 75% of the Chinese domestic wind turbine market.²³⁹ However, by 2009 China had become the world’s top installer of wind, exceeding the US.²⁴⁰ As a result, China began exporting wind turbines to the US, which the US saw as draining investment in this technology from the US to China.²⁴¹ The US Department of

235. Steve Charnovitz & Carolyn Fischer, *Canada-Renewable Energy: Implications for WTO Law on Green and Not-So-Green Subsidies*, 14 J. WORLD TRADE 177, 181 (2015).

236. *Id.* at 186.

237. Kati Kulovesi, *International Trade Disputes on Renewable Energy: Testing Ground for the Mutual Supportiveness of WTO Law and Climate Change Law*, 23 REV. EUR. COMMUNITY. & INT’L ENV’T L. 342, 343 (2014).

238. Henok Birhanu Asmelash, *Energy Subsidies and WTO Dispute Settlement: Why Only Renewable Energy Subsidies Are Challenged*, 18 J. INT’L ECON. L. 261, 282–83 (2015).

239. Seung-Youn Oh, *How China Outsmarts WTO Rulings in the Wind Industry*, 55 ASIAN SURV. 1116, 1120 (2015).

240. Kenina Lee, Note, *An Inherent Conflict Between WTO Law and a Sustainable Future? Evaluating the Consistency of Canadian and Chinese Renewable Energy Policies with WTO Trade Law*, 24 GEO. INT’L ENV’T L. REV. 57, 83 (2011); *See also* Oh, *supra* note 239, at 1117–19 (noting that China achieved this global dominance through a combination of integrated industrial policies in both demand and supply side markets, and its motivations for doing so were a mix of wanting to diversify energy resources, mitigation of environmental issues and to encourage industrial upgrades).

241. *See* Lee *supra* note 240 at 83 (discussing how in 2011 the US challenged grants given by the Chinese government for use of domestic parts by Chinese

Commerce applied seventeen countervailing duty investigations during 2007–2012 which included solar panels, wind towers, steel cylinders and steel sinks, on the basis that twelve Chinese State Owned Enterprises were public bodies under the SCM Agreement, and had applied subsidies inconsistent with the SCM Agreement.²⁴² The SCM Agreement prohibits certain subsidies if provided by “public bod[ies]” under Article 1.1(a)(1) (being bodies vested with, and exercising, authority to perform governmental functions).²⁴³ The main issue in this case was whether the Chinese State Owned Enterprises were “public bodies.”²⁴⁴ On most issues (except wind towers and solar panels) the Panel decided the US acted inconsistently with the SCM Agreement in determining that ownership in and of itself was sufficient to deem a state owned enterprise a public body under Article 1.1(a)(i) of the SCM Agreement.²⁴⁵ At the AB level, only solar panels were at issue. At issue was whether a benefit was provided under Article 14 of the SCM Agreement. The AB found that the US explanation for rejecting in-country prices in its benchmark analysis of solar panels to determine whether a benefit was granted to Chinese State-Owned Enterprises was inconsistent with its obligations under Article 14(d) of the SCM Agreement.²⁴⁶ While successful at the AB level, China has not yet been able to secure compliance by the US with the AB’s ruling.²⁴⁷

wind power manufacturers and brought a request for consultations in the China–Wind dispute. However, instead of proceeding to a dispute, China terminated the program).

242. Appellate Body Report, *US–Countervailing Duty Measures on Certain Products from China*, ¶ 1.2, WTO Doc. WT/DS437/AB/R (adopted Dec. 18, 2014).

243. SCM Agreement, *supra* note 209, art. 1.1(a)(1).

244. *US–Countervailing Duty Measures*, *supra* note 242, at ¶1.7.

245. *Id.*, at ¶1.7.

246. *Id.* at ¶4.79, (concluding that “the Panel’s analysis and reasoning is not sufficient to support a conclusion that the USDOC properly rejected in-country prices in China” in the challenged investigations).

247. Under Article 21.3(c) of the DSU, the arbitrator determined that fifteen months was adequate for the US to implement the ruling, but subsequently in November 2016 China sought recourse to Article 21.5 proceedings, claiming the US had not yet implemented the ruling. The panel decision on Article 21.5 was published on March 21, 2018, with mixed results for China. The appeal involved countervailing duties imposed on a number of goods including pressure pipes, lead pipes, and solar panels, but not wind towers. China was not successful in establishing a violation of Article 1.1(a)(1) by the US on the basis of an “as applied” claim with respect to solar panels but was successful in establishing a violation by the US of Articles 1.1(b), 2.1(c), and 14(d) of the SCM Agreement and 2.1(c) on solar panel administrative reviews under the SCM Agreement.

3. India—Certain Measures Relating to Solar Cells and Solar Modules

The US-India dispute is one in which India did raise Article XX as a defense, but was not successful. India's use of Article XX, however, was not ideal and in particular did not connect its existing public health crisis of air pollution to its national solar energy program. In this case, the US sued India on the basis of India's national solar panel initiative. In 2010, India launched its Jawaharlal Nehru National Solar Mission, with the objective of establishing India as a global leader in solar energy, as well as creating conditions for the diffusion of solar energy across the country.²⁴⁸ The program aimed to generate 100,000 MW of grid-connected solar power by 2022, and to achieve rapid and large-scale capital investment in solar energy, encourage technical innovation, and phased indigenization.²⁴⁹ The Twelfth Five-Year Plan of 2011 recognized that climate change mitigation policies would have differential impacts on national development objectives such as job creation, competitiveness, and industrial growth, as well as improved access to energy.²⁵⁰

Domestic climate policy in India (as elsewhere) is shaped by national and sub-national development interests.²⁵¹ The National Solar Mission established in 2010 clearly stated national ambitions as both promoting ecological and sustainable growth while addressing the nation's energy security challenge.²⁵² These dual aims were to be achieved through the creation of conditions to enable a "rapid scale-up of capacity and technical innovation to drive down costs" of solar energy.²⁵³ The policy took

See Panel Report, *United States—Countervailing Duty Measures on Certain Products from China: Recourse to Article 21.5*, ¶¶ 7.142, 7.224, 7.293, WTO Doc. WT/DS437/RW (adopted Mar. 21, 2018).

248. See Panel Report, *India—Certain Measures Relating to Solar Cells and Solar Modules* ¶ 7.1, WTO Doc. WT/DS456/R (adopted Feb. 24, 2016) (citing Ministry of New and Renewable Energy, Resolution, No.5/14/2008-P&C (Issued Jan. 11, 2010), <http://164.100.94.214/resolution>) (explaining the goals of India's Jawaharlal Nehru National Solar Mission).

249. *Id.*

250. Aaron Alteridge et al., *Climate Policy in India: What Shapes International, National and State Policy?*, 41 *AMBIO* 68, 72 (2012) (acknowledging the various impacts on various aspects of India's development objectives).

251. *Id.* at 74.

252. Jawaharlal Nehru National Solar Mission, 1 [https://www.seci.co.in/upload/static/files/mission_document_JNNSM\(1\).pdf](https://www.seci.co.in/upload/static/files/mission_document_JNNSM(1).pdf) (establishing India's national ambitions as motivation for its solar power initiative).

253. *Id.* at 1–2.

a phased approach, with phase two between 2013–2017 focused on “aggressively ramp[ing] up” capacity “to create conditions for scaled up and competitive solar energy penetration [across] the country.”²⁵⁴ The policy specifically targeted electrification programs in remote villages as well as supporting small and medium sized enterprises in manufacturing parts.²⁵⁵ In addition, India’s enormous growth in the past few decades is straining its existing energy resources, with 80% of the oil in the country sourced from imports.²⁵⁶ Therefore, energy security was also a major aim of the domestic program.²⁵⁷ Curiously, improvement in air pollution and health did not form part of the national strategic plan.

In order to achieve the aims of the program, the government would enter into long-term power purchase agreements with solar power developers, providing a guaranteed rate for twenty-five years from the government.²⁵⁸ During Phase I of the program, it was mandatory for all generators to use crystalline silicon solar modules manufactured in India, constituting a local content requirement.²⁵⁹ The US brought a dispute against India for violation of Article III:4 of the GATT for the local content requirement and Article 2.1 of TRIMS (which similarly requires national treatment in the implementation of a trade related investment measure).²⁶⁰ The US did not invoke the SCM Agreement, perhaps due to the *Canada–Renewable Energy/FIT* decision. Following the *Canada–Renewable Energy/FIT* decision, the Panel found the local content requirement violated both Article III:4 of the GATT as well as Article 2.1 of TRIMS.²⁶¹

Unlike Canada, however, India ran several defenses under Article III:8(a) for government policies, and also under Articles XX(j) and (d). Article XX(j) protects measures essential to the acquisition or distribution of products in general or local short

254. *Id.* at 3.

255. *Id.* at 5.

256. MINISTRY OF NEW AND RENEWABLE ENERGY, *STRATEGIC PLAN FOR NEW AND RENEWABLE ENERGY SECTOR FOR PERIOD 2011-2017* 7 (Issued February 2011), https://www.ctc-n.org/sites/www.ctc-n.org/files/resources/strategic_plan_mnre_2011_17.pdf.

257. Jawaharlal Nehru National Solar Mission, *supra* note 252, at 1-2.

258. *Id.* at 8.

259. Panel Report, *India–Certain Measures Relating to Solar Cells and Solar Modules*, ¶ 7.8, WTO Doc. WT/DS456/R (adopted Feb. 24, 2016).

260. *Id.* at ¶1.1.

261. *Id.* at ¶8.2.

supply.²⁶² Article XX(d) protects measures necessary to secure compliance with laws or regulations which are not inconsistent with the provisions of this Agreement.²⁶³ Curiously, India did not attempt to apply the defenses of Articles XX(b) for health grounds on the basis of reduced air pollution in the transition to renewable energy, or XX(g) for the protection of the atmosphere as an exhaustible natural resource due to climate change,²⁶⁴ and therefore an opportunity was missed for renewable energy deployment in the context of climate change to be examined by the Panel and AB. Instead, India couched defenses around energy security and energy access needs and regulatory climate requirements; that under XX(j) domestically manufactured solar cells and modules could help to meet increasing domestic energy demand and supplement shortage of supplies of foreign solar cells, and that under XX(d) the solar program was required for India to comply with a number of both international treaties (including the UNFCCC) and domestic instruments to mitigate climate change and transition to renewable energy.²⁶⁵ India may have focused on Article XX(j) and not on XX(b) due to the emphasis in its national policy on energy security, and its lack of emphasis in domestic policy on the impacts of climate change on health.

India was not successful on either count. In relation to XX(j), both the Panel and AB held that there was no objective assessment of an existing deficiency of renewable energy in India, and while there was some risk of disruption of supply in affordable foreign solar cells, India had not identified actual disruptions in supply, and therefore could not employ the XX(j) defense.²⁶⁶ In relation to Article XX(d), India cited the preambular reference to sustainable development in the WTO Agreement, the UNFCCC, the Rio Declaration, and the UNGA Resolution 2012 adopting

262. GATT 1994, *supra* note 5, art. XX(j).

263. *Id.* art. XX(d).

264. BODANSKY ET AL. *supra* note 45 (arguing that based on the *US-Gasoline* and the *Shrimp/Turtle* disputes, the global climate would constitute an exhaustible natural resource and therefore bring climate change mitigation policies within the ambit of Article XX(g)).

265. *India-Solar*, *supra* note 259, at ¶¶7.189–191 (summarizing India's arguments for why the domestic content requirements (DCRs) imposed under India's Jawaharal Nehru National Solar Mission are essential and fall within the Article XX(d) and XX(j) exceptions of the GATT 1994).

266. *See id.* at ¶¶7.225–7.262 (explaining why India's arguments are insufficient to qualify for the Article XX(j) exception of the GATT 1994).

the Rio +20 Declaration. For example, the preamble to the WTO Agreement states WTO members recognize that

“their relations in the field of trade and economic endeavor should be conducted with a view to raising standards of living, ensuring full employment and a large and steadily growing volume of real income and effective demand, and expanding the production of and trade in goods and services, while allowing for the optimal use of the world’s resources in accordance with the objective of sustainable development, seeking both to protect and preserve the environment and to enhance the means for doing so in a manner consistent with their respective needs and concerns at different levels of economic development.”²⁶⁷

The Panel held that these instruments did not have direct effect in India and therefore did not fall under the remit of Article XX(d), and India’s laws on renewable energy were more akin to policy documents than regulations.²⁶⁸

On appeal, the AB did note, in relation to Article XX(j), that developing countries may be more vulnerable to disruptions in supply, and that an analysis of whether a product is in short supply must be done on a case by case basis, taking into account holistic factors.²⁶⁹ However, while the AB could agree that an increase in domestic capacity may lead to an increase in total quantity of available supply of renewable energy, it did not agree that a decrease in domestic capacity would necessarily produce a foreign shortfall.²⁷⁰ In relation to Article XX(d), the AB held that the instruments pointed out by India did not contain the requisite degree of normativity, specificity and enforceability.²⁷¹ The domestic national plans and policies on energy were too “hortatory, aspirational, declaratory,” and “descriptive” to qualify for protection under Article XX(d).²⁷²

267. WTO Agreement, *supra* note 35.

268. See *id.* at ¶¶ 7.298–7.339 (explaining why India’s arguments are insufficient to qualify for the Article XX(d) exception of the GATT 1994).

269. See Appellate Body Report, *India–Certain Measures Relating to Solar Cells and Solar Modules*, ¶ 5.74, WTO Doc. WT/DS456/AB/R (adopted Oct. 14, 2016) (explaining how the Appellate Body both agrees and disagrees with elements of India’s Article XX(j) argument).

270. *Id.*

271. See *id.* at ¶¶ 5.104–5.137 (discussing the legal standard under Article XX(j) of the GATT 1994 and whether the Panel erred in its assessment of the domestic instruments identified by India).

272. See *id.* at ¶ 5.133 (stating that the Appellate Body fails to see how the domestic instruments India has identified could be interpreted as a “rule” within the context of Article XX(d)).

4. United States—Certain Measures Relating to Renewable Energy

In September 2018, India sued the US in relation to renewable energy programs in a number of US states. India claimed these programs included a number of discriminatory elements, including domestic content and labor requirements as well as other incentives provided by California, Connecticut, Delaware, Massachusetts, Michigan, Montana, and Minnesota.²⁷³ These various regulations offered incentives for renewable energy equipment or electricity provided from equipment or components made in the relevant state or employing a certain percentage of residents of that state. For example, the California Self-Generation Incentive Program provided incentives for installation of new qualifying technologies which would meet the electric energy needs of a new facility.²⁷⁴ An added incentive payment of 20% would be provided to any retail electric or gas distribution customer for installation of eligible distributed resources from a California supplier or manufacturer.²⁷⁵ The Delaware Renewable Energy Portfolio Standards Act required that electricity suppliers and municipal electric companies sell a certain percentage of their electricity using eligible energy resources including solar energy.²⁷⁶ This was tracked using renewable and solar energy credits tradeable in an electronic market system.²⁷⁷ An additional 10% credit was provided to retail electricity suppliers for meeting the renewable energy portfolio standards for solar or wind energy from installations sited in Delaware, provided a minimum of 50% of the renewable equipment used was manufactured in Delaware or from a facility constructed or staffed with a minimum of 75% of in-state workforce.²⁷⁸ The disputed policies of Montana concerned biodiesel and ethanol, which enjoyed tax incentives if the fuel or feedstock for those fuels were produced in the state concerned.²⁷⁹ India claimed that several regulations in these regulations treated imported like products less favorably than domestic products and therefore violated

273. *US—Renewable Energy*, *supra* note 2.

274. *Id.* at ¶ 2.14.

275. *See* CAL. PUB. UTIL. CODE § 379.6(j) (West 2019).

276. *US—Renewable Energy*, *supra* note 2, at ¶2.51.

277. *Id.*

278. *Id.* at ¶ 2.52.

279. *Id.* at ¶2.20.

Article III:4 of GATT as well as several articles of the TRIMS and SCM Agreement.

The Panel found that all of these measures violated Article III:4 by impacting the conditions of competition between domestic and imported products, even though some of these incentives payments had never been used.²⁸⁰ It did not matter to the Panel that no trade effects or proof that the measures had affected sourcing decisions of private firms had been provided.²⁸¹ The United States did not attempt to rely on any Article XX defenses in this dispute, and has appealed the decision.²⁸² At the moment, given the backlog of cases pending appeal, the dispute is unlikely to be resolved for some time.²⁸³

B. BIOFUELS DISPUTES

The second category of cases involves the export of biofuels. Biofuels are a potential alternative to fossil fuels, particularly in the transportation sector.²⁸⁴ They constitute both biodiesel for use primarily in diesel engines and made from ethanol or alcohol from fermented plant starches, and bioethanol for use in petrol engines and made from vegetable oil or animal fats.²⁸⁵ The environmental sustainability of biofuels has been debated, particularly first generation biofuels, as their production can lead to

280. *Id.* at ¶8.4.

281. *Id.* at ¶ 7.245 (stating that trade effects or proof of impact on sourcing decisions of private firms may be involved in an assessment under Article III:4 of the GATT 1994, but they are not required).

282. Notification of an Appeal by the United States, *United States–Certain Measures Relating to the Renewable Energy Sector*, WTO Doc. WT/DS510/5 (Aug. 16, 2019).

283. See Lehne, *supra* note 14, at 133 (describing how it would be almost impossible for the Appellate Body to, among other things, submit its reports within the 90-day deadline due to the backlog of cases created by the US blockage of Appellate Body member appointments).

284. Harri Kalimo, Filip Sedefor & Max S. Janson, *Market Definition as Value Reconciliation: The Case of Renewable Energy Promotion Under the WTO Agreement on Subsidies and Countervailing Measures*, 17 INT'L ENV'T AGREEMENTS 427, 430 (2017).

285. *Id.* at 434; Elisa Ruozzi, *China and Biofuels: Legal and Policy Issues in the Framework of the WTO System*, 6 CHINA-EU L. J. 33, 33–34 (2016) (discussing that biofuels are liquid fuels based on biomass which can vary in source and chemical structure. First generation biofuels are largely constituted by sugarcane ethanol, starch-based or corn-based ethanol, biodiesel from pure plant oil and some niche biofuels such as biogas. Second generation biofuels are made from cellulose, hemicellulose or lignin, for example cellulose ethanol or algae-based biofuels (the latter is also known as a third generation biofuel)).

direct and indirect land-use change, remove arable land for food production, and provide low wages and insecure employment.²⁸⁶

Developing countries have been both active and successful in law in biofuels disputes. Argentina is a major exporter of biofuels based on raw materials of soybeans, and Indonesia based on palm oil. Due to labor costs, geography and climate, developing countries have natural cost advantages in the production of biofuels.²⁸⁷ Major exporters of biofuels include Brazil, Argentina, Indonesia, Malaysia, China, Saudi Arabia, Costa Rica, Jamaica, India, Korea, and Nigeria.²⁸⁸ Developed countries therefore need a high rate of subsidization in order to protect their industries from lower-cost imports from tropical regions.²⁸⁹ Due to the nature of biofuels as crops, they fall under the Agreement on Agriculture (AoA), but fall under two different categories in the HS classification system (bioethanol under HS Chapter 22 and biodiesel under HS Chapter 38) based on their chemical composition.²⁹⁰ Biodiesel is also classed as an industrial good, subject to the SCM Agreement.²⁹¹

Developing countries have employed differential export tariffs in order to protect their domestic biofuel industries. They have taxed the export of raw materials used in the development of biofuels at a higher rate than the export of processed biofuels.²⁹² This allows the value of the raw materials to be reduced on the domestic market, making them cheaper for purchase by domestic producers, and therefore making domestically

286. Claudia Franziska Bruhwiler & Heinz Hauser, *Biofuels and WTO Disciplines*, 63 *AUSSENWIRTSCHAFT* 7, 7–8 (2008); Gretchen Gordon, *The Global Free Market in Biofuels*, 51 *DEV.* 481, 481–82 (2008).

287. Bruhwiler & Hauser, *supra* note 286, at 10.

288. *Id.* at 9; Doaa Abden Motael, *The Biofuels Landscape: Is There a Role for the WTO?* 42 *J. WORLD TRADE* 61, 69 (2008).

289. Bruhwiler & Hauser, *supra* note 286, at 16; *see also* Press Conference, United Nations, Press Conference Launching International Biofuels Forum (Mar. 2, 2007), http://www.un.org/press/en/2007/070302_Biofuels.doc.htm (establishing the International Biofuels Forum under the auspices of the UN, as a joint project with Brazil, the US, EU, China, India, and South Africa as a mechanism to co-ordinate and share information between both well established and less well established players on the international biofuels scene).

290. Biofuels can be either biodiesel from foodstocks such as corn, or biodiesel from lipids such as animal fats. Bruhwiler & Hauser, *supra* note 286, at 19.

291. Sarah L. Stattman & Aarti Gupta, *Negotiating Authority in Global Biofuel Governance: Brazil and the EU in the WTO*, 15 *GLOB. ENV'T. POL.* 41, 51 (2015).

292. Ruozzi, *supra* note 285, at 48.

processed biofuels more competitive on the international markets,²⁹³ allowing domestic producers to scale the value chain and bolster domestic biofuel industries. In response to these strategies, the EU added anti-dumping duties under the Anti-Dumping Agreement (ADA) on to imports of biofuels from developing countries, leading to two sets of disputes brought by Argentina and Indonesia, both acting as complainants.

Figure 2 illustrates that both Argentina and Indonesia were successful in defending their domestic policies on biofuels by imposing export restraints. Despite their success, each country has struggled to have the decision implemented, and developed countries continue to impose some level of protectionist policy on import of biofuels from abroad.

293. *Id.*

Case	Complainant	Respondent	Articles	Defences	Success
<i>EU–Anti-Dumping Measures on Biodiesel from Argentina</i> WT/DS473/ AB/RAB Oct. 6, 2016	Argentina	EU	ADA Articles 2.2 and 2.2.1.1	None	Argentina; EU had violated Article 2.2.1.1 and Article 2.2 by using international reference price failing to take into account records kept by domestic producers
<i>EU–Anti-Dumping Measures on Biodiesel from Indonesia</i> WT/DS480/ R Panel Jan. 25, 2018	Indonesia	EU	ADA Articles 2.2 and 2.2.1.1 and Ar- ticles 3.1 and 3.2	None	Indonesia; EU had violated ADA Agreement Article 2.2.1.1 and 3.1 and 3.2

Figure 2 – Biofuels Disputes at the WTO²⁹⁴

294. There have been a number of other disputes regarding EU sustainability criteria imposed on imports of biofuels, which Brazil addressed through diplomacy, and also on domestic content requirements in Spain. Argentina requested consultations with the EU on both of these issues, but they never proceeded to a dispute and so have not been included here. *See* Request for Consultations by the European Union and a Member State—*Certain Measures Concerning the Importation of Biodiesels*, WTO Doc. WT/DS443/1 (Aug. 23, 2012); Request for Consultations by the European Union and Certain Member States—*Certain Measures on the Importation and Marketing of Biodiesel and Measures Supporting the Biodiesel Industry*, WTO Doc. WT/DS459/1 23 (May 15, 2013).

1. EU–Anti-Dumping Measures on Biodiesel from Argentina

Argentina brought a dispute against the EU regarding anti-dumping duties imposed on biodiesel from Argentina.²⁹⁵ Anti-dumping duties are import duties imposed by a country that believes another country has exported their goods to them at cheaper than market rates. This behavior is regulated by the Anti-Dumping Agreement under the WTO (ADA).²⁹⁶ The Agreement regulates how a domestic investigating authority, which recommended the level of anti-dumping duties to impose, can calculate the level of those import duties. Article 2.2 of the ADA Agreement requires an investigating authority use either the cost of production in the country of origin (plus a reasonable amount for administration, selling, etc.) or the costs normally calculated based on records kept by the exporter or producer under investigation.²⁹⁷ The EU argued that it added import duties based on the international reference price for what domestic Argentinian biofuels producers should have paid for domestic raw material inputs by adding to the price of soybeans the direct export taxes imposed by Argentina in order to construct the normal value for dumping calculations.²⁹⁸ Argentina argued that this approach violated Article 2.2.1.1 and 2.5 of the ADA Agreement which required the EU to determine the normal value based on the domestic producer's records in the country of origin, and whether they reasonably reflect the costs of production actually incurred by the producers.²⁹⁹ The Panel and AB agreed with Argentina, deciding that as a general principle the actual data of producers in the country of origin was to be preferred in constructing the normal value.³⁰⁰ In addition, the EU had failed to calculate costs correctly on the basis of the records kept by domestic producers.³⁰¹

295. Request for Consultations by Argentina, *Anti-Dumping Measures on Biodiesel from Argentina*, WTO Doc. WT/DS473/1 (Dec. 19, 2013).

296. Agreement on Implementation of Article VI of the General Agreement on Tariffs and Trade 1994, Apr. 15, 1994 [hereinafter ADA Agreement].

297. *Id.* art. 2.2.

298. Panel Report, *European Union–Anti-Dumping Measures on Biodiesel from Argentina*, ¶ 7.180–82, WTO Doc. WT/DS473/R (Mar. 29, 2016).

299. *Id.* at ¶ 7.81.

300. *Id.* at ¶ 7.231.

301. *See id.* ¶¶ 7.236–7.249.

2. EU–Anti-Dumping Measures on Biodiesel from Indonesia

The subsequent case, decided in 2018, involved a dispute brought by Indonesia against similar practices by the EU on biodiesel implemented in 2013 by the EU as a result of complaints by the European Biodiesel Board.³⁰² Similar to Argentina, Indonesia claimed the EU had not calculated the costs of production of biodiesel based on records of domestic producers in constructing the normal value for Indonesian producers, claiming the set of circumstances facing Indonesia was “essentially identical” to those successfully raised by Argentina.³⁰³ The EU claimed that differential export tariffs depressed the price of soybeans and soybean oil from Argentina, as well as crude palm oil (CPO) from Indonesia, distorting the cost of biodiesel producers.³⁰⁴ Indonesia added an export tax of 40% on the raw material for CPO, palm fruit.³⁰⁵ The EU disregarded the actual costs of raw materials as recorded by producers in Indonesia, and instead used the reference price for CPO as published by Indonesian authorities which averaged published international prices from three sources (costs, insurance, and freight from Rotterdam, Malaysia, and Indonesia).³⁰⁶ The Panel held this approach violated Article 2.2.1.1 of the ADA which required that costs normally be calculated on the basis of records kept by exporters or producers under investigation, provided their records are in accordance with GAAP.³⁰⁷ It should be noted that the palm oil industry in Indonesia in particular has been highly criticized for its contributions to deforestation, and therefore although a renewable energy, its climate benefits are highly questionable.³⁰⁸

Despite WTO “wins” in disputes, unilateral action by the United States and Peru could render the Argentinian biofuels industry nonviable.³⁰⁹ Given these developments, protectionist

302. Panel Report, *European Union Anti-Dumping Measures on Biodiesel from Indonesia*, WTO Doc. WT/DS480/R (Feb. 28, 2018).

303. *Id.* at ¶ 7.12.

304. *Id.* at ¶ 7.13.

305. *See id.* ¶ 7.14 (“The export for palm fruit was set at a rate of 40%.”).

306. *Id.* ¶ 7.15.

307. *Id.* at ¶ 7.34.

308. Abrahm Lustgarten, *Palm Oil Was Supposed to Help Save the Planet. Instead It Unleashed a Catastrophe*, NEW YORK TIMES MAG., (Nov. 20, 2018), <https://www.nytimes.com/2018/11/20/magazine/palm-oil-borneo-climate-catastrophe.html>; INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, *supra* note 17, at 269.

309. Meyer, *supra* note 7, at 547–48.

disputes in the biofuels arena may continue for some time, and differential export tariffs may in reality not provide a benefit to developing countries given the domestic actions of the EU and US, until fresh disputes have made their way through the DSM.³¹⁰ This means that biofuel exporting countries may not benefit from a decline in the DSM, and are more economically vulnerable to unilateral trade measures. Where biofuels do not have beneficial climate impacts, this strategic compliance, this time largely by developed countries, may not be all bad for the climate.

V. LESSONS LEARNED

The nature of environmental disputes at the WTO and the role of developing countries is shifting. While the older disputes which led to progressive interpretation of Article XX provisions were primarily natural resource and environmental disputes, energy disputes are now replacing these older disputes. Wu and Salzman note that the “classic” environmental disputes of the 1990s, in which developing countries brought disputes against “protectionist” environmental measures implemented by developed countries, have now given way to disputes brought primarily by developed countries against new “green” industrial policy

310. There are two other categories of raw materials cases which are more indirectly related to energy and so are not covered in this paper. These are the disputes between mainly the US and China on raw materials and rare earth minerals. These cases turned on the interpretation of the provisions of the Accession Protocol of China, the main respondent in these disputes, as well as providing *arguendo* interpretations of Article XX of the GATT regarding export restriction. They involve raw materials and minerals such as gallium, lithium, nickel, antimony, indium lanthanum, magnesium, and tin which are used in rechargeable batteries. See Panel Report, *China—Measures Related to the Exportation of Various Raw Materials*, WTO Doc. WT/DS394/R (adopted July 5, 2011); Appellate Body Report, *China—Measures Related to the Exportation of Various Raw Materials*, WTO Doc. WT/DS394/AB/1 (adopted Jan. 30, 2012); Panel Report, *China—Measures Related to the Exportation of Rare Earths, Tungsten and Molybdenum*, WTO Doc. WT/DS431/R (adopted May 20, 2015); Appellate Body Report, *China—Measures Related to the Exportation of Rare Earths, Tungsten and Molybdenum*, WTO Doc. WT/DS431/AB/R (adopted May 20, 2015). The general outcome of these disputes was that China was not able to rely on Article XX due to a restrictive interpretation of its Accession Protocol. However, even if China were allowed to rely on Article XX in this dispute, those efforts would have been unsuccessful given the *arguendo* interpretations of Article XX.

measures implemented by developing countries.³¹¹ Developing countries were successful in all of their dispute efforts in these older “classic” environmental disputes, but have experienced mixed and largely negative outcomes in the newer energy disputes. Dubbed the “next generation” of trade and environmental conflicts, Wu and Salzman anticipate these new types of disputes, based on green industrial policy, will dominate the trade and environment discourse for decades to come,³¹² and so ultimately some synergy between the trade and climate change regime is needed.

The interface between trade and climate change is at the heart of legal developments in energy law,³¹³ and this relationship, along with these particular disputes, are understudied. Left unchecked, governance deficiencies in the trade-climate nexus could “constrain the potential for trade to expand clean energy technologies worldwide,”³¹⁴ which would lead to negative consequences for the climate. Poor outcomes in these energy disputes and the current approach of the DSM to Article XX means the WTO may not be an appropriate forum to adjudicate energy disputes in the context of climate change. A move away from multilateralism in the climate context may not be a bad thing in the short term. In the longer term, a better synergy between the WTO and the goals of the Paris Agreement will be needed in order to avoid catastrophic climate change and ensure a more cohesive global strategy to increase the diffusion of renewable energy.

The regime complex of climate change means that several narrow regimes exist which concern climate change, without a clear hierarchy among the regimes.³¹⁵ While regime complexes

311. See Wu & Salzman, *supra* note 137, at 404 (listing the “classic” trio environmental disputes as *Tuna/Dolphin*, *Shrimp/Tuna*, and *US-Gasoline*, deeming cases such as *EC-Biotech* and *Brazil-Tyres* to be more concerned with health than environmental issues).

312. *Id.*; see also YANOVICH, *supra* note 186, at 1.

313. See Burkolter & Perch, *supra* note 148, at 238 (discussing ways to address the “perennial challenge” of “[a]chieving a better balance of environmental issues within the economic agenda and the ecological and economic governance of natural resources . . .”).

314. Dent, *supra* note 12, at 729.

315. Robert O. Keohane & David G. Victor, *The Regime Complex for Climate Change*, 9 PERSP. ON POLS., 7, 8 (2011) (“Regime Complexes are marked by connections between the specific and narrow regimes but the absence of an overall architecture or hierarchy that structures the whole set.”).

can have dysfunctional tendencies, there may exist “flexibility across issues, and adaptability over time.”³¹⁶ Adopting more climate-friendly interpretations of Article XX is not outside the bounds of the history of the DSM. Facing significant criticism in the 1990s, the DSM developed more flexible interpretations of Article XX(b) and XX(g) that could better cater for domestic policy priorities such as health and the environment.³¹⁷ These are now considered valuable policy norms in the WTO, and climate change and related clean energy policies should benefit from similar treatment.

Conversely, not adopting a more generous approach to priorities such as climate change and cleaner energy, would put the WTO in conflict with the Paris Agreement and later agreements’ expectations that countries progressively ratchet up their ambition over time in nationally determined contributions. In the absence of WTO legislative responses on energy, the inability of the DSM to recognize and prioritize climate change and sustainable developmental aims is likely to further erode confidence in the WTO system, particularly on the part of developing countries and especially emerging economies, and leave all parties vulnerable to evasive and non-compliant behavior, as well as trade remedies. This may have negative consequences both for climate change mitigation as well as for the development trajectories of developing countries and multilateralism in the longer term.

The flexibility and adaptability of the DSM has been identified as one way for the WTO to navigate through its current impasse of the Doha Round,³¹⁸ and could also be a method to forge a more compatible relationship between trade and climate change. Relying on the “generative quality”³¹⁹ of the DSM, this paper suggests two complementary approaches which could be adopted to smooth the conflict between green industrial policy making in the energy area and existing WTO jurisprudence.

A number of contextual interpretations of WTO law and lessons can be gleaned from these disputes. Most importantly, energy disputes are escalating at the WTO, despite its declining

316. *Id.* at 15.

317. *See* discussion *supra* Part I(A)–(C).

318. *See* Klasen, *supra* note 47 at 68–69, 73–75 (discussing the Doha Round’s “immense difficulties” as a key example of gridlock in international trade, and later identifying the DSM as “one of the pathways through gridlock . . . [as an] autonomous international institution . . . able to adapt to shifting interests”).

319. *Id.* at 74.

prominence as a multilateral institution and attempts to paralyze the DSM by the United States. While there may be a “pause” in disputes in the short term, if the WTO and DSM are reinvigorated, energy disputes are likely to continue. There is an increasing diversity of complainants and respondents in these disputes, and now both developed and developing countries’ policies are in play, with emerging economies now suing developed and developing countries over their domestic policy making.

There is a trend of unsuccessful employment of Article XX by developing countries, illustrating that Article XX tends to protect conservation-only policies.³²⁰ Therefore, green industrial policy which is tinged with both environmental and infant-industry or other domestic protection elements is likely to be unsuccessful, particularly under Article XX, unless empirical evidence linking protectionist measures to emissions reductions is provided.³²¹ Strategic compliance by developing countries as a result may mean that they will be more able to implement domestic protectionist policies around energy. Provided these policies are well designed and implemented and focus on increased manufacture and diffusion of renewable energy, this may not be all bad for the climate in the short term.

In the short term, a strategic compliance approach may not be entirely negative if it provides policy space for countries to implement urgent and progressive climate action by fostering the manufacture and diffusion of renewable energy technology. However, in the longer term, a more synergistic relationship between the WTO and the Paris Agreement should be found. In particular for developing countries which seek to export renewable energy, multilateral disputes at the DSM can result in suspensions of concessions through the trade remedy function which can negatively affect other areas of their economy. Unilateral remedies can also be harmful where an importing country identifies a material injury as a result of another country’s domestic measures in accordance with the Anti-Dumping and Countervailing Duties Agreement.³²² In fact, the bulk of trade

320. See, e.g., *supra* Part V.A.3 (discussing the *India–Solar* dispute).

321. Cf. *Brazil–Retreaded Tyres*, *supra* note 88, at ¶ 145 (emphasizing the importance of “a genuine relationship of ends and means between the objective pursued and the measure at issue”).

322. Wu and Salzman highlight the concern regarding unilateral measures by countries. *Supra* note 137. Espa and Durán criticize the ability of a unilateral determination of material injury and the ability of governments to balance

remedies against renewable energy policies are occurring at the unilateral level.³²³ Unilateral measures can also increase the cost of renewables internationally, and can be particularly problematic for emerging economies that export renewable technology.³²⁴ Despite these negative effects, unilateral actions do not result in direct trade remedies against a subsidizing country, and still allow for increased domestic production and diffusion, as well as export to other countries which have not implemented unilateral measures.

The picture looks slightly different in the biofuels disputes where developing countries were successful in the DSM, but their legal successes are being undermined by convenient compliance or evasion by developed countries.³²⁵ Developing countries are being denied reliance on comparative advantages in natural resources, and also are not able to defend their development trajectories within the WTO system. However, as the climate benefits of biofuels can be questionable, particularly those based on palm oil,³²⁶ unilateral measures adopted may not be as negative for the climate as the measures adopted in relation to solar and wind technology. These unilateral biofuels measures may stymie the growth of these industries and therefore consequentially slow deforestation rates. Overall, however, strategic or convenient compliance strategies by developing countries are likely to continue as countries carve out green industrial policy space by maneuvering around WTO rules and dispute outcomes where that is financially feasible.

negative trade-distortive policies against positive climate mitigation effects particularly when their own domestic industries may be suffering as a result, although they point to the EU Council dispute as to whether countervailing duties on the import of renewable technology should be terminated due to the Union interest in maintaining affordable international prices for renewables and the EU's own climate policies. *Espa & Durán, supra* note 21, at 642; Council and EP Regulation 2016/1037, OJ 2016 L176/55, Article 31 (June 8, 2016).

323. *Espa & Durán, supra* note 21, at 631.

324. For example, decreased subsidy support in China for renewables and the transition to market-based approaches has been linked to the high cost of public subsidies but also economic uncertainty due to trade conflicts with the United States. Michael Standaert, *Why China's Renewable Energy Transition is Losing Momentum*, YALE ENVIRONMENT 360 (Sept. 26, 2019), <https://e360.yale.edu/features/why-chinas-renewable-energy-transition-is-losing-momentum>.

325. *See supra*, Part V.B.2.

326. *See Lustgarten, supra* note 308.

Successful climate change mitigation strategies should arguably support developing countries' economic and social development needs,³²⁷ and so trade policy should work in tandem with climate and development aims. Unfortunately, the jurisprudence assessed to date does not lead to these outcomes for the developing countries involved. Progressive interpretive approaches adopted by the DSM, and highlighted in section I above, could be extended to domestic renewable energy policies which advance nationally determined contributions under the Paris Agreement and also protect public health and natural resources under both Articles XX(b) and XX(g).

A. STRATEGIC COMPLIANCE

The analysis shows that developing countries are already using strategic compliance approaches to protect domestic development agendas and create more policy pace for themselves in a trade-restrictive world. China was successful in defeating unilaterally imposed protectionist policies adopted by the US in relation to solar cells and wind turbines in principle, but substantive trade remedies to remove the trade-inconsistent behavior have yet to be realized. Under WTO law, the case provided Chinese state-owned enterprises the flexibility to continue to provide subsidies to the industry provided the enterprises are structured so that they do not fall under the definition of a "public body" under Article 1.1(a)(1) of the SCM Agreement. However, China has not been successful in fact (as opposed to in law), as the US has not brought its measures into conformance. In a corollary action, the US did bring a dispute against China for subsidies in the wind industry (*China-Wind*),³²⁸ and China decided to remove the trade-distorting practice instead of pursuing the dispute to a Panel decision.³²⁹ In relation to this consultation on the *China-Wind* issue, even when China withdrew the offending subsidies pursuant to the request for consultations from the US, China's pattern of strategic or "convenient compliance" allowed it enough time to achieve economic dominance in the wind

327. WORLD BANK, *supra* note 136, at 6–7.

328. Consultation Requested, *China-Measures Concerning Wind Power Equipment*, WTO Doc. WT/DS419/1 (Dec. 22, 2010).

329. Press Release, US Trade Representative, *China Ends Wind Power Equipment Subsidies Challenged by the United States in WTO Dispute*, June 7, 2011, <https://ustr.gov/about-us/policy-offices/press-office/press-releases/2011/june/china-ends-wind-power-equipment-subsidies-challenged>.

industry, fulfilling its development goals through non-WTO compliant behavior, while maintaining its reputation as a responsible member of the international community by complying when necessary.³³⁰

India may be pursuing a similar strategy. While its national solar mission was found to be in violation of WTO agreements in 2016, the US raised a request in January 2018 for an Article 21.5 decision, claiming that two years after the AB decision, India had not brought its program into compliance with WTO Agreements.³³¹ India appears to be pursuing the same approach as the US has in the *US–Countervailing Duty* case, and as China did in *China–Wind*—by delaying compliance until developmental and environmental goals have been largely achieved. Attempts by India to rely on international climate treaties and energy access and energy poverty issues as an environmental or developmental defense under Articles XX(d) and (j) failed under WTO law. India is strategically avoiding compliance in order to gain the maximum environmental and developmental benefits of its national solar program.

There is also a notable absence of the mention of climate mitigation in these disputes, apart from India’s emphasis on the UNFCCC and Rio+20.³³² The atmosphere would most likely form part of natural resources protected under Article XX(g),³³³ even if renewable energy is being exported outside of national borders. In addition, India’s National Solar Mission policy does not focus on the health implications of climate change, and the role that renewable energy can play in the reduction of pollution but also the access to energy. Energy poverty can lead to disease, gender inequality, and even death. As a result, diffusing renewable energy in rural areas could improve life expectancy, bringing the policy within the ambit of both Articles XX(b) and XX(g).

In the biofuels disputes, both Argentina and Indonesia were successful in their anti-dumping disputes against the EU under

330. Oh, *supra* note 239, at 1141 (describing how China’s “pattern of convenient compliance allows Beijing not only to achieve its economic developmental goals through measures that flout WTO rules, but also to improve its reputation as a responsible member of the international community”).

331. Request for the Establishment of a Panel, *India–Certain Measures Relating to Solar Cells and Solar Modules–Recourse to article 21.5*, WTO Doc. WT/DS456/20 (Jan. 29, 2018).

332. *But cf. Brazil–Taxation*, *supra* note 91 (describing how taxation in the automotive industry addressed climate mitigation goals).

333. See discussion, *supra* Part I.

WTO law. This is in part due to the fact that export duties are not disciplined by the WTO under these agreements, and this has been a successful strategy in the disputes to date, in part. In October 2017, the EU informed the WTO that it had adopted Implementing Regulation (EU) 2017/1578 to fully implement the AB's decision regarding Argentinian soybeans.³³⁴ While Argentina welcomed this development, it also expressed its serious concern with the European Biodiesel Board's intention to petition the European Commission to initiate a subsidy investigation of Argentinian biofuel imports in order to avoid cheaper imports from Argentina and Indonesia due to the lowering of ADA duties under (EU) 2017/1578.³³⁵ In relation to the second dispute, on March 1, 2018, the EU and Indonesia informed the WTO that they had agreed to a reasonable period for the EU to implement the Panel's decision as 8 months, expiring on October 28 2018.³³⁶ However, in 2017, a decision was taken by the US Department of Commerce to impose large anti-dumping duties on biofuel imports from both Argentina and Indonesia, effectively protecting US biofuel producers.³³⁷ In 2016, Peru imposed antidumping duties on Argentinian biofuels, and Argentina has submitted a request for consultations with Peru.³³⁸ As a result, disputes over biofuels are likely to continue.

With many developing countries containing the world's largest stores of raw materials, they can be perceived as the new "Renewable Superpowers."³³⁹ These countries may even form an

334. Panel Report, *European Union—Anti-Dumping Measures on Biodiesel from Argentina*, WTO Doc. WT/DS473/Add.4 (Oct. 13, 2017).

335. See Meghan Sapp, *European Biodiesel Board Preparing to Launch Anti-Subsidy Case Against Argentina*, BIOFUELS DIG. (Sept. 28, 2017), <https://www.biofuelsdigest.com/bdigest/2017/09/28/european-biodiesel-board-preparing-to-launch-anti-subsidy-case-against-argentina/> (discussing the desire of the EBB to launch an investigation).

336. Agreement, *European Union—Anti-Dumping Measures on Biodiesel from Indonesia*, WTO Doc. WT/DS480/7 (Mar. 1, 2018).

337. Jim Lane, *US Slaps Argentine, Indonesian Biodiesel Producers with Huge Anti-Dumping Penalties*, BIOFUELS DIG. (Aug. 23, 2017), <http://www.biofuelsdigest.com/bdigest/2017/08/23/us-slaps-argentine-indonesian-biodiesel-producers-with-huge-anti-dumping-penalties>.

338. Request for Consultations by Argentina, *Peru—Anti-dumping and Countervailing Measures on Biodiesel for Argentina*, WTO Doc. WT/DS572/1 (Dec. 5, 2018).

339. See Andrew Barron, *Meet the New "Renewable Superpowers": Nations That Boss the Materials Used for Wind and Solar*, THE CONVERSATION (Feb. 19, 2018), <https://theconversation.com/meet-the-new-renewable-superpowers-nations-that-boss-the-materials-used-for-wind-and-solar-91680> (discussing the

“OPEC for Renewables,”³⁴⁰ signaling that global wrangling for dominance in these new industries is likely to continue. The largely negative outcomes for developing countries in energy disputes means that they are likely to continue to employ strategic compliance approaches. Given the potential role of developing countries in the global expansion of renewables, this may not be all bad given the seeming inability of the DSM at the moment to take into account the urgency of the climate crisis. This is due to the WTO’s emphasis on reducing protectionism and stressing non-discrimination in trade relationships—rules which to date have largely benefited industrialized developed countries.

Existing trade disciplines under the WTO fail to take into account development trajectories and energy access issues of developing countries, but also fail to cater for the climate mitigation impacts of domestic policies. Neither the WTO nor the DSM was established to cater comprehensively for non-trade concerns, and policy space provided by Article XX was always anticipated to be strongly trade oriented. Through the multilateral trading system, wealthy nations “have carved out a multilateral order which best suits their own development trajectory.”³⁴¹ OECD countries have used high-technology capacities and innovative technologies as the foundation of their national prosperity.³⁴² Member states which are seeking to build an industry or an export advantage will find scope to maneuver severely disciplined and conditioned by multilateral agreements such as the SCM Agreement or TRIMS.³⁴³ Developing countries have

countries who will become the new “renewable superpowers” if and when demand for fossil fuel production resources switches to production elements for renewables).

340. *Id.* (analyzing the implications of a hypothetical scenario where renewable resource rich countries form a coalition like OPEC).

341. Linda Weiss, *Global Governance, National Strategies: How Industrialized States Make Room to Move Under the WTO*, 12 REV. INT’L POL. ECON. 723, 724 (2005).

342. *Id.* at 730–31 (“The point being made is that the key instruments for developing *knowledge-based* industries are not those targeted directly at the development of productive capacity, but rather at the formation of high-tech capabilities, and innovative technologies. It is the latter that OECD governments now view as the foundation for securing national prosperity and that the WTO rules readily accommodate.”).

343. *Id.* at 726.

remained primarily exporters of natural resources.³⁴⁴ As a result, traditional trading patterns reflect the export of commodities and natural resources by developing countries, and the import of technology and services.³⁴⁵ By intertwining development and environmental policies, developing countries are attempting to scale the value chain, and avoid the “Dutch disease”; increased revenues from natural resources can de-industrialize a nation’s economy by raising the exchange rate and thereby make its manufacturing sector less competitive.³⁴⁶ This can trap developing countries into a state of “underdevelopment” due to overreliance on natural resource exports.³⁴⁷

Large developing countries such as China and India are attempting to break these traditional trade patterns by processing raw materials and minerals before export,³⁴⁸ attempting a “collective correction by developing countries to their past development path.”³⁴⁹ Production taxes or quotas can be the first-best policy instrument to address this, but risks what the WTO has called “natural resource nationalism” and “beggar thy neighbour” trading asymmetries.³⁵⁰ Developing countries have attempted to address this issue through policies which combine both environmental considerations as well as domestic protectionism.³⁵¹ These policies have largely been declared

344. Bin Gu, *Mineral Export Restraints and Sustainable Development – Are Rare Earths Testing the WTO’s Loopholes?*, 14 J. INT’L ECON. L. 765, 768–69 (2011).

345. *Id.*

346. WORLD TRADE ORG., WORLD TRADE REPORT 2010: TRADE IN NATURAL RESOURCES, 9 (2010).

347. *Id.* at 68.

348. GU, *supra* note 344, at 781.

349. *Id.*

350. WORLD TRADE ORG., *supra* note 346, at 5, 42.

351. The infant industry literature has mixed approaches to the success of domestic protection policies. Some authors have stated that the infant industry argument is well respected and legitimate temporary protection measure for use in emerging sectors in developing countries in order to allow for a temporary period of learning-by-doing. See Gene M. Grossman & Henrik Horn, *Infant-Industry Protection Reconsidered: The Case of Informational Barriers to Entry*, 103 Q. J. ECON. 767, 767 (1988); Takashi Negishi, *Protection of the Infant Industry and Dynamic Internal Economies*, ECON. REC. 56, 56 (1968); Bruce Greenwald & Joseph E. Stiglitz, *Helping Infant Economies Grow: Foundations of Trade Policies for Developing Countries*, 96 AM. ECON. REV. 141, 146 (2006). But see Kevin Rask, *Evidence of the Empirical Relevance of the Infant Industry Argument for the Protection of Brazilian Ethanol Production*, 10 AGRIC. ECON. 245, 246 (1994) (finding no empirical evidence that infant-industry protections

incompatible with WTO rules through energy disputes. In the trade context, failures by developing countries in energy disputes are not surprising where the disputes revolve around green industrial policies.

As these disputes move into their trade remedy phases, it seems that developing countries are choosing to retain their green industrial policies and adopt strategic or convenient compliance approaches to WTO rulings, or looking for WTO loopholes or inconsistencies,³⁵² particularly where they do not feel their domestic goals under the policies have been achieved. This has been demonstrated in the *China–Wind* and *India–Solar* disputes.³⁵³ Prompt compliance results only when developmental aims have been achieved, as illustrated in the *China–Wind* consultations. The lack of involvement of small- or medium-sized developing countries as either complainant or respondent in these disputes confirms this trend. These countries tend not to be as active in the DSM, and even if they were, it is only large developing countries that can afford to engage in strategic compliance strategies.

Developed countries appear to be adopting similar protectionist approaches, particularly in the *US–Countervailing Duties* and biofuels disputes, caving to pressure from their own domestic industries.³⁵⁴ Under the biofuels disputes, developing countries are therefore being denied access to markets even when their domestic policies are WTO-compliant.³⁵⁵ There is not much that can be done about this behavior except to pursue trade remedies at the international level or attempt to resolve the issue through diplomacy. It appears, then, that where countries can afford to withstand the imposition of trade remedies,

helped the Brazilian biofuel industry); Arvind Panagariya, *A Re-examination of the Infant Industry Argument for Protection*, 5 J. APPLIED ECON. RES. 7, 13 (2011) (arguing that, even with this approach, later market entrants still enjoy competitive advantages); Robert E. Baldwin, *The Case Against Infant-Industry Tariff Protection*, 77 J. POL. ECON. 295, 295 (1969) (arguing that the approach would not induce domestic firms to invest in innovation); Nisar Ahmed, *Competitive Strength of Nations: Doing Business in a Global Market*, 1 EURASIAN J. BUS. MGMT. 41, 43 (2013) (arguing that infant industry protection hampers domestic firms' future growth).

352. Wu & Salzman, *supra* note 137, at 461.

353. *See supra* Part IV.A.3.

354. *See supra* Part IV.A.2.

355. *Id.*

they will choose to retain trade-inconsistent clean energy policies—at least until they have achieved domestic aims.

In the short term, a strategic compliance approach may be beneficial for the climate if developing countries use this policy space to increase the domestic manufacture and diffusion of renewable energy technology that has climate benefits. It is widely acknowledged that China's domestic industrial approach to clean energy technology such as solar and wind has been responsible for the reduction in price of these technologies globally, leading to price parity with fossil fuels.³⁵⁶ This development can only be positive for global climate stabilization goals. However, China is a unique player due to its scale and size, and not all protectionist policies are good for the climate. For example, the climate benefits of biofuels have been hotly contested. Protectionist biofuels measures adopted by developed countries—where domestic policies of developing countries are WTO-compliant but climate-unfriendly—may also be beneficial.

In the long term, however, more synergy between the trade and climate regimes should be found. Trade remedies in response to multilateral disputes can include tariff increases and other trade-restrictive measures in order to counter the alleged injury caused by a subsidy. Other parties could take unilateral action as well in the face of a stasis at the DSM.³⁵⁷ Recent protectionist policies by the US through import tariffs are anticipated to increase the price of solar panels.³⁵⁸ It is estimated that between 2008–2012, trade remedies affected US \$32 billion worth of trade in green products.³⁵⁹ Unilaterally imposed anti-dumping or countervailing duties to counter domestic subsidies

356. INT'L RENEWABLE ENERGY AGENCY, *supra* note 27, at 28–40 (noting that China “is the biggest location for renewable energy investment” and leads in innovation); Charlie Campbell, *China Is Bankrolling Green Energy Projects Around the World*, TIME (Nov. 1, 2019), <https://time.com/5714267/china-green-energy/>; Dominic Chiu, *The East Is Green: China's Global Leadership in Renewable Energy*, 13 CTR. FOR STRATEGIC & INT'L STUD. 3, 6 (2017).

357. For example, § 301 of the Trade Act of 1974 in the United States has been effectively used to impose trade sanctions on other countries. Lynne Puckett & William Reynolds, *Rules, Sanctions and Enforcement under Section 301: At Odds with the WTO?*, 90 AM. J. INT'L L. 675, 681 (1996) (noting that many sanctions under § 301 have led to successful settlements of the underlying issue).

358. Oliver Milman, *Donald Trump's Tariffs on Panels Will Cost US Solar Industry Thousands of Jobs*, GUARDIAN (Jan. 24, 2018), <https://www.theguardian.com/environment/2018/jan/23/donald-trump-tariffs-solar-panels>.

359. Meléndez-Ortiz & Sugathan, *supra* note 198, at 113.

lead to more expensive products and import barriers,³⁶⁰ and so a stable and fair trading system in renewable energy which has demonstrated climate benefits is needed in the longer term. In the longer term, synergy between the WTO and the goals of the Paris Agreement would lead to a more cohesive and mutually supportive global trade and climate strategy.

VI. FUTURE STRATEGIES: A TWO-STEP JURISPRUDENTIAL ADVANCE

As the climate crisis increases, global imperatives such as climate mitigation may either regulate how WTO norms are applied or in some cases even displace those norms.³⁶¹ This movement has yet to occur based on the current set of energy disputes analyzed. While the DSM did incorporate customary international law in some disputes, it did so narrowly, and almost discounted the importance of the UNFCCC regime in its interpretive approaches.³⁶² Alternative approaches are available and set out below. In the longer term, it will be important for the WTO to both engage in legislative reform and adopt climate-compatible approaches to Article XX. While legislative reform such as adding a no-action category of subsidies under the SCM Agreement, or political decisions through a climate waiver would be a much more comprehensive approach, they may be politically unfeasible to achieve in the short term. Given the required urgent emissions mitigation, and the need for dramatically scaled up action in the next decade, a twofold jurisprudential approach is suggested below as a partial solution.

A. STEP ONE: RELYING ON AND REINTERPRETING ARTICLE XX

Energy and trade are two separate regimes, and a future framework agreement on energy at the WTO would provide far more legal coherence in this area.³⁶³ Given the current lackluster progress of the Doha Development Round, a new trade

360. The use of countervailing and antidumping duties is widespread, even though subsidized imported products would be cheaper for consumers within those nations. *See* Jackson, *supra* note 34, at 281; *see also supra*, Part II.

361. Rafael Leal-Arcas & Andrew Filis, *Renewable Energy Disputes in the World Trade Organization*, 13 OIL, GAS & ENERGY L.J., 3, 11 (2015).

362. *See supra* Part V.A (discussing disputes where the DSM found measures in violation of trade rules despite their potential importance to climate change).

363. Cottier et al., *supra* note 189, at 3.

agreement is unlikely to be agreed anytime soon. A number of authors have suggested a “climate waiver” or the re-introduction of non-actionable subsidies under the SCM Agreement, and the successful conclusion of the EGA negotiations.³⁶⁴ Member states can adopt an authoritative interpretation of provisions of the WTO Agreements, for example, in a declaration that measures taken pursuant to the Paris Agreement would fall within the scope of Article XX, or negotiate a “peace clause” providing a cooling off period before challenging national climate measures.³⁶⁵ Farah and Gima suggest the incorporation of a sunset clause or period of transition to allow developing countries to achieve a level of development in clean energy fields.³⁶⁶ These strategies would all provide a more comprehensive approach to trade and climate change and may be successful if global priority and attention is focused on reinvigorating the WTO. However, given the current stasis of legislative reform at the WTO, it may take some time to reach political agreement. In the interim, a jurisprudential approach may be an appropriate stop-gap and raise the profile of climate change as both an important and legitimate policy objective of the WTO.³⁶⁷

Reliance on Article XX by developing countries has been wholly unsuccessful in these energy disputes since 2010, and not all defenses available under Article XX were used by these countries.³⁶⁸ In addition, DSM interpretations of these provisions have excluded issues of sovereignty, health, or development, and narrowed interpretations of Article XX. Public health concerns under Article XX(b), which are traditionally afforded a large dose of respect by the DSM, were unsuccessful in these disputes.

364. See BACCHUS, *supra* note 122, at 10; Meléndez-Ortiz & Sugathan, *supra* note 198; Joachim Monkelbaan, *Using Trade for Achieving the SDGs: The Example of the Environmental Goods Agreement*, 51 J. WORLD TRADE 575, 598–99 (2017).

365. Droege et al., *supra* note 13, at 36–37.

366. Paolo Davide Farah & Elena Gima, *WTO and Renewable Energy: Lessons from the Case Law*, 49 J. WORLD TRADE 1103, 1116 (2015).

367. Dent argues that re-evaluation of international norms of state intervention in the realm of clean energy trade should be a priority for the WTO, given its global implications. *Supra* note 12, at 740. Doelle argues that the climate mitigation impacts of clean energy policies should be given priority by the WTO, given the global implications of climate change. See Meinhard Doelle, *Climate Change and the WTO: Opportunities to Motivate State Action on Climate Change Through the WTO*, 13 REV. EUR. COMMUNITY & INT’L ENV’T L. 85 (2004).

368. See *supra* Part V.

Regulatory autonomy for the transition to renewable energy under Article XX(d) was disregarded given the lack of specificity and bindingness in both international and domestic law. Green industrial policy was too protectionist to be favored under Article XX(g), which was confined to environmental conservation only.³⁶⁹ Finally, the DSM was not amenable to energy access and energy poverty arguments under Article XX(j).³⁷⁰ A number of approaches are suggested below which could be adopted by developing countries under these subcategories to overcome these obstacles.

1. Article XX(b)

It is possible that connecting local content requirements or other protectionist measures to overall policy objectives of reducing cost and increasing (local) dissemination of renewable energy, combined with the economic and poverty eradication imperatives and air quality crises in many developing countries, could be persuasive in the interpretation of Article XX(b). Empirical evidence connecting the economic elements of a domestic policy to increased manufacturing and dissemination of renewable energy technology would have to be put forward, and combat any other economic arguments such as that simply importing cheap renewable energy technology may achieve the same domestic policy objectives.

Public health concerns were not raised by either India or China in the context of climate change in these disputes. This is surprising as both of these countries are struggling with high pollution levels primarily due to the burning of fossil fuels.³⁷¹ The transition to clean energy could be cited in domestic policy documents as contributing to the resolution of mounting public health concerns, particularly air pollution, with the requisite data and empirical connections to both health concerns and

369. See *supra* Part IV.

370. *Id.*

371. However, in the *China–Rare Earths* dispute, China did attempt to use public health concerns regarding pollution levels in the mining of rare earth, but this argument was given short shrift by the Panel under Article XX(b), perhaps due to the concern by the Panel of lack of domestic action to conserve rare earth minerals. China's domestic minerals policy was not specific enough regarding the link between export restraints and conservation and reduction of pollution. However, it is curious that domestic production cuts were not sufficiently linked by the Panel to Article XX(b). See *China–Rare Earths*, *supra* note 110, at ¶ 5.116.

reduced emissions provided. Rich jurisprudence in both the *Brazil–Retreaded Tyres* and *EC–Asbestos*³⁷² disputes provides countries with large policy discretion when it comes to public health priorities, provided comprehensive domestic objectives are clearly articulated and carefully linked to justify any trade-restrictive elements. This avenue could provide more policy space to developing countries in the context of climate change if specific links are made to domestic health concerns. These health issues could also be linked to energy access and energy poverty issues, providing a multi-layered approach to justify increasing the diffusion of renewable energy.

The applicability of Article XX(b) requires a reference to how measures are linked to environmental or public health objectives, and general references to these objectives are unlikely to be successful without more detailed domestic policies on emissions and pollution reduction, as well as data linking fossil fuel use to air pollution and associated respiratory diseases.³⁷³ If countries do this, limited room to maneuver could be opened up through the employment of public health considerations due to climate change and air pollution. Given historic policy space provided to countries in the realm of public health, if argued robustly Article XX(b) may provide some relief—provided the tests in the chapeau can be cleared.³⁷⁴

2. Articles XX(d) and XX(j)

These energy disputes also provide legal interpretations of a number of provisions under both Article XX(d) and XX(j). In the *India–Solar* dispute, the DSM demonstrated limited concern for energy access and energy sustainability considerations under these provisions.³⁷⁵ Arguments regarding energy poverty and/or climate change in the context of Article XX(j) were not considered. Energy access arguments were considered, but only briefly by the Panel. Arguably energy poverty issues are folded into energy access, but the Panel provided scant attention to this argument and the need for access to clean energy for development purposes. Instead, the Panel focused on trade concerns, unable

372. See *supra* Part II.

373. Ruth Jebe, Don Mayer & Yong-Shik Lee, *China's Export Restrictions of Raw Materials and Rare Earths: A New Balance Between Free Trade and Environmental Protection?*, 44 GEO. WASH. INT'L L. REV. 579, 617 (2013).

374. See *supra* Part II.

375. See *supra* Part V.A.3.

to find a link between reduced domestic production of renewable energy and reduced imports. As such, the Panel concluded that India's green industrial policy was as much about boosting domestic industry as it was about filling growing domestic energy demand.

In that dispute, the DSM was not willing to consider international climate change agreements as qualifying under Article XX(d) without a specific degree of bindingness of renewable energy provisions. Hortatory, domestic policy-based language was clearly not sufficient to qualify under Article XX(d). This requirement of "hard normativity" by the DSM ignores the soft law elements of the climate change governance regime, including the Paris Agreement, and its emphasis on nationally determined contributions and progression of national ambition on climate change mitigation targets over time. Accelerated action under the Paris Agreement is likely to trigger more trade law challenges to domestic policy making without sufficient recourse to Article XX.³⁷⁶ In this regard, developing countries should consider tighter, legally binding language in national policies or climate legislation, with closer and more explicit links to climate change and their nationally determined contributions regarding clean energy transitions, with discretion provided to cater for energy poverty issues in order to provide stronger normativity, targets, and action at the domestic level. Article XX(d) may also provide some assistance if developing countries are willing to tighten the language of domestic policy directives and legislation, linking clean energy policies more directly to public health, domestic environmental concerns, and nationally determined contributions under the Paris Agreement.

3. Article XX(g)

As the interpretation of the XX(g) disputes illustrates, it is likely that the atmosphere would qualify as an exhaustible natural resource under Article XX(g), and a climate policy aimed at conservation of a human, plant or animal species would also qualify under Article XX(g).³⁷⁷ Therefore, this exception could

376. BODANSKY ET. AL., *supra* note 45, at 348.

377. *Id.*, at 333 (arguing that in light of past panel decisions, the "global climate itself" could qualify as an exhaustible natural resource); *see also* Appellate Body Report, *US-Standards for Reformulated and Conventional Gasoline*, WTO Doc. WT/DS2/AB/R (adopted May 20, 1996) (affording policies to reduce the depletion of clean air protection under GATT XX(g)).

provide developing countries with considerable policy space to implement green industrial policies, provided they have empirically demonstrable climate benefits. There may be some obstacles to this approach, though, which would require strict mitigation of emissions domestically to meet the even-handedness requirement as set forth by the DSM. This corollary domestic activity could be activity which is articulated in a country's nationally determined contribution under the Paris Agreement,³⁷⁸ which is designed to be updated in five-year cycles, demonstrating progressive domestic reduction of greenhouse gases. Implementation of progressive nationally determined contributions domestically could demonstrate that any renewable energy policy is designed to work in tandem to achieve domestic emissions reductions, fulfilling the "even-handedness" approach.

Domestic measures and policies were scrutinized by the DSM to determine whether they met the even-handedness requirement under Article XX(g).³⁷⁹ While parity between foreign and domestic measures may not be necessary, some activity on the domestic front towards conservation will be necessary to qualify for Article XX(g). This could be achieved through closer integration between, say, the establishment of production quotas and export duties and the direct application of export duties or license fees to environmental conservation and remediation. The DSM has narrowly confined the application of Article XX(g) to conservation-only measures. As currently interpreted, the development of green industrial policies which seek a broader development scope beyond conservation are unlikely to be palatable to the DSM without this being raised at the appellate body level in the future, and more deference provided to well designed, climate-friendly domestic policies. Green industrial policies with domestic economic elements and an export focus are unlikely to succeed, given recent jurisprudence under Article XX(g), unless stringent domestic measures are also undertaken. This approach could align with the Article XX(d) strategy suggested above, with progressive domestic emissions reductions combined with strict environmental procedures implemented domestically. Linking environmental export tariffs directly to fund environmental remediation and clean energy policies may also illicit more positive consideration by the DSM.

378. Paris Agreement, *supra* note 4.

379. *See supra* Part I.C.

B. STEP TWO: DSM RE-INTERPRETING ARTICLE XX EXCEPTIONS WITH A CLIMATE LENS

The recommendations outlined above all have sweeping domestic costs and regulatory implications for developing countries, and movement cannot only be one way on this issue. The DSM should reconsider the applicability of Article XX in the context of climate change. This may require a re-interpretation of its application, in particular the chapeau, in the context of countries' legitimate efforts to implement domestic climate policies. This will be important to retain the legitimacy of the WTO generally, and in particular in playing a role to address the climate crisis. Whether these countries demonstrate an appetite to cater their domestic landscapes more closely to trade compliance, or simply continue with strategic or non-compliant behavior to achieve their green industrial policy goals, remains to be seen. The outcome of energy disputes to date indicates strategic non-compliance is the more likely outcome, unless more progressive interpretation of Article XX is undertaken at the DSM.

1. Article XX Chapeau

Despite the suggested strategies, even if a measure succeeds under a sub-provision of Article XX, it must still prevail under the chapeau test, which contains strict guidance on trade distorting elements of a measure.³⁸⁰ These recent energy disputes demonstrate that no matter the environmental objective or effect, as long as a policy violates a trade obligation, the environmental policy will likely encounter some issues under the chapeau.³⁸¹

Given the DSM's preference for multilateralism when interpreting the requirements of the chapeau, it is possible that the multilateral arrangements, including nationally determined contributions under the Paris Agreement,³⁸² may be considered by the DSM as legitimate policy making on climate change. Negotiation of the Paris Agreement took many years (arguably decades), and its provisions, although largely soft law, should qualify as "serious, good faith efforts" to reach an understanding on

380. See *supra* Part I.D.

381. Wu & Salzman, *supra* note 137, at 405–06.

382. Paris Agreement, *supra* note 4.

multilateral approaches to combat climate change.³⁸³ In addition, parties are subject to stringent transparency requirements regarding the development and submission of their nationally determined contributions under the Paris Agreement,³⁸⁴ which should provide the degree of transparency emphasized by the Appellate Body when interpreting the chapeau. Provided domestic energy policies fall in line with a country's nationally determined contribution (which are to be updated in five-year cycles), multinational negotiations which agreed to and periodically reviewed these contributions should be sufficient to pass the test of the chapeau. However, while some progressive interpretation of the chapeau has come before,³⁸⁵ and robust arguments could be put forward about the multilateral negotiations under the Paris Agreement meeting the procedural elements of the chapeau, any trade distorting element of a renewable energy policy may struggle to survive the chapeau.

Policy space for developing countries to scale the value chain in clean energy is therefore not likely to be tolerated by the DSM with current interpretive approaches to Article XX. This is not a real difficulty for the environment as the trade distorting elements of these policies can be separated from the environmental aspects.³⁸⁶ However, this approach may cause difficulties for some developing countries, depending on their fiscal situations, and developing countries may want to use protectionist measures to grow and expand their industries. This may particularly be the case with export duties which can provide direct

383. Cf. *US-Shrimp Art. 21.5*, *supra* note 117, at ¶153 (upholding a previously invalidated trade measure as the responsible party was involved in “serious good faith negotiations” with the other parties involved); Mehling et al. *supra* note 92, at 468–69 (noting, however, in relation to the element of the chapeau which prohibits a measure from discriminating against countries where the same conditions apply, that comparing different climate policies is vexing, and that given the principle of common but differentiated responsibilities and respective capabilities under the Paris Agreement and special and differential treatment under the WTO, special considerations should be applied to Least Developed Countries, although these latitudes are not likely to be given to emerging economies, the subject of this paper).

384. See Paris Agreement, *supra* note 4, art. 13 (describing the transparency framework).

385. See *US-Shrimp Art. 21.5*, *supra* note 117, at ¶¶ 140–148 (affirming the argument that practices and procedures which are “comparable in effectiveness” meet the “essentially the same” standard).

386. Wu & Salzman, *supra* note 137, at 407 (noting instead that the real danger to green policies lies with increasing unilateral trade measures at the domestic level).

financial benefits, including increasing the financial capacity of the government for environmental remediation.³⁸⁷ Fiscal constraints in developing countries may lead them to dump costly environmental policies without domestic protection mechanisms and direct development gains.³⁸⁸ Increased domestic development of clean technologies in a country the size of China can have international positive spillover effects through climate mitigation, which strict environmental policies divorced from development gains could undermine.³⁸⁹

Climate change mitigation considerations barely figured in these energy disputes, and climate change itself was not mentioned at all by the DSM, illustrating its focus only on trade distorting measures.³⁹⁰ This indicates that alternative interpretations of the chapeau of Article XX would also have to be adopted by the DSM, taking into account the urgency of climate change. Some general principles and interpretive approaches could be adopted by the DSM. In the first instance, climate change could be considered by the DSM as a legitimate policy imperative, which in some circumstances could balance or negate any trade distorting measure. A more balanced approach giving equal consideration to both the climate protection effects of measures and trade discrimination could be adopted by the DSM. As articulated in Part I above, the DSM regularly adopts weighing and balancing tests when assessing the appropriateness of domestic policies in the context of trade rules and discriminatory treatment. Secondly, where a domestic policy has overwhelming climate benefits which significantly outweigh any discriminatory treatment (even through export), the DSM should allow it. This may require more comprehensive analysis on the impacts of measures both in terms of climate benefits (arguably more difficult to assess in the export context) and trade distortive impacts.

In order to do this, a different interpretive approach to the chapeau of Article XX needs to be adopted which harkens back to older and more progressive interpretations adopted by the

387. *Id.* at 426–428 (explaining that China’s export duties incentivize local industry to exploit recourses, which in turn expands a tax base that could theoretically be used for environmental remediation).

388. *Id.* at 462 (“Those facing tighter fiscal constraints would be more inclined to jettison costly environmental programs without offsetting economic gains.”).

389. *Id.*

390. See e.g. *India–Solar*, *supra* note 259; *supra* Part IV.A.3.

DSM in environmental disputes.³⁹¹ Trade distortive measures, provided they are closely connected to legitimate climate policy objectives, should be assessed for their climate-legitimacy and allowed where there are clear, demonstrated climate benefits. In this balancing test, the DSM would provide deference to legitimate climate policy making which has demonstrated health and environmental effects. In order to do this, more climate and energy experts need to be appointed on to the Panels and Appellate Bodies. The DSM has a history of progressive interpretive approaches to Article XX, giving due deference to coherent and comprehensive domestic policies in the areas of public health and natural resource conservation.³⁹² This interpretive approach should be applied to domestic climate and energy policies, particularly when they are clearly and cogently applied, and empirically proven to support public health, resource conservation, and climate aims.

VII. CONCLUSION

This decade will be a critical one for the efficacy of the multilateral trading system, at least in the short term, as well as for the Paris Agreement.³⁹³ If the WTO is undermined due to stasis at the appellate body level, it is likely that countries will revert to strategic compliance and protectionist measures, as well as rely on bilateral or regional trade agreements where they exist. If the WTO is revived in the future, its approach to climate change should be significantly revamped. In moments of disruption and crisis there is opportunity for significant change and transitional relief.³⁹⁴ There is no doubt that we are now facing a

391. See Wu & Salzman, *supra* note 137, at 405 (discussing the “[c]lassic’ trade and environmental disputes” *Tuna/Dolphin* and *Shrimp/Turtle*).

392. See *US-Shrimp*, *supra* note 74, at ¶ 141 (arguing a regulation on shrimp imports should be interpreted in light of its environmental purpose of protecting sea turtles); *US-Gasoline*, *supra* note 85, at ¶¶ 6.21, 6.37 (interpreting Article XX(b) broadly to include a rule intended to reduce gasoline emissions and classifying clean air as an exhaustible natural resource for Article XX(b)’s purposes).

393. The second round of nationally determined contributions are due in 2020 and should demonstrate increased ambition on emissions reductions.

394. See Bruce R. Huber, *Transition Policy in Environmental Law*, 35 HARV. ENV’T. L. REV. 91, 94 (2011) (stating that in response to disruption, policy makers can choose between providing and withholding transitional relief for regulated entities).

climate crisis, and the relationship between the WTO and the Paris Agreement needs to be significantly revised.

Given the current inability of developing countries to rely on Article XX in energy disputes, their policy options are limited. In the short term, strategic compliance and the decline of multilateralism could benefit emerging economies if they use this policy space to increase the manufacture and diffusion of renewable energy through policies which are well designed, properly implemented, and have significant climate benefits. In the area of biofuels, protectionist measures by developed countries are detrimental to emerging economies, but may not be to the climate where biofuel policies do not have climate benefits.

In the longer term, if the WTO revives as the main trading arena, renewable energy disputes at the DSM are likely to escalate. Developing countries should tighten their domestic policies and rely on Article XX exceptions more effectively. The approach of the DSM and its interpretation of Article XX should also be revised. The WTO itself needs to have a stronger voice in areas of major global concern, including climate change.³⁹⁵ A stronger role of developing countries within the WTO is also key to its success.³⁹⁶ Adopting a more climate- and sustainable development-friendly interpretation of Article XX provisions could achieve this dual goal and result in a strengthened WTO system which is better adapted to the sustainable development aims of many of its member states, as well as a progressive (instead of a regressive) position on the critical issue of climate change. “[T]rade can provide a catalyst for bringing together regulators, civil society, business, and energy industries to help shape domestic decarbonization policies that meet climate mitigation goals”³⁹⁷ Developing countries are already an important laboratory for public policy and green growth, and existing strategies show great potential for simultaneous inclusive green growth and environmental protection.³⁹⁸ Where these initiatives

395. KLASSEN, *supra* note 47, at 82 (arguing that the WTO needs “to increase its participation in areas of crucial concern, for example on climate change”).

396. *Id.* at 80.

397. Elizabeth Trujillo, *International Trade*, in LEGAL PATHWAYS TO DEEP DECARBONIZATION IN THE UNITED STATES 197, 215 (Michael B. Gerrard & John C. Dernbach eds., 2019).

398. Burkolter & Perch, *supra* note 148, at 253 (concluding that developing countries in the global south are “a global laboratory for public policy” and “green growth efforts”).

have clear climate benefits, they should be fostered and encouraged by the WTO.