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Trade, Law *and* Development

Vol. 6, No. 1

2014

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Published by

The Registrar, National Law University, Jodhpur

ISSN : 0976-2329 | eISSN : 0975-3346

Kati Kulovesi, *Real or Imagined Controversies? A Climate Law Perspective on the growing links between the International Trade and Climate Change Regimes*
6(1) TRADE L. & DEV. 55 (2014)

REAL OR IMAGINED CONTROVERSIES? A CLIMATE LAW
PERSPECTIVE ON THE GROWING LINKS BETWEEN THE
INTERNATIONAL TRADE AND CLIMATE CHANGE REGIMES

KATI KULOVESI*

Substantive overlap between the UNFCCC and the WTO legal regimes is already considerable and such links can be expected to increase if governments undertake serious efforts to achieve the global climate target of limiting temperature increase to below 2°C from pre-industrial times. The article seeks to challenge scholarship which tends to approach the relationship between the WTO and UNFCCC with a focus on such (currently non-existent) climate policies that are potentially problematic from the point of view of WTO law. It highlights that while trade bans and border carbon adjustments targeting processes and production methods feature among the most prominent topics in the academic debate, there are currently no concrete examples of such climate policies. The article emphasizes that a focus on potential conflicts risks conveying the false impression that climate policies are typically problematic viewed from the WTO perspective. The author also argues that the most common climate policies affecting international trade, such as energy efficiency requirements, can often be designed and implemented in a way that is fully compatible with WTO law. Finally, the article highlights the important role that renewable energy is estimated to play in achieving the global 2°C climate target. It argues that this is an area where links between the WTO and climate policies have been most pronounced thus far, as illustrated by the recent surge of WTO dispute settlement consultations and anti-dumping disputes relating to the use of renewable energy.

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I. INTRODUCTION

There is substantial overlap between the United Nations Framework Convention on Climate Change (UNFCCC)¹ and the legal regime of the World Trade Organization (WTO). The past decade has witnessed a rapid proliferation of policies to address climate change. The recent report of the GLOBE International and the Grantham Research Institute on climate law analyzes 500 pieces of legislation in 66 countries.² Major economies, such as Brazil,³ China,⁴ the European Union (EU),⁵ India,⁶ Japan,⁷ Russia,⁸ South Africa,⁹ and the US¹⁰ are all

¹ United Nations Framework Convention on Climate Change, May 9, 1992, 31 I.L.M. 849 (entered into force Mar. 21, 1994) [hereinafter UNFCCC].

² M. NACHMANY ET AL., GLOBE INT'L & GRANTHAM RESEARCH INST., LONDON SCH. ECON., THE GLOBE CLIMATE LEGISLATION STUDY: A REVIEW OF CLIMATE LEGISLATION IN 66 COUNTRIES (4th ed. 2014), available at: <http://www.globeinternational.org/pdfviewer>.

³ Harolodo Machado-Filho, *Climate Change Policy and Legislation in Brazil*, in CLIMATE CHANGE AND THE LAW 639 (Erkki J. Hollo et al. eds., 2013).

⁴ Christopher Tung, *Sustainable Development and Climate Policy and Law in China*, in CLIMATE CHANGE AND THE LAW 597 (Erkki J. Hollo et al. eds., 2013).

⁵ Michael Mehling, Kati Kulovesi & Javier de Cendra, *Climate Law and Policy in the European Union: Accidental Success or Deliberate Leadership*, in CLIMATE CHANGE AND THE LAW 509 (Erkki J. Hollo et al. eds., 2013).

⁶ Patodia Rastogi, *India's Evolving Climate Change Strategy*, in CLIMATE CHANGE AND THE LAW 605 (Erkki J. Hollo et al. eds., 2013).

⁷ Hitomi Kimura, *Climate Law and Policy in Japan*, in CLIMATE CHANGE AND THE LAW 585 (Erkki J. Hollo et al. eds., 2013).

⁸ Yulia Yamineva, *Climate Law and Policy in Russia: A Peasant Needs Thunder to Cross Himself and Wonder*, in CLIMATE CHANGE AND THE LAW 551 (Erkki J. Hollo et al. eds., 2013).

implementing more or less ambitious policies to reduce greenhouse gas emissions, promote renewable energy and increase energy efficiency. Climate law has been identified as an emerging field of law and legal practice.¹¹ Climate law and international trade law are closely connected. According to the United Nations Conference on Trade and Development (UNCTAD), manufacturing for the purposes of exports was responsible for 27% of global carbon dioxide emissions in 2013.¹² Therefore, policies to control climate change are closely linked to the flow of goods, services and new climate-friendly technologies across borders. Further, these are issues covered by the various WTO Agreements.

Despite the increasing substantive overlap, the international climate regime under the UNFCCC and the international trade regime under the WTO have remained relatively distant. Indeed, in the past 20 years, these specialized areas of public international law have evolved largely in parallel,¹³ but instances of substantive and institutional cooperation between the two have been rare. Instead, at the international level, trade and climate change experts tend to form distinct professional communities. At the national level, the responsibility for WTO and the UNFCCC issues is often allocated to different ministries or departments. As the International Law Commission (ILC) notes in its famous report on the fragmentation of international law, the specialization of international law is not an accident but seeks to respond to new, technical and functional requirements. Further, “the emergence of ‘environmental law’ is a response to growing concern over the state of the international environment” while ‘trade law’ develops as an instrument to regulate international economic relations.¹⁴ While specialization has

⁹ Michael Kidd & Ed Couzens, *Climate Change Responses in South Africa*, in CLIMATE CHANGE AND THE LAW 619 (Erkki J. Hollo et al. eds., 2013).

¹⁰ Michael Mehling & David John Frenkil, *Climate Law in the United States: Facing Structural and Procedural Limitations*, in CLIMATE CHANGE AND THE LAW 473 (Erkki J. Hollo et al. eds., 2013).

¹¹ Jacqueline Peel, *Climate Change Law: The Emergence of a New Legal Discipline*, 32 MELBOURNE U. L. REV. (2008). I have also explored this issue in more detail in: Kati Kulovesi, *Exploring the Landscape of Climate Law and Scholarship: Two Emerging Trends*, in CLIMATE CHANGE AND THE LAW 31 (Erkki J. Hollo et al. eds., 2013).

¹² UNITED NATIONS CONFERENCE ON TRADE & DEV., WORLD INVESTMENT REPORT: 2013, 164 (2013), available at: http://unctad.org/en/publicationslibrary/wir2013_en.pdf [hereinafter UNCTAD].

¹³ The WTO Agreements were adopted in 1994 and the WTO was established in 1995. The UNFCCC was adopted in 1992, entered into force in 1994 and its first Conference of the Parties was held in 1995.

¹⁴ Study Grp. on Fragmentation of Int'l Law, *Fragmentation of International Law: Difficulties Arising from the Diversification and Expansion of International Law*, Int'l Law Comm'n, UN Doc. A/CN.4/L.682 (Apr. 13, 2006) (by Martti Koskenniemi).

its benefits, it also poses challenges to the coherence and consistency of international law as a whole.¹⁵

In academia, possible links between the two regimes have been actively explored and the relationship between climate change and trade is a popular research topic. Arguably, international legal scholarship tends to approach the relationship between the WTO and the UNFCCC with an embedded emphasis on WTO law. While most scholars acknowledge the seriousness of the climate change problem, their research tends to focus on how WTO law *constrains* climate policies or which climate policies might be *incompatible* with WTO law.¹⁶ Trade bans and border carbon adjustments (BCAs), including those targeting processes and production methods (PPMs), feature among the most popular topics.¹⁷ The underlying logic is that countries might use unilateral trade measures to overcome the perceived free-rider problem in global climate policy¹⁸ or that parties to an international climate agreement “could incorporate trade measures against non-joiners or non-compliers in the agreement itself.”¹⁹ However, there are few concrete examples of such climate policies; indeed, this article seeks to show that, in light of the current climate policy debate, trade bans and BCAs are *not* seen as the most prominent policies to mitigate greenhouse gas emissions.²⁰ This article also argues that the

¹⁵ The consequences for the relationship between the WTO and UNFCCC have been explored extensively in: HARRO VAN ASSELT, *THE FRAGMENTATION OF GLOBAL CLIMATE GOVERNANCE* Ch. 8 (2014) [hereinafter VAN ASSELT]; KATI KULOVESI, *THE WTO DISPUTE SETTLEMENT SYSTEM: CHALLENGES OF THE ENVIRONMENT, LEGITIMACY AND FRAGMENTATION* Ch. 6 (2011) [hereinafter KULOVESI, *THE WTO DISPUTE SETTLEMENT SYSTEM*].

¹⁶ For a great collection of more balanced papers, see INTERNATIONAL TRADE REGULATION AND THE MITIGATION OF CLIMATE CHANGE (Thomas Cottier, Sadeq Z. Bigdeli et al. eds., 2009).

¹⁷ For recent discussion, see for example, TRACEY EPPS & ANDREW GREEN, *RECONCILING TRADE AND CLIMATE: HOW THE WTO CAN HELP ADDRESS CLIMATE CHANGE* 56, 122 (2010) [hereinafter EPPS & GREEN]; Ludvine Tamiotti, *The Legal Interface Between Carbon Border Measures and Trade Rules*, 11 CLIMATE POL’Y 1202 (2011); Stéphanie Monjon & Philippe Quirion, *A Border Adjustment for the EU ETS: Reconciling WTO Rules and Capacity to Tackle Carbon Leakage*, 11 CLIMATE POL’Y 1212 (2011); Rafael Leal-Arcas, *Unilateral Trade-related Climate Change Measures*, 13 J. WORLD INVESTMENT & TRADE 888 (2012).

¹⁸ See EPPS & GREEN, *supra* note 17, at 56-58.

¹⁹ *Id.* at 59.

²⁰ For key policies and measures to mitigate climate change, see INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, *Summary for Policymakers*, in CLIMATE CHANGE 2014: MITIGATION OF CLIMATE CHANGE - CONTRIBUTION OF WORKING GROUP III TO THE FIFTH ASSESSMENT REPORT OF THE INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE (O. Edenhofer et al. eds., 2014) [hereinafter IPCC 2014 WG III SPM]. The 33-

continuing scholarly emphasis on such politically controversial but abstract measures risks conveying the false impression that climate policies are typically problematic from the WTO perspective. It may divert scholarly attention away from the real-world climate policy discussions and other such measures that countries are implementing and contemplating in practice. Arguably, the most relevant existing climate policies from the trade perspective include energy efficiency requirements and measures to promote renewable energy. The relationship between national policies to promote renewable energy, and WTO rules on subsidies and unfair trade practices in particular, seems to be emerging as the most acute testing ground for the mutual compatibility of international trade rules and global climate policy objectives. The increased focus on controversial but marginal climate policies such as BCAs and trade bans may also prevent scholars from exploring ways for the WTO and UNFCCC regimes to interact constructively. For example, such constructive interaction could be achieved by lowering tariffs for climate-friendly technologies or ensuring that unfair trade practices are not used in a way that is counter-productive for the development and deployment of clean technologies. The embedded emphasis on WTO law in academic debate also gives the impression that questions arising from WTO law and its underlying rationale are predominantly the relevant ones.²¹ However, seen from the equally valid perspective of the UNFCCC and its ultimate objective of preventing dangerous man-made climate change,²² the key research questions might include whether WTO rules unduly constrain the implementation of the necessary climate policies (such as clean energy subsidies and technology transfer); and whether it is feasible to ensure that in possible WTO disputes, the UNFCCC is given due consideration by the WTO dispute settlement bodies as a relevant rule of international law within the meaning of Article 31.3(c) of the Vienna Convention on the Law of Treaties.²³

The tendency of scholars to focus on the constraining role of WTO laws risk undermining the economic, social and environmental importance of addressing climate change. Unmitigated climate change presents a considerable danger to human life and health as well as social and economic well-being. Those opposing ambitious climate change mitigation policies sometimes falsely assume that 'doing nothing' will be cost-free. However, the current understanding is that it will be far more expensive in the long term to adapt to the negative consequences of climate

page Summary for Policymakers identifies key mid- and long-term measures to mitigate climate change but does not mention trade bans or BCAs.

²¹ The author has highlighted challenges in this regard in KULOVESI, THE WTO DISPUTE SETTLEMENT SYSTEM, *supra* note 15.

²² UNFCCC, *supra* note 1, art. 2.

²³ KULOVESI, THE WTO DISPUTE SETTLEMENT SYSTEM, *supra* note 15.

change than to mitigate it now by controlling greenhouse gas emissions.²⁴ On the positive side, many policies to mitigate climate change are known to have economic co-benefits. Some will also boost international trade and benefit developing countries as well as emerging economies. The recent growth in the renewable energy sector is a case in point. The International Renewable Energy Agency (IRENA) estimates that the sector currently employs 5.7 million people worldwide either directly or indirectly.²⁵ While Germany, Spain and the United States have traditionally been among the leaders in global renewable energy, countries like China, India and Brazil “have experienced tremendous expansion in the renewables sector over the past several years.”²⁶ China, for example, has emerged as “a formidable manufacturing competitor” in the solar PV industry.²⁷ Indeed, as discussed in Part III.C, these developments are also visible in the WTO dispute settlement system; and various recent anti-dumping and anti-subsidy investigations, including the largest such investigation ever conducted by the European Union, involving Chinese exports of solar panels and their components.

Recognizing the importance of international legal regimes and their underlying objectives, this article provides an overview of the growing substantive links between the UNFCCC and WTO legal regimes. It seeks to direct focus from abstract conflict scenarios between the UNFCCC and the WTO. Instead, it focuses on such climate policies that WTO Members are implementing in practice and those that will be necessary in the coming decades to achieve the goal of limiting the global average temperature increase to 2°C from the pre-industrial levels. The 2°C climate target was adopted by the Parties to the UNFCCC in 2010 as the threshold after which the negative impacts of climate change will become too risky. As discussed below, achieving this target remains possible, but extremely challenging. In order for the most cost-effective ways of achieving the 2°C target to succeed, climate policy efforts would need to be considerably stepped up by 2020. Furthermore, global greenhouse gas emissions would need to be 55% below 2010 levels in 2050.²⁸ Part II of this article focuses on explaining the climate change challenge and the global 2°C target. Part II.A highlights the economic and

²⁴ The most famous argument to this effect, estimating the cost of inaction between 5-20% of global Gross Domestic Product, can be found in NICHOLAS STERN, *THE ECONOMICS OF CLIMATE CHANGE: THE STERN REVIEW* (2006) [hereinafter STERN]. See also BERT METZ, *CONTROLLING CLIMATE CHANGE* (2010) (for broader discussion of the issue) [hereinafter METZ].

²⁵ INT’L RENEWABLE ENERGY AGENCY, *RENEWABLE ENERGY AND JOBS 10* (2013), <http://www.irena.org/rejobs.pdf>.

²⁶ *Id.* at 29.

²⁷ *Id.* at 32.

²⁸ UNITED NATIONS ENV’T PROGRAMME, *THE EMISSIONS GAP REPORT 2013: A UNEP SYNTHESIS REPORT* xiii, (2013), <http://www.unep.org/pdf/UNEPemissionsGapReport2013.pdf> [hereinafter UNEP].

development dimensions of climate change. Part II.B discusses climate policies needed to implement the 2°C goal. Part II.C outlines the current legal regime for climate change mitigation under the UNFCCC. Part III focuses on exploring substantive links between the UNFCCC and the WTO. Part III.A addresses trade bans and BCAs, with an emphasis on the climate policy perspective and (lack of) concrete examples. Part III.B discusses examples of climate policies that affect international trade and are implemented in practice, such as energy efficiency standards and trade restrictions for products containing particularly harmful greenhouse gases. It also provides an overview of the relevant WTO rules that might apply to such climate policies. Part III.C discusses support for green technologies using renewable energy as an example. One important area that is excluded from the scope of this article relates to institutional links and cooperation between the UNFCCC and WTO.²⁹ The article concludes that substantive links between the WTO and UNFCCC legal regimes are already considerable but while there may be many challenges, most climate policies can coexist peacefully with WTO obligations.

II. THE CLIMATE CHANGE CHALLENGE AND THE 2°C TARGET

A. Climate Change as a Developmental Challenge

Global action against climate change under the UNFCCC, an international treaty with 195 Parties, rests on solid scientific foundation. The main scientific authority for climate policymaking is the Intergovernmental Panel on Climate Change (IPCC), which is currently in the process of finalizing its Fifth Assessment Report (AR5) in 2014. Its periodic assessments of the latest scientific research on climate change have had a notable influence on the evolution of the UNFCCC legal regime. The AR5 is also expected to give impetus to ongoing attempts to conclude a new international climate agreement under the UNFCCC at the 21st session of its Conference of the Parties (COP 21) in Paris in 2015. The AR5 comprises four distinct reports. The first was based on the physical scientific basis of climate change and was finalized in September 2013. It confirms that “warming of the climate system is unequivocal.”³⁰ Global average temperatures have already

²⁹ The author has discussed institutional links extensively in KULOVESI, WTO DISPUTE SETTLEMENT SYSTEM, *supra* note 15, at Ch. 6; and in, Kati Kulovesi, *Climate Change and Trade: At the Intersection of Two International Legal Regimes*, in CLIMATE CHANGE AND THE LAW 419 (Erkki J. Hollo et al. eds., 2013).

³⁰ INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, *Summary for Policymakers*, in CLIMATE CHANGE 2013: THE PHYSICAL SCIENCE BASIS - CONTRIBUTION OF WORKING GROUP I TO THE FIFTH ASSESSMENT REPORT OF THE INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE (T. F. Stocker et al. eds., 2013).

increased by approximately 0.8°C from pre-industrial times.³¹ The third IPCC report on mitigation of climate change projects, that without additional climate policies, global average temperatures will rise between 3.7°C and 4.8°C by the year 2100.³² According to the second IPCC report on impacts, adaptation and vulnerability, some risks of climate change are “considerable” if temperatures increase between 1°C and 2°C from pre-industrial times.³³ The risks range from “high” to “very high” with a global mean temperature increase of 4°C or more.³⁴

Traditionally, climate change has been framed as an *environmental* problem. As the understanding of its consequences has improved, this view has proven to be too narrow. In particular, climate change threatens the lives and livelihoods of the world’s poorest people. The impacts of climate change include rising sea-levels, as well as increases in heat waves, droughts, floods, cyclones, wildfires and other climate-related extremes.³⁵ Climate-related extremes can disrupt food production and water supply, cause damage to infrastructure and settlements, claim human lives and have negative impacts on human health and well-being.³⁶ While science remains inconclusive about the time and scale of future negative impacts of climate change, this does not mean that climate change is an abstract threat in a distant future; some impacts of climate change have already been observed around the world.³⁷ For example, global temperatures are increasing, glaciers and sea-ice are melting and sea-levels are rising.³⁸ Changing precipitation or melting snow and ice are affecting the quantity and quality of water resources.³⁹ Negative impacts of climate change on yields of wheat and maize have already been observed.⁴⁰ In fact, many species have shifted their geographic ranges, seasonal activities and migration patterns in response to climate change.⁴¹ Extreme weather events are also known to have caused serious human and economic consequences across the globe. Supertyphoon Haiyan hit the Philippines in November 2013, killing more than

³¹ INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, *Summary for Policymakers*, in CLIMATE CHANGE 2014: IMPACTS, ADAPTATION AND VULNERABILITY. PART A: GLOBAL AND SECTORAL ASPECTS - CONTRIBUTION OF WORKING GROUP II TO THE FIFTH ASSESSMENT REPORT OF THE INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE (C. B. Field et al. eds., 2014) [hereinafter IPCC 2014 WG II SPM].

³² IPCC 2014 WG III SPM, *supra* note 20, at 9.

³³ IPCC 2014 WG II SPM, *supra* note 31. Part A of the report describes the already observed impacts of climate change.

³⁴ *Id.*

³⁵ *Id.*

³⁶ *Id.*

³⁷ *Id.*

³⁸ *Id.*

³⁹ *Id.*

⁴⁰ *Id.*

⁴¹ *Id.*

10,000 people and causing considerable destruction.⁴² In 2005, hurricane Katrina made landfall in the US, causing hundreds of deaths and considerable economic and environmental damage from central Florida to Texas.⁴³ The total losses from the hurricane Katrina amounted to more than USD 100 billion.⁴⁴ At least 80% of New Orleans was under water as a result of the storm⁴⁵ and around 1.5 million people were dislocated.⁴⁶ While such storms are projected to become more frequent with climate change, it is not possible to attribute Haiyan or Katrina, or any other individual weather event to climate change with certainty. Yet, these examples show that people, infrastructure and economies in both developed and developing countries remain vulnerable to extreme weather events. They also illustrate the challenges that the world would need to cope with at increasingly frequent intervals, if prompt and adequate action is not taken in order to control climate change. There are also limits to societies' abilities to adapt to climate change — it will not be possible to adapt to the melting of big ice sheets and subsequent large sea-level rise; loss of ecosystems and species; or to the loss of mountain glaciers that are vital to the water supply of large areas.⁴⁷

Furthermore, climate change has an important development dimension. Greenhouse gas emissions are driven by economic development, population growth, consumption patterns, technology choices, energy and land use, such as deforestation and agriculture.⁴⁸ Vulnerability to the negative impacts of climate change also depends on development.⁴⁹ Poor countries and poor people are often the most vulnerable, *inter alia*, due to their dependency on agriculture and sensitivity to changing rainfall patterns, heat waves, droughts, storms and flooding.⁵⁰ The development dimension is also linked to climate change mitigation. Indeed, the relationship between developed and developing countries has been a defining feature of global climate policy discussions under the UNFCCC since the early 1990s. Some greenhouse gases, such as carbon dioxide, can remain in the atmosphere for long periods of time and developed countries used to be

⁴² *Typhoon Haiyan: Thousands Feared Dead in the Philippines*, BBC NEWS ASIA (Nov. 10, 2013), <http://www.bbc.com/news/world-asia-24887337>.

⁴³ US National Oceanic and Atmospheric Administration, *Hurricane Katrina*, NATIONAL CLIMATE DATA CENTRE (2005), <http://www.ncdc.noaa.gov/extremeevents/specialreports/Hurricane-Katrina.pdf>.

⁴⁴ *Id.*

⁴⁵ *Id.*

⁴⁶ Jeffrey A. Groen & Anne E. Polivka, *Hurricane Katarina Evacuees: Who they are, where they are and how are they faring*, MONTHLY LAB. REV. 32 (Bureau of Lab. Stat., Wash.) 2008, <http://www.bls.gov/opub/mlr/2008/03/art3full.pdf>.

⁴⁷ METZ, *supra* note 24, at 65.

⁴⁸ *Id.* at 78.

⁴⁹ *Id.*

⁵⁰ *Id.*

historically responsible for a higher cumulative share of greenhouse gas emissions since 1850.⁵¹ Moreover, their *per capita* emissions tend to be much higher than those of developing countries.⁵² However, the situation with respect to absolute emissions has changed rapidly in the past decade. Developing countries were responsible for 60% of global greenhouse gas emissions in 2010.⁵³ According to the United Nations Environment Programme (UNEP), developing and developed countries are currently responsible for roughly equal shares of cumulative greenhouse gas emissions for the period from 1850-2010.⁵⁴

The approach under the UNFCCC since 1992 has been one where developed countries are to take the lead in international efforts to control climate change. This is reflected, *inter alia*, in Article 3.1 of the Convention, which contains the principle of common but differentiated responsibilities and respective capabilities,⁵⁵ and in the legal structure which divides Parties to the UNFCCC into Annex I and non-Annex I countries. The list of 43 Annex I countries comprises mainly those countries that were considered as developed ones (and their successors) in 1992 when the UNFCCC was adopted.⁵⁶ The vast majority of the UNFCCC Parties are legally known as non-Annex I countries. This heterogeneous group includes large emerging economies, such as Brazil, China, India, and South Africa with significant greenhouse gas emissions, as well as rich fossil-fuel-producing nations, such as Saudi Arabia, Qatar and United Arab Emirates. At the other extreme, non-Annex I countries include small island developing countries and least developed countries (LDCs) that have low greenhouse gas emissions but are particularly vulnerable to the negative impacts of climate change. A recent feature of UNFCCC negotiations is the emergence of increasingly pronounced differences among non-Annex I countries.⁵⁷ At one end, the group of like-minded Developing Countries (including China, India, the Philippines, Syria, Qatar, Saudi

⁵¹ *Id.*

⁵² *Id.*

⁵³ UNEP, *supra* note 28.

⁵⁴ *Id.*

⁵⁵ UNFCCC, *supra* note 1. See also the Convention's preamble of the UNFCCC, which reflected the situation in the early 1990s and notes that "the largest share of historical and current global emissions of greenhouse gases has originated in developed countries, that *per capita* emissions in developing countries are still relatively low and that the share of global emissions originating in developing countries will grow to meet their social and development needs."

⁵⁶ *The List of Annex I Countries*, UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE, https://unfccc.int/parties_and_observers/parties/annex_i/items/2774.php. Countries like Cyprus and Malta were recently added to the Annex I at their own request after they joined the European Union and were required to implement its climate policies.

⁵⁷ Kati Kulovesi, *A New Chapter in the UN Climate Change Negotiations? First Steps under the Durban Platform for Enhanced Action*, 3 CLIMATE LAW 181 (2012).

Arabia, Venezuela, Bolivia and several others) strive to maintain the existing division between Annex I and non-Annex I countries, with an emphasis on developed country mitigation. However, some developing countries, including those projected to suffer the most from negative impacts of climate change, are increasingly supporting mitigation action by all countries in accordance with their respective capabilities. Among the most prominent supporters of this view is a new coalition known as the Association of Independent Latin American Countries (with Chile, Colombia, Costa Rica, Guatemala, Panama, and Peru). What still unifies the developing countries is their position that developed countries should significantly step up the provision of financial and technological support to non-Annex I countries for the purposes of climate change mitigation and adaptation.

In light of current emissions trends, it is clear that dangerous levels of climate change cannot be avoided without significant action by both developed and key developing countries.⁵⁸ Developing country emissions comprised more than half of the global emissions in 2010 and grew during the preceding decade by an amount that eventually accounted for the total global emissions rise.⁵⁹ Without mitigation action, developing country emissions will continue to drive the growth of global emissions.⁶⁰ In comparison, emissions by the European Union Member States as a whole were 19.2% lower in 2012 than in 1990.⁶¹ In light of scientific estimates, it is not possible to limit global average temperature increase to below 2°C without developing country action.⁶² Indeed, *global* greenhouse gas emissions must be reduced to close to *zero* during the second half of this century in order to avoid dangerous levels of climate change.⁶³ This reality is reflected in the current negotiating mandate under the UNFCCC for a 2015 climate agreement in the sense that the ongoing negotiations are aiming for an instrument that applies to all

⁵⁸ INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, *Technical Summary*, in CLIMATE CHANGE 2014: MITIGATION OF CLIMATE CHANGE - CONTRIBUTION OF WORKING GROUP III TO THE FIFTH ASSESSMENT REPORT OF THE INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, Chapter 4, Box 4.1 (O. Edenhofer et al. eds., 2014).

⁵⁹ *Id.*

⁶⁰ *Id.*

⁶¹ EUROPEAN ENVIRONMENT AGENCY, ANNUAL EUROPEAN UNION GREENHOUSE GAS INVENTORY 1990-2012 AND INVENTORY REPORT 2014: SUBMISSIONS TO THE UNFCCC SECRETARIAT (2014), *available at* <http://www.eea.europa.eu/publications/european-union-greenhouse-gas-inventory-2014>. This emission calculation excludes the land use, land-use change and forestry sector.

⁶² To reach the 2°C target with a reasonable likelihood, *global* greenhouse gas emissions should be 40-70% lower in 2050 than in 2010, and close to *zero* in 2100. See IPCC 2014 WG III SPM, *supra* note 20, at 13.

⁶³ *Id.* at 12.

parties.⁶⁴ Regardless of this historically broad mandate, the application of the principle of common but differentiated responsibility and the division of responsibilities between Annex I and non-Annex I countries remains a highly contentious issue in the global climate change negotiations under the UNFCCC. However, the persistent controversy over the division of responsibilities under the UNFCCC is only a part of the entire image. A number of developing countries and emerging economies have adopted ambitious national climate targets and many are also implementing a range of climate change mitigation policies, sometimes with the help of donor countries and organisations. To list a few examples, China has pledged to reduce its carbon dioxide emissions by 40-45% per unit of Gross Domestic Product (GDP) by 2020 compared with the 2005 level, while India has indicated it aims to cut the emissions intensity of its GDP by 20-25% during the same period.⁶⁵ The Republic of Korea aims to reduce its greenhouse gas emissions by 30% by 2020 in comparison to the business-as-usual scenario, South Africa by 34%, Singapore by 16% and Brazil by 36.1%-38.9%.⁶⁶ Costa Rica and Maldives have adopted the goal of becoming carbon neutral and Bhutan intends to ensure that its greenhouse gas emissions do not exceed its capacity to sequester them.⁶⁷ Thus, the lack of international mitigation commitments by developing countries under the UNFCCC should not be mistaken for a complete lack of climate change mitigation action by developing countries at a national level. However, the challenge that remains is to ensure that countries' individual and largely uncoordinated national efforts lead to an adequate level of collective ambition globally.

B. Climate Policies to Achieve 2°C Climate Target

According to Article 2, the ultimate objective of the UNFCCC is the “stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system”. In 2010, its Parties set a more specific global goal of limiting the global average temperature increase to below 2°C from pre-industrial times. While the target was formally adopted only at the 2010 UN Climate Change Conference in Cancun,⁶⁸ its history is considerably

⁶⁴ United Nations Framework Convention on Climate Change Decision 1/CP.17, Establishment of the Ad Hoc Working Group on the Durban Platform for Enhanced Action, 17th Sess., Mar. 15, 2012, UN Doc. FCCC/CP/2011/9/Add.1 (Mar. 15, 2012).

⁶⁵ Kelly Levin & Jared Finnegan, *Non-Annex I Pledges: Building a Case for Clarification*, World Resources Institute Working Paper, Dec. 2011, available at: http://www.wri.org/sites/default/files/assessing_non_annex_I_pledges.pdf [hereinafter Levin and Finnegan].

⁶⁶ *Id.*

⁶⁷ *Id.*

⁶⁸ United Nations Framework Convention on Climate Change Decision 1/CP.16, The Cancun Agreements Outcome of the Work of the Ad Hoc Working Group on Long-term

longer.⁶⁹ The 2°C target was originally formulated by the European Union (EU) in 1996 as the cornerstone of its climate policy. It was based on the EU's analysis of the Second Assessment Report by the IPCC. When formulating the target, the EU took into account the costs, co-benefits and required policies in order to achieve the 2°C target.⁷⁰ In 2009, the target was endorsed by the G-8⁷¹ and was subsequently included in the Copenhagen Accord at the famous 2009 UN Climate Change Conference in Copenhagen where more than 120 heads of State and government participated.⁷² Its formal adoption by the COP 16 in 2010 was a significant achievement to specify what the ultimate objective of the UNFCCC means in terms of climate change mitigation and adaptation.⁷³ However, the more ambitious 1°C and 1.5°C targets were also on the table, promoted by developing countries that are particularly vulnerable to the adverse impacts of climate change, who argued that the consequences of 2°C increase in global average warming will hit them too hard. As a compromise, the UNFCCC Parties agreed that the adequacy of the 2°C target and progress towards achieving it will be subject to a review in 2013-2015.⁷⁴ The 2°C target has been criticised by climate scientists who doubt its efficacy due to the difficulties involved in establishing such a target in the context of uncertainties about climate sensitivity; by economists for being too costly; and by researchers focusing on the science-policy interface for "forcing a rather tenuous policy debate that has detracted from the process of reducing emissions."⁷⁵ However, the 2°C target forms the cornerstone of current global climate policy efforts under the UNFCCC.

Cooperative Action under the Convention, 16th Sess., Mar. 15, 2011, UN Doc. FCCC/CP/2010/7/Add.1, ¶ 4 (Mar. 15, 2011) [hereinafter Decision 1/CP.16].

⁶⁹ For a comprehensive overview, see Samuel Randalls, *History of the 2°C Climate Target*, 1 WILEY INTERDISC. REV.: CLIMATE CHANGE 598 (2010) [hereinafter Randalls].

⁷⁰ METZ, *supra* note 24, at 75.

⁷¹ *Leaders' Declaration, Responsible Leadership for a Sustainable Future*, GROUP OF 8 (G8), ¶ 65 (July 10, 2009),

http://www.g8italia2009.it/static/G8_Allegato/G8_Declaration_08_07_09_final%2c0.pdf

⁷² United Nations Framework Convention on Climate Change Decision 2/CP.15, The Copenhagen Accord, UN Doc. FCCC/CP/2009/11/Add.1 (Mar. 30, 2010).

⁷³ Note, however, that Bolivia objected to the adoption of the so-called *Cancun Agreements* at COP 16. Decision 1/CP.16, *supra* note 68.

⁷⁴ *Id.* ¶¶ 138-140.

⁷⁵ This overview of critical arguments is based on Randalls, *supra* note 69, at 603. For recent critical analysis, see also Andrew Jordan et al., *Going beyond two degrees? The risks and opportunities of alternative options*, 13 CLIMATE POL'Y 751 (2013). Implicitly, the conclusion that the 2°C target is too costly can be drawn from the famous *Stern Review of the Economics of Climate Change*, which concludes that "it would already be very difficult and costly to stabilise at 450 ppm CO₂ equivalent (parts per million of carbon dioxide equivalent, KK)." See STERN, *supra* note 24, at xvii. This is because stabilisation of greenhouse gas levels in

Nonetheless, achieving the 2°C target will be a challenging task. Since its adoption under the UNFCCC in 2010, UNEP has produced annual reports assessing whether mitigation efforts under the UNFCCC are consistent with the 2°C target. UNEP's most recent report in 2013 concluded that global greenhouse gas emissions continue to rise instead of declining, and therefore it is increasingly unlikely that emissions in 2020 will be low enough to be on the least-cost pathway of meeting the 2°C target.⁷⁶ This means that countries will have to resort to more expensive and riskier policy options for meeting the 2°C target, with the door closing on most policy options for meeting the 1.5°C target.⁷⁷ The later the global greenhouse gas emissions peak, the stronger the action required after the peak, which may be unfeasible both technologically and economically. For least-cost scenarios to meet the 2°C target, emission reduction rates in 2030–2050 would have to be at 2–4.5 % per year.⁷⁸ In comparison, global greenhouse gas emissions grew by an average of 2.2% during the past decade from 2000 to 2010;⁷⁹ hence, the task is relatively ambitious. However, if action is delayed, the corresponding annual emission reduction rates would have to be substantially higher. For example, they would have to be at about 6–8.5% if emission reductions remain modest until 2030.⁸⁰ Such higher emission reduction rates are without historical precedent.⁸¹ The later-action scenarios also include fewer climate policy options because of 'carbon-locking,' and in other words, the continuing use and construction of carbon-intensive infrastructure and technologies with life-times of up to several decades.⁸²

In climate policy discussions, reference is commonly made to 'the emissions gap' – the difference between projected emissions in 2020 and emissions levels consistent with meeting the 2°C target.⁸³ UNEP⁸⁴ and the International Energy Agency (IEA)⁸⁵ have worked to identify climate policies that could be implemented to close the gap. Their reports show that there is still technical potential to close the

the atmosphere at 450 ppm CO₂ equivalent by 2100 is likely to achieve the 2°C target. See IPCC 2014 WG III SPM, *supra* note 20.

⁷⁶ UNEP, *supra* note 28.

⁷⁷ *Id.*

⁷⁸ *Id.* at xiii.

⁷⁹ IPCC 2014 WG III SPM, *supra* note 20, at 6.

⁸⁰ UNEP, *supra* note 28, at xiii.

⁸¹ *Id.*

⁸² *Id.*

⁸³ *Id.*

⁸⁴ *Id.*

⁸⁵ INT'L ENERGY AGENCY, REDRAWING THE CLIMATE-ENERGY MAP: WORLD ENERGY OUTLOOK SPECIAL REPORT (2013), *available at*: <http://www.worldenergyoutlook.org/media/weowebiste/2013/energyclimatemap/RedrawingEnergyClimateMap.pdf> [hereinafter IEA].

‘emissions gap’ by 2020. The UNEP identifies international cooperative initiatives as part of the solution with a focus on the following issues: energy efficiency enhancements; fossil fuel subsidy reform; reducing emissions from methane or short-lived climate pollutants; and increasing renewable energy.⁸⁶ Key measures identified by the IEA for the energy sector are: energy efficiency measures; limits to the use and construction of inefficient coal power plants; minimizing methane releases to the atmosphere in oil and gas production; and the partial phase-out of fossil fuel subsidies.⁸⁷ In addition, the recent IPCC report on mitigation of climate change analyses mitigation options in various economic sectors.⁸⁸ Interestingly for the discussion in Part III of this article, none of these three reports that identify key climate policies even mentions such controversial climate policies such as BCAs and trade bans. Furthermore, one stream of international climate negotiations under the UNFCCC focuses mostly on closing the ‘emissions gap’, trying to reach agreement on the implementation of new climate policies before 2020.⁸⁹

C. The Mitigation Regime under the UNFCCC

The UNFCCC does not prescribe any trade measures. It also leaves its Parties wide scope to choose which climate policies to implement. The main reason for this is that the question of allocating responsibilities for climate change mitigation among countries is politically highly sensitive, as it concerns the idea of an international instrument stipulating national policies in crucial sectors, such as energy and industry. Prescribing detailed mitigation policies in an international agreement would also be difficult because greenhouse gas emissions originate from a broad range of economic activities, including industry, energy, agriculture, forestry, transport and waste. Different countries have highly divergent emission profiles. For some countries, key emissions sources are power-generation and industrial production, while for others, deforestation and agriculture are significant drivers of greenhouse gas emissions. Countries’ potential for renewable energy and energy efficiency improvements also varies considerably, as does their economic development. Thus, there is no one-size-fits-all-countries solution to climate change mitigation. In light of this, in my assessment, it is highly unlikely that specific climate change mitigation measures will be prescribed under the UNFCCC in the future.

⁸⁶ UNEP, *supra* note 28, at xvi.

⁸⁷ IEA, *supra* note 85.

⁸⁸ IPCC 2014 WG III SPM, *supra* note 20.

⁸⁹ This is known as *Workstream 2* of the Ad Hoc Working Group on the Durban Platform for Enhanced Action, also tasked with negotiating a 2015 climate agreement.

The current legal regime for climate change mitigation under the UNFCCC is a mix of binding and non-binding approaches. This complexity has its roots in a long-standing philosophical divide between the EU and the US on the role of international law and the UNFCCC in global climate policy,⁹⁰ as well as in persistent differences between developed and developing countries. As Bodansky explains, the EU has, since the early days of the UNFCCC, preferred a top-down regime with economy-wide, legally-binding targets, while the US advocates for a bottom-up approach with an emphasis on nationally-determined goals and softer international controls.⁹¹ When it comes to the relationship between developed and developing countries, non-Annex I countries have traditionally insisted that Annex I countries must take the lead, given their historical responsibility for greenhouse gas emissions and better capacity to act.

The current system in the UNFCCC combines both top-down and bottom-up approaches, with the bottom-up approach being the dominant one since the 2009 UN Climate Change Conference in Copenhagen. In contrast, the Kyoto Protocol, adopted in 1997, follows a top-down approach and includes legally binding emission reduction targets for Annex I countries. The US was the most notable developed country that decided to remain outside the Kyoto Protocol, considerably weakening the Protocol's environmental impact given that the US was the world's largest emitter of greenhouse gas emissions until China took its place approximately a decade ago. While Canada hosted the Kyoto Protocol's COP/MOP 1, it eventually withdrew from the Protocol due to its inability to meet its emission reduction target.⁹² The Kyoto Protocol's first commitment period extended from 2008 to 2012. The question of subsequent commitment periods, or the 'post-2012 era,' was subject to prolonged negotiations among Kyoto Protocol Parties in 2005-2012. In parallel, negotiations took place under the UNFCCC on a possible new climate change protocol that was originally scheduled for adoption at the 2009 UN Climate Change Conference in Copenhagen. While there were considerable divergences, many countries hoped that the new protocol would include the US and other major emitters. Ultimately, the results were weaker than what was expected. The attempted new protocol became an extensive package of COP decisions known as Cancun Agreements, which created a number of new institutions under the UNFCCC but were dangerously weak in terms of mitigation measures.⁹³ The second commitment period under the Kyoto Protocol was

⁹⁰ Daniel Bodansky, *The Tale of Two Architectures: The Once and Future UN Climate Change Regime*, 43 ARIZ. ST. L. J. 697 (2011) [hereinafter Bodansky].

⁹¹ *Id.*

⁹² *Canada to Withdraw from the Kyoto Protocol*, BBC NEWS: US AND CANADA (Dec. 13, 2011), <http://www.bbc.co.uk/news/world-us-canada-16151310>. Canada's emissions are projected to increase between 16-30% from 1990 levels instead of the 6% cut required by the Kyoto Protocol.

⁹³ Decision 1/CP.16, *supra* note 68.

formally agreed upon in Doha, Qatar in 2012. It will be applicable from 2013 to 2020. However, its significance is mostly symbolic. Some key developed countries, including Japan and Russia, who are protesting the absence of a global climate agreement, will not participate in the second commitment period. The key participants in the Kyoto Protocol are the EU and its 28 Member States, as well as Australia, Norway, Switzerland, Iceland and some eastern European countries.

In contrast to the weakened Kyoto Protocol, the majority of global greenhouse gas emissions fall under a bottom-up mitigation regime under the UNFCCC. The system, covering, *inter alia*, the US, Russia, Japan, Brazil, China, India, South Africa and various developing countries, is based on mitigation pledges, i.e., countries' voluntary announcement of domestic climate policy objectives that have been communicated to the UNFCCC Secretariat and compiled into two information documents; one for Annex I⁹⁴ and the other for non-Annex I countries.⁹⁵ Many of these announcements were made in connection with the 2009 UN Climate Change Conference in Copenhagen. The system has been groundbreaking from the perspective that it engages a number of developing countries in climate change mitigation efforts under the UNFCCC. However, the collective level of ambition of climate change mitigation efforts remains an important concern with the bottom-up approach – as noted above, current climate policy efforts are not on track to meet the 2°C target. The legal status of the bottom-up mitigation pledges, which are essentially countries' unilateral declarations, is weaker under international law as compared to a situation where they were included in a legally-binding multilateral agreement.⁹⁶ Moreover, some of the pledges are conditional and many use diverse indicators, thereby making them difficult to compare.⁹⁷ Finally, there are no mechanisms to ensure their implementation and countries remain free to change their pledges when circumstances change. This has already happened, for example, with Japan, who lowered the ambition of its climate policy objectives considerably in the aftermath of the Fukushima nuclear accident in 2011.⁹⁸ The US pledge to reduce emissions by 17% from 2005 levels by 2020 is also conditional on

⁹⁴ Compilation of economy-wide emission reduction targets to be implemented by Parties included in Annex I to the Convention, United Nations Framework Convention on Climate Change, U.N. Doc. FCCC/SB/2011/Inf.1/Rev.1 (June 7, 2011).

⁹⁵ Compilation of information on nationally appropriate mitigation actions to be implemented by developing country Parties, United Nations Framework Convention on Climate Change, U.N. Doc. FCCC/SB/2011/INF.12/Rev.2 (May 28, 2013).

⁹⁶ For comparison of the bottom-up and top-down approaches, see Bodansky, *supra* note 90, at 710-13.

⁹⁷ Levin & Finnegan, *supra* note 65.

⁹⁸ *Japan slashes climate reduction target amid nuclear shutdown*, BBC NEWS: ASIA (Nov. 15, 2013), <http://www.bbc.com/news/world-asia-24952155>. Accordingly, the original target was to reduce greenhouse gas emissions by 25% from 1990 levels by 2020. The new target is to increase emissions by 3% from 1990 levels by 2020.

the adoption of domestic legislation that never came to being. Given the various challenges with the current bottom-up system, many are hoping that the ongoing negotiations under the UNFCCC, which is scheduled to culminate in Paris at the end of 2015, will result in a new global climate change agreement.

III. SUBSTANTIVE LINKS BETWEEN THE UNFCCC AND THE WTO

A. Much Ado About Nothing: Trade Bans and Border Carbon Adjustments from a Climate Policy Perspective

Traditionally, the debate on the WTO and the environment has had a particular emphasis on trade bans and other environmentally-motivated measures addressing PPMs. Much of the environmental jurisprudence under the General Agreement on Tariffs and Trade (GATT) and the WTO, including the famous *Tuna-Dolphin*⁹⁹ and *Shrimp-Turtle*¹⁰⁰ cases, has dealt with these questions. A lot has also been written about the relationship between the WTO and multilateral environmental agreements (MEAs) from the perspective of asking whether trade bans implemented on the basis of an MEA are compatible with WTO law. Some existing MEAs, including the Montreal Protocol on Substances that Deplete the Ozone Layer,¹⁰¹ incorporate trade bans in their toolbox, even if such measures are not necessarily implemented in practice. While, as shown above, trade bans and BCAs are not the most relevant measures from the climate policy perspective, they have played a prominent role in the discussion on trade and climate change. Drawing examples perhaps from the traditional debate on the WTO and the environment, several scholars have analysed compatibility of WTO-law with possible trade bans introduced under the UNFCCC and/or its existing or future protocols.¹⁰² There is also a lively academic debate on the compatibility of WTO law with BCAs and similar measures aiming to prevent carbon leakage by addressing PPMs. Carbon leakage can be defined as “the displacement of economic activities and/or changes in investment patterns, that directly or indirectly cause GHG emissions to be displaced from a jurisdiction with GHG

⁹⁹ Panel Report, *United States - Restrictions on Imports of Tuna*, DS21/R-39S/155 (Sept. 3, 1991).

¹⁰⁰ Appellate Body Report, *United States- Import Prohibition of Certain Shrimp and Shrimp Products*, WT/DS58/AB/R (Oct. 12, 1998).

¹⁰¹ The Montreal Protocol on Substances that Deplete the Ozone Layer, Sept. 16, 1987, 1522 U.N.T.S. 3.

¹⁰² See, e.g., Robert Howse & Antonia L. Eliason, *Domestic and International Strategies to Address Climate Change: An Overview of the WTO Legal Issues*, in INTERNATIONAL TRADE REGULATION AND THE MITIGATION OF CLIMATE CHANGE 59 (Thomas Cottier et al. eds., 2010) [hereinafter Howse & Eliason]; EPPS & GREEN, *supra* note 17, at 228.

constraints, to another jurisdiction, with no or less GHG constraints.”¹⁰³ From a developing country perspective, it has also been referred to as “offshoring emissions” - their export-oriented industrialization has led to a higher proportion of greenhouse gas emissions being caused by final demand outside developing country borders in comparison to developed countries.¹⁰⁴ Given that a lot has already been written about these issues from the point of view of WTO law and a conclusive legal assessment is difficult without concrete examples, the objective of this part is to address these questions with an emphasis on the climate policy perspective. The key conclusion from this exercise is that while trade bans and BCAs are the leading topics in the scholarly debate viewed from the perspective of WTO law, their relevance in the current climate policy environment is questionable. Indeed, there are no existing examples of such climate policies being implemented. More importantly, as discussed in Part II, trade bans and BCAs are not among the key climate policies aimed at achieving the 2°C target identified by institutions, such as IEA, UNEP, IPCC and the European Commission.

During the 20-year history of the Convention, UNFCCC Parties have shown no serious interest in introducing trade bans collectively. Recent negotiations on what many countries hoped would become a new protocol under the UNFCCC serve to demonstrate this point. Ahead of the 2009 UN Climate Change Conference in Copenhagen, a 200-page negotiating text was developed under the UNFCCC.¹⁰⁵ The text compiled, without discrimination, proposals made by UNFCCC Parties on issues they hoped to include in a potential new protocol under the UNFCCC. The vast majority of the 195 Parties to the UNFCCC submitted proposals either individually or as part of a negotiating group. The proposals addressed a broad range of topics from climate change mitigation to adaptation, finance, technology and capacity building. Notably, the compiled UNFCCC negotiating text contained no proposal to introduce trade bans under the UNFCCC.¹⁰⁶ No such proposals have been put forward in the ongoing negotiations for a 2015 climate agreement either. The only reference to possible trade measures in the 2009 negotiating text can be found in the specific context of protecting developing country forests, where some countries proposed the need for “forest law enforcement, governance and trade measures” to ensure that biofuels and other mitigation actions do not contribute to deforestation and forest degradation in developing countries.¹⁰⁷ This proposal was not accepted. Contrasting the lack of proposals to introduce trade

¹⁰³ ANDREI MARCU ET AL., CTR. FOR EUROPEAN POLICY STUDIES, CARBON LEAKAGE: AN OVERVIEW 2 (2013), *available at*: <http://www.ceps.eu/book/carbon-leakage-overview>.

¹⁰⁴ UNCTAD, *supra* note 12, at 164.

¹⁰⁵ Revised Negotiating Text, United Nations Framework Convention on Climate Change, 6th Sess., June 1-12, 2009, U.N. Doc. FCCC/AWG-LCA/2009/INF.1 (June 22, 2009).

¹⁰⁶ *Id.*

¹⁰⁷ *Id.*

bans, the 2009 negotiating text included several (unadopted) proposals emphasizing the need to ensure that climate policies will not result in the introduction of trade barriers or punitive trade measures.¹⁰⁸ In the technology context, there were (unadopted) proposals to support developing countries in promoting labour-intensive exports and trade liberalization.¹⁰⁹ Other (unadopted) trade-relevant proposals related to the controversial issue of intellectual property and easier access to climate technologies.¹¹⁰ This goes to show that the discussion on the possible WTO compatibility of trade bans adopted under the UNFCCC and its protocols is not very relevant from the climate policy perspective. Given the enormous complexity of climate change, trade bans under the UNFCCC are simply not seen as an effective way to mitigate climate change.

Scholars have also analysed the WTO-law compatibility of possible unilateral trade measures, “such as banning all imports from a country not taking climate change action or just imports from a particular harmful sector.”¹¹¹ In addition, this discussion remains at the abstract level. As explained earlier, while there is no global climate agreement, climate law is expanding rapidly at regional and national levels and a number of countries are currently taking action against climate change. Thus, there is less scope for finger-pointing and singling out free-riders as there was a decade ago. For example, all major economies are implementing policies that reduce greenhouse gas emissions even if the collective effort is not ambitious enough to achieve the global goal of limiting temperature increase to 2°C.¹¹² Further, the negative economic, diplomatic and WTO law implications of trade bans targeting particular countries tend to be well understood, preventing countries from seriously considering such approaches with their key trading partners. The discussion therefore shifted towards border carbon adjustments (BCAs), or in other words, taxes on greenhouse gas emissions applied at the border, or the inclusion of imports into national or regional greenhouse gas emission trading schemes. When considering such measures from the WTO law perspective, the concept of border tax adjustment defined in Article II:2(b) of the GATT would be relevant,¹¹³ along with the most-favoured nation (MFN) and national treatment principles found, in Articles I and III:2 of the GATT respectively.¹¹⁴ The discussion also involves the notion of production methods and processes (PPMs) as the likely target of such measures would be emissions generated during the manufacturing process rather than those generated by the finished product itself.¹¹⁵

¹⁰⁸ *Id.* ¶ 130.

¹⁰⁹ *Id.* ¶ 180, alternative to sub-paragraph (h) and (i).

¹¹⁰ *See, e.g., id.* ¶ 187.

¹¹¹ EPPS & GREEN, *supra* note 17, at 211. Similarly, Howse & Eliason, *supra* note 102, at 59.

¹¹² *See supra* notes 4-11.

¹¹³ Howse & Eliason, *supra* note 102, at 62.

¹¹⁴ *Id.* at 62-73.

¹¹⁵ For comprehensive analysis see, *id.* at 64-9.

While the academic debate on BCAs has been lively, such measures have not been implemented in practice. From the climate policy perspective, the debate on trade bans and BCAs is best understood in the historical context in which it emerged. The Kyoto Protocol was adopted in 1997. From the beginning of the negotiations leading to the adoption of the Kyoto Protocol, the absence of developing country mitigation commitments generated controversy, especially in the US. Shortly after taking over the White House in 2001, President George W. Bush announced that he would not be presenting the Protocol to the Congress for ratification. The EU, however, decided to strengthen its global leadership role in the battle against climate change and ratified the Protocol even if one of its key trading partners remained outside.¹¹⁶ The EU also introduced measures to implement its 8% emission reduction target in 2008-12, launching the EU Emissions Trading Scheme that covers around 40% of the EU's greenhouse gas emissions in energy intensive economic sectors. The fact that the EU moved ahead alone to introduce a price for greenhouse gas emissions while emitting greenhouse gases remained free outside Europe naturally caused fears in the EU that its climate change mitigation policies would be harmful for the European economy. At the same time, the US stance on climate change was widely seen as irresponsible in Europe and elsewhere. The idea surfaced that the EU should target imports from the US to compensate for its 'free-rider' climate policy and to try to exert economic and diplomatic pressure on the US to join international climate change efforts.¹¹⁷

However, the proposal of targeting imports from the US never gained serious political backing in the EU.¹¹⁸ Moreover, when the Kyoto Protocol's first commitment period commenced in 2008, there were already strong signals that the next US administration would be from the Democratic Party and would take climate change more seriously than the Republican administration under Bush Jr. Instead of implementing trade measures, the EU thus focused its efforts on

¹¹⁶ For an overview, see Kati Kulovesi, *Climate Change in the EU External Relations: Please Follow My Example (or I Might Force You To)*, in *THE EXTERNAL ENVIRONMENTAL POLICY OF THE EUROPEAN UNION: EU AND INTERNATIONAL LAW PERSPECTIVES* 115 (Elisa Morgera ed., 2012) [hereinafter Kulovesi, *Climate Change in the EU External Relations*].

¹¹⁷ See, e.g., Frank Biermann & Rainer Brohm, *Implementing the Kyoto Protocol Without the United States: The Strategic Role of Energy Tax Adjustments at the Border*, 4 *CLIMATE POL'Y* 289 (2005). Biermann & Brohm suggest that the EU should adjust energy taxes at the border, targeting non-European industrialized countries, or, alternatively, that the 'Kyoto coalition' should target such countries that will not ratify the Protocol.

¹¹⁸ See, e.g., Howse & Eliason, *supra* note 102, at 59. They rightly point out that "such a drastic measure would clearly be both politically and economically unfeasible" as "production chains are highly integrated between Kyoto- and non-Kyoto countries – especially the US and the EU – industrial activity in the EU would be seriously disrupted, and many jobs in the EU threatened by such an embargo."

mobilizing support for a global climate agreement at the United Nations Climate Change Conference in Copenhagen, held in December 2009. Yet, some of its climate policies, including the inclusion of foreign airlines in the EU Emissions Trading Scheme, gave a signal that the EU might be shifting towards unilateral trade measures to address climate change.¹¹⁹

Thus, even with the Copenhagen Climate Conference approaching, the idea of targeting imports in order to promote climate policy was not taken completely off the table. The possibility of including energy-intensive imports in the EU Emissions Trading Scheme was mentioned in the European Commission's 2008 proposal on amending the underlying legislation, and was further discussed in a 2010 communication addressing carbon leakage.¹²⁰ Around the same time, the idea of including imports in a planned federal cap-and-trade scheme for greenhouse gas emissions received ample attention in the US, where President Obama's Administration was attempting to step up the country's climate change mitigation policies. The European Commission's 2010 communication noted that "it would be desirable for such initiatives to be taken together with such partners" as the US.¹²¹ For a short while, between 2009-2011, it thus seemed conceivable that both the EU and US would have strong emissions trading schemes, requiring importers from countries lacking equivalent climate policies to purchase emission allowances on the basis of greenhouse gas emissions associated with imported goods and/or their production. Understandably, this prospect gave a boost to a lively scholarly debate on the WTO-compatibility of such climate-policy approaches.¹²²

However, neither the EU nor the US scheme saw the light of the day. The Obama Administration abandoned the plan for a federal cap-and-trade scheme relatively quickly, in the face of strong national opposition. The EU Commission did not develop its proposal on including imports in the EU Emissions Trading Scheme further. Its 2010 communication already emphasized that climate policies targeting imports raise "broader issues about the EU's trade policy and its overall interest in an open trade system" and the measure would "need to be very carefully designed to ensure that it is fully compatible with WTO requirements".¹²³ Importantly, from

¹¹⁹ Joanne Scott & Lavanya Rajamani, *EU Climate Change Unilateralism*, 23 EUR. J. INT'L L. 469 (2012) [hereinafter Scott & Rajamani]. See also Kulovesi, *Climate Change in the EU External Relations*, *supra* note 116.

¹²⁰ *Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions - Analysis of options to move beyond 20% greenhouse gas emission reductions and assessing the risk of carbon leakage*, COM (2010) 265 final (May 26, 2010) [hereinafter COM (2010) 265].

¹²¹ *Id.* at 12.

¹²² The author has discussed this issue in KULOVESI, *THE WTO DISPUTE SETTLEMENT SYSTEM*, *supra* note 15, at 251-3. See also Howse & Eliason, *supra* note 102, at 60-73.

¹²³ COM 2010 (265), *supra* note 120, at 12.

the climate policy perspective, the Commission also highlighted the considerable technical difficulties in defining “in detail the carbon content of each individual category of goods.”¹²⁴ Indeed, to implement a scheme targeting imports, information would be needed on the emissions and other production data in order to calculate the carbon content of the covered imports credibly. Furthermore, it is likely that such data would need to be collected relying on monitoring and reporting by companies located in third countries. Thus, it would clearly be challenging for the EU to implement such a scheme outside its jurisdiction. In comparison, European installations included in the EU Emissions Trading Scheme are obligated to monitor and report their greenhouse gas emissions to the competent authorities each year, and the reports are verified by independent third parties. The European Commission ensures the final consistency of such reports. The violation of these reporting obligations results in sanctions. A similar scheme for foreign producers would be far more difficult to implement from a technical, legal and diplomatic point of view. Such difficulties were apparent in context of the EU Emissions Trading Scheme for aviation emissions, which imposed similar reporting obligations on both European and foreign airlines. Opposing their inclusion in the EU emissions trading scheme, Chinese and Indian airlines systematically violated European legislation requiring them to provide annual greenhouse gas emissions data to the European Commission.¹²⁵ Furthermore, the strong international criticism against the EU Emissions Trading Scheme for aviation emissions illustrates the high political cost of implementing a scheme that targets foreign trading partners even if the scheme was compatible with international law.¹²⁶

In light of such difficulties, no serious proposal to target imports for climate policy purposes through BCAs or similar measures is currently on the table. In the EU, there is limited political backing for BCAs, advocated by countries like France and Romania, but opposed by most others. From the EU perspective, the most practicable option would be a limited scheme targeting goods or industry sectors where carbon-content can be reasonably assessed and the technical difficulties concerning the calculation of carbon-content could thus be overcome. As the European Commission noted in 2010, a system for including imports in the EU Emissions Trading System “could at best only be envisaged for a limited number of standardized commodities, such as steel or cement.”¹²⁷ Indeed, the European cement industry has recently proposed a BCA scheme targeting cement imports to

¹²⁴ *Id.*

¹²⁵ James Kanter, *EU considers emission fines on Chinese and Indian airlines*, NEW YORK TIMES (May 16, 2013), <http://www.nytimes.com/2013/05/17/business/global/17iht-emit17.html?pagewanted=all>.

¹²⁶ Scott & Rajamani, *supra* note 119.

¹²⁷ COM 2010(265), *supra* note 120, at 12.

the EU.¹²⁸ Such a scheme would seem to be technically more feasible from the perspective of greenhouse gas emissions accounting, as cement is a product with a relatively uniform production method. However, that is quite unlike manufactured goods, for example, where the energy-intensity and other characteristics of products and their production varies considerably, making greenhouse gas emissions difficult to estimate. But the introduction of BCAs by the EU or any other developed country looks highly unlikely in the foreseeable future. While this is particularly the case for large-scale BCA schemes, even proposals for limited BCA schemes targeting specific products lack serious political support at present.

The question of carbon leakage still remains a concern in the EU and elsewhere where greenhouse gas emissions are subject to carbon price or industries incur costs from other climate policies.¹²⁹ The issue is also addressed under the EU Emissions Trading legislation. The main measure to prevent carbon leakage under the EU Emission Trading Scheme is the free allocation of emission allowances to sectors of the manufacturing industry that are exposed to carbon leakage. The Emissions Trading Directive includes provisions on identifying such sectors, which are regularly updated. Using the specified criteria, the Commission has drawn up a list of sectors exposed to carbon leakage.¹³⁰ The carbon leakage list, based on NACE coding¹³¹ currently includes all European industrial products that are facing international competition outside Europe. While the EU Emissions Trading System is otherwise in transition from the method of free allocation of emission allowances to their full auctioning, sectors exposed to carbon leakage continue to receive allowances free of charge up to the value of a certain benchmark. In 2005-2012, the EU Member States were responsible for the free allocation of emission allowances through their National Allocation Plans. Since 2013, harmonized EU rules apply to free allocation relying on *ex ante* benchmarks defined for individual

¹²⁸ *The Cement Industry Is Exposed to Carbon Leakage Regardless of the Assessment Method Used and the Relevant Product Level*, THE EUROPEAN CEMENT ASS'N (Nov. 27, 2013), http://www.cembureau.be/sites/default/files/documents/Doc%203023_2013-1127_CEMBUREAU_Carbon%20Leakage%20Position%20Paper%202.1.pdf.

¹²⁹ *Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions - A Policy Framework for Climate and Energy in the Period from 2020 to 2030*, COM (2014) 15 final (Jan. 22, 2014), <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2014:0015:FIN:EN:PDF> [hereinafter COM (2014) 15 final].

¹³⁰ Commission Decision of 24 December 2009 determining, pursuant to Directive 2003/87/EC of the European Parliament and of the Council, a list of sectors and subsectors which are deemed to be exposed to a significant risk of carbon leakage, 2010 O.J. (L1) 10.

¹³¹ This acronym refers to the statistical classification of economic activities in the EU, developed since the 1970s. More information is available at: http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/NACE_backgrounds.

sectors or sub-sectors based on their emissions performance.¹³² The objective of the benchmarking-system is to allocate free allowances “in a manner that provides incentives for reductions in greenhouse gas emissions and energy efficient techniques.”¹³³ Benchmarks were calculated for industrial products and intermediate products traded between installations.¹³⁴ This ambitious exercise of defining the benchmarks entailed a scientific calculation of a value reflecting the average greenhouse gas emission performance of the 10% best performing installations in the EU in 2007-2008. The benchmark can therefore be seen as an incentive for installations to emit only a certain quantity of carbon dioxide for a ton of product under the EU ETS. Taking steel production as an example, the benchmark for hot metal is 1.328.¹³⁵ For producing 100,000 tons of steel, an installation would, in principle, receive 132,800 free allowances under the EU Emissions Trading Scheme. However, in practice, the amount of allowances is adjusted based on a cross-sectoral correction factor. The free allowances are handed out in February each year. The actual annual emissions of the installation are subsequently verified. If the steel production is less efficient than the benchmark, as is usually the case, the installation will need to purchase more emission allowances on the market as the legislation requires it to hold enough emission allowances to cover all its verified greenhouse gas emissions in 2014.

In its January 2014 proposal on future EU climate policies for the 2020-2030 period, the EU Commission suggested that protection measures against carbon leakage should remain in place as long as there are no comparable climate change mitigation efforts undertaken by the other major economies.¹³⁶ The proposal did not identify any new approaches to carbon leakage in the EU, but the question will be addressed in more detail at a later stage of the legislative process to adopt the EU 2020-2030 climate and energy policy framework.¹³⁷ Thus, even if the future legal framework for addressing carbon leakage in the EU remains unspecified, the adoption of BCAs or similar measures seems fairly remote. Rather, the above overview of the BCA debate shows that these questions are currently not the most prominent ones in the current climate policy debate in Europe and elsewhere. Furthermore, it is also important to bear in mind that BCAs are not seen as crucial for achieving the global 2°C climate target. None of the key recent reports on climate change mitigation, including the IPCC AR5, the UNEP Emissions Gap

¹³² Commission Decision of 27 April 2011 determining transitional Union-wide rules for harmonized free allocation of emission allowances pursuant to Article 10a of Directive 2003/87/EC of the European Parliament and of the Council, 2011 O.J. (L 130) 1.

¹³³ *Id.* preamble, recital 1.

¹³⁴ *Id.* preamble, recital 4.

¹³⁵ *Id.* Annex I: Product Benchmarks.

¹³⁶ COM (2014) 15 final, *supra* note 129.

¹³⁷ *Id.*

Report, the IEA Special Report on Redrawing the Energy Climate Map or the European Commission's proposal for EU climate policies in 2020-2030 mentions trade bans or BCAs as part of the policy mix. Instead of targeting imports, carbon leakage in the world's most prominent emissions trading scheme to date is addressed through free allocation of emissions allowances. Overall, the current emphasis is on strengthening international climate change cooperation under the UNFCCC and various informal fora. It is obviously possible that this situation may change if the UNFCCC Parties fail to agree on an effective global framework for climate change mitigation in the ongoing negotiations for a 2015 agreement.

B. Energy Efficiency and Fluorinated Gases: Examples of Existing Climate Policies Affecting International Trade

Even with the politically most controversial climate policies currently off the table, the substantive overlap between the WTO and UNFCCC legal regimes is expanding and is already considerable. Various climate policies are being implemented that impact international trade and are covered by the provisions of the WTO Agreements. One important category of such climate policies implemented in practice, relates to energy efficiency. From the trade perspective, the concern is that energy efficiency requirements could limit trade flows, especially when countries or regions apply differing requirements. However, from the perspective of the UNFCCC and the 2°C target, energy efficiency is one of the most promising areas of climate policy. Various reports, including those by UNEP and IEA discussed above, have identified it as an area which has significant climate change mitigation potential. It is also lucrative in the economic sense as its enhancement is often cost-effective.¹³⁸ Energy efficiency lowers fuel bills and results in the reduced need for investment in energy supply.¹³⁹ It can also increase countries' energy independence and security.¹⁴⁰

Energy efficiency can be enhanced through a broad range of measures. In the building sector, energy efficiency can be improved through more efficient heating and cooling systems, more efficient electrical appliances and through replacing incandescent lamps with more energy-efficient lighting. Emissions in the transport sector can be reduced through urban planning and improved public transport. In addition, greenhouse gas emissions from the transport sector can be mitigated through more fuel-efficient vehicles, electric or hybrid vehicles and cleaner diesel

¹³⁸ Compilation of information on mitigation benefits of actions, initiatives and options to enhance mitigation ambition, United Nations Framework Convention on Climate Change, ¶ 43, U.N. Doc. FCCC/TP/2013/4 (May 28, 2013).

¹³⁹ *Id.* ¶ 44.

¹⁴⁰ *Id.*

vehicles.¹⁴¹ Energy-consumption from household appliances, information and communication technologies, home entertainment and the internet has also been growing rapidly, making these products an important target for energy efficiency measures. Trade-relevant measures to improve energy efficiency include energy labeling to increase consumer awareness and minimum efficiency requirements imposed on various products. Such measures commonly fall under the WTO Agreement on Technical Barriers to Trade (TBT Agreement). Indeed, a number of such measures have already been notified to the WTO and addressed through the TBT Committee. Mandatory measures related to energy efficiency are also covered by Article III:4 of the GATT.¹⁴²

Other climate policies targeting traded goods are also possible. Recent measures by the EU to reduce emissions from fluorinated gases (F-gases) illustrate this point. F-gases are powerful, man-made greenhouse gases that are used in certain industrial applications. They are extremely problematic for climate change mitigation as their global warming potential is 23,000 times higher than that of carbon dioxide and their emissions are also increasing considerably. The EU has therefore strengthened its legislation to reduce emissions from F-gases. The Mobile Air-conditioning Systems Directive prohibits the use of F-gases, which has a global warming potential more than 150 times greater than carbon dioxide in new types of cars and vans introduced from 2011, and in all new cars and vans produced from 2017.¹⁴³ Regulation (EC) No 842/2006 of the European Parliament and of the Council of 17 May 2006 on certain fluorinated greenhouse gases (F-gas Regulation) includes provisions to improve the prevention of leaks from equipment containing F-gases and restricts the marketing and use of certain products and equipment containing F-gases, where environmentally superior alternatives are cost effective.¹⁴⁴

From the perspective of the WTO, the legal analysis depends on the detailed design of the individual measure. Most of the climate policies mentioned above can be designed in a way that does not contradict WTO rules. From a broad overview, the non-discrimination obligation, culminating in the MFN and national treatment principles, play a prominent role in WTO law. The MFN principle is found, *inter alia*, in Article I of the GATT, requiring WTO Member States to

¹⁴¹ METZ, *supra* note 24, at 59.

¹⁴² Howse and Eliason, *supra* note 102, at 91.

¹⁴³ Directive 2006/40/EC of the European Parliament and of the Council of 17 May 2006 Relating to Emissions from Air Conditioning Systems in Motor Vehicles and Amending Council Directive 70/156/EEC, 2006 O.J. (L 161) 12.

¹⁴⁴ Decision of the EEA Joint Committee No 112/2008 of Nov. 7 2008 amending Annex II (Technical regulations, standards, testing and certification) and Annex XX (Environment) to the EEA Agreement, 2006 O.J. (L 161) 1-11.

extend preferential treatment given to imports from one WTO Member to all other Members. The national treatment principle, as formulated in Article III:4 of the GATT, requires that imported products are treated “no less favourably” than products of national origin “in respect of all laws, regulations and requirements affecting their internal sale, offering for sale, purchase, transportation, distribution or use.”

The non-discrimination requirement applies to ‘like products.’ According to the Appellate Body’s famous definition in the *Asbestos* case, the determination of ‘likeness’ is “fundamentally, a determination about the nature and extent of a competitive relationship between and among products.”¹⁴⁵ The Appellate Body referred to the Border Tax Adjustment report and explained that the analysis of ‘likeness’ takes into account the physical properties of the products in question; their end-uses; consumer tastes and habits; and tariff classification.¹⁴⁶ In scholarship, it has been argued that climate-friendliness can be taken into consideration where the consequences are physically traceable to the final product,¹⁴⁷ which would apply to many of the energy efficiency requirements discussed above, as they regulate energy-consumption by the product itself. As Howse and Eliason note, “there seems no reason why products would not be considered ‘unlike’ under Article III:4 of the GATT by virtue of the differences in performance with respect to energy efficiency.”¹⁴⁸ In their view, this can be considered through the ‘likeness criteria’ related to physical characteristics and consumer preferences.¹⁴⁹ They thus conclude that “based on the approach to likeness in *EC-Asbestos*, the differential regulatory treatment of products based on energy efficiency would be widely permissible under WTO rules.”¹⁵⁰

Not commonly used at present, measures targeting energy efficiency of PPMs are more problematic in the WTO law debate. In this context, it is useful to note that measures found to violate the GATT can be justified if they qualify under the public policy exceptions contained in Article XX of the GATT. The provision is applied in two steps. A measure is first examined in light of one of the subparagraphs of Article XX. In the climate change context, the most relevant subparagraphs are Article XX(b) which refers to measures “necessary to protect human, animal or plant life or health,” and Article XX(g), which refers to measures “relating to the conservation of exhaustible natural resources if such measures are

¹⁴⁵ Appellate Body Report, *European Communities — Measures Affecting Asbestos and Products Containing Asbestos*, ¶ 99, WT/DS135/AB/R (Apr. 5, 2011).

¹⁴⁶ *Id.* ¶ 101.

¹⁴⁷ VAN ASSELT, *supra* note 15, at 171.

¹⁴⁸ Howse and Eliason, *supra* note 102, at 91.

¹⁴⁹ *Id.*

¹⁵⁰ *Id.*

made effective in conjunction with restrictions on domestic production or consumption.” The measure is then examined against the chapeau of Article XX of the GATT, which requires that such measures are not applied in a manner that “would constitute a means of arbitrary or unjustifiable discrimination between countries where the same conditions prevail, or a disguised restriction on international trade.” In the *Shrimp-Turtle* case, the Appellate Body ultimately accepted, on environmental grounds, a trade-measure that targeted the way in which shrimps were caught.¹⁵¹ The legal analysis would, however, depend on the detailed design of the measure addressing PPMs.

The TBT Agreement and the GATT are not mutually exhaustive, meaning that the same measure setting energy efficiency requirements for a product could also fall under the TBT Agreement, which applies to mandatory technical regulations and voluntary standards. Annex 1 of the TBT Agreement defines “technical regulation” as a “document, which lays down product characteristics or their related processes and production methods, including the applicable administrative provisions with which compliance is mandatory.” Article 2.1 of the Agreement requires “treatment no less favourable than that accorded to like products of national origin and to like products originating in any other country.” The provision thus echoes the MFN and national treatment principles in Articles I and III of the GATT.¹⁵² Notably, there is no provision in the TBT Agreement equivalent to the general exceptions in Article XX of the GATT.¹⁵³

Article 2.4 of the TBT Agreement requires Members to use international standards as a basis for their technical regulations, unless the international standards are an inappropriate or ineffective means to achieve legitimate objectives. Therefore, the Agreement discourages deviations from international standards. Where international standards are not used, Article 2.2 of the TBT Agreement provides that “technical regulations shall not be more trade-restrictive than necessary to fulfill a legitimate objective, taking account of the risks non-fulfillment would create.” Here, it is useful to note that unlike Article XX of the GATT, the TBT Agreement does not contain a closed list of legitimate objectives.¹⁵⁴ Instead, any legitimate policy may be the basis for TBT regulation.¹⁵⁵ The Preamble of the TBT Agreement also makes clear that each Member may determine the level of

¹⁵¹ *Supra* note 100.

¹⁵² Gabriel Marceau & Joel P. Trachtman, *The Technical Barriers to Trade Agreement, the Sanitary and Phytosanitary Measures Agreement, and the General Agreement on Tariffs and Trade: A Map of the World Trade Organization Law of Domestic Regulation of Goods*, 36 J. WORLD TRADE 811, 822 (2012).

¹⁵³ *Id.*

¹⁵⁴ *Id.* at 832.

¹⁵⁵ *Id.*

protection that it considers appropriate.¹⁵⁶ Hence, it should not be difficult to establish climate policy as a legitimate objective. However, according to Howse and Eliason, it is important to use “objective criteria and impartial conformity assessment procedures” in designing energy-efficiency regulations, as well as labeling and certification programmes to ensure that imported products are not unduly disfavoured or burdened.¹⁵⁷

C. Support for Green Technologies: Renewable Energy as an Example

Another area of considerable substantive overlap between the UNFCCC and WTO regimes relates to international trade in climate-friendly technologies. In light of the recent surge of trade disputes concerning renewable energy support policies,¹⁵⁸ this seems to be emerging as an area where links between trade and climate change are the most pronounced in practice.¹⁵⁹ Looking at the discussion on clean technologies from a broader perspective, an attempted paradigm shift is underway towards a green economy. If successful, it is estimated that this transition will bring important environmental, economic and societal benefits.¹⁶⁰ While green economy remains a contested concept in its infancy, various governments around the world are implementing policies designed to support the development and deployment of clean technologies. Such support can be seen as addressing a significant market failure, i.e., to price environmental externalities and compensate green technologies for their beneficial contribution in combating climate change and reduction of local air pollution.¹⁶¹ In addition to reducing

¹⁵⁶ *Id.* at 836.

¹⁵⁷ Howse & Eliason, *supra* note 102, at 91.

¹⁵⁸ Examples of disputes brought to the WTO in recent years include: *India — Certain Measures Relating to Solar Cells and Solar Modules*, WT/DS456/5 (consultations requested by the US, panel established in May 2014); *European Union and certain Member States — Certain Measures Affecting the Renewable Energy Generation Sector*, WT/DS452/5 (consultations launched by China in 2012, no panel requested); *China — Measures concerning wind power equipment*, WT/DS/419/3 (consultations initiated by the US in 2010, no panel requested). Also *United States — Countervailing Duty Measures on Certain Products from China*, WT/DS 437/1 includes China’s challenge on US countervailing duties on solar panels and wind towers (panel report expected in 2014).

¹⁵⁹ For recent discussion, see Avidan Kent, *The WTO Law on Subsidies and Climate Change: Overcoming the Dissonance?*, 5(2) TRADE L. & DEV. 374 (2013).

¹⁶⁰ UNITED NATIONS ENV’T PROGRAMME, GREEN ECONOMY: PATHWAYS TO SUSTAINABLE DEVELOPMENT AND POVERTY ERADICATION (2011),
available at

http://www.unep.org/greeneconomy/Portals/88/documents/ger/ger_final_dec_2011/Green%20EconomyReport_Final_Dec2011.pdf.

¹⁶¹ On green industrial policy, see INT’L INST. FOR SUSTAINABLE DEV. & UNITED NATIONS ENV’T PROGRAMME, HANDBOOK ON TRADE AND THE ENVIRONMENT (3d rev ed. forthcoming 2014).

greenhouse gas emissions, governments' reasons for promoting renewable energy include enhanced energy independence with economic and societal benefits. For example, in its recent proposal for the European Union's 2030 climate and energy policy framework, the European Commission emphasizes that renewable energy generated in the EU would reduce the EU's trade deficit in energy commodities.¹⁶² The development of clean technologies is also increasingly linked to job-creation and technological leadership.¹⁶³ Thus, renewable energy support programmes can also aim at fostering the growth of domestic manufacturing industries.¹⁶⁴ However, this can be problematic from the point of view of WTO law. In its recent *Canada-Renewables* decision, the Appellate Body found a domestic-content requirement in Ontario's feed-in tariff programme to be inconsistent with WTO law.¹⁶⁵ Indeed, it has been argued that "the WTO imposes considerable limitations on RE promotion policies, particularly on the way they are devised by its Members."¹⁶⁶

Before looking at renewable energy more closely from the perspective of WTO law, it is useful to examine its role in achieving the 2°C climate target. As seen above, least-cost pathways to the 2°C climate target necessitate considerable cuts in global greenhouse gas emissions by 2050. The energy sector is crucial in this regard and renewable energy is projected to play an important role. Some low-emission technologies such as carbon capture and storage (CCS) are also being developed in order to reduce greenhouse gas emissions from the burning of fossil fuels. However, the CCS technology remains very expensive and there are few demonstration projects. In the EU, for example, the objective of implementing CCS demonstration projects, financed through a set-aside of emission allowances from the "New Entrants" reserve (the NER 300 programme) has not been successful so far due to the lack of funding from other sources, and unanswered technical and liability questions. It could also be validly asked if it would be sustainable in the long-term to continue burning fossil fuels and store carbon dioxide emissions. Nuclear energy does not contribute to greenhouse gas emissions, but involves other environmental and societal concerns, recently brought to surface by the nuclear accident in Fukushima, Japan, in 2010. In its aftermath, Germany, one of the world's largest economies, launched an initiative

¹⁶² COM (2014) 15 final, *supra* note 129.

¹⁶³ Joanna I. Lewis, *The Rise of Renewable Energy Protectionism: Emerging Trade Conflicts and Implications for Low Carbon Development*, 14 GLOBAL ENV'TL. POL. (forthcoming Nov. 2014) https://blogs.commonsgorgetown.edu/jil9/files/2014/01/Lewis.RE_Intl_Trade_Draft_11.2013.pdf [hereinafter Lewis].

¹⁶⁴ *Id.*

¹⁶⁵ Appellate Body Report, *Canada - Certain Measures Affecting the Renewable Energy Generation Sector*, WT/DS412/AB/R (May 6, 2013) [hereinafter *Canada-Renewables*].

¹⁶⁶ Sadeq Z. Bigdeli, *Incentive Schemes to Promote Renewables and the WTO Law of Subsidies*, in INTERNATIONAL TRADE REGULATION AND THE MITIGATION OF CLIMATE CHANGE 188 (Thomas Cottier et al. eds., 2009) [hereinafter Bigdeli].

known as *energiwende* (energy transition), aiming for a 60% share of renewable energy by 2050. The initiative includes different levels of intervention, such as subsidizing renewable energy producers through feed-in tariffs and grid levies, as well as investing in energy storage, smart grids and interconnectors with neighboring countries.¹⁶⁷

The current share of renewable energy in the global energy mix is around 18%¹⁶⁸. In the EU, renewable energy increased by 231% in 1990-2011, while non-renewable energy fell by 27%.¹⁶⁹ Approximately half of the current global renewable energy comes from traditional biomass, which is not always sustainable.¹⁷⁰ IRENA's recent global renewable energy roadmap to 2030 shows that the global share of renewable energy can reach and exceed 30% by 2030, while the share of traditional biomass is decreasing and the share of modern renewables is tripling.¹⁷¹ Importantly, implementing IRENA's renewable energy roadmap options together with energy efficiency improvements would bring global greenhouse gas emissions nearly to the level consistent with the 2°C climate policy target.¹⁷² However, while the renewable energy technologies are already available to achieve this, existing policies would only lead to a 21% share.¹⁷³ According to IRENA, intensified research, development and deployment (RD&D) policies are thus needed, along with standards, quality control, technology co-operation and project development capacity.¹⁷⁴

In recent years, costs of some renewable energy technologies have fallen significantly and according to IRENA, they will continue to decline owing to technology innovation, competition, growing markets and regulatory

¹⁶⁷ For analysis, see Anna Pegels & Wilfried Lütkenhorst, *Is Germany's Energy Transition a Case of Successful Green Industrial Policy? Contrasting Wind and Solar PV*, 73 ENERGY POL'Y (forthcoming 2014), http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2461754&download=yes.

¹⁶⁸ INT'L RENEWABLE ENERGY AGENCY, REMAP 2030: A RENEWABLE ENERGY ROADMAP, (2014), available at http://irena.org/remap/REmap%20Summary%20of%20findings_final_links.pdf [hereinafter IRENA].

¹⁶⁹ *Commission Staff Working Document Accompanying the Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: A policy framework for climate and energy in the period from 2020 up to 2030*, at 183, COM (2014) 15 final (Jan. 22, 2014), available at <http://eurlex.europa.eu/LexUriServ/LexUriServ.do?uri=SWD:2014:0015:FIN:EN:PDF> [hereinafter COM (2014) 15 final].

¹⁷⁰ IRENA, *supra* note 168.

¹⁷¹ *Id.*

¹⁷² *Id.* at 27.

¹⁷³ *Id.* at 7.

¹⁷⁴ *Id.*

streamlining.¹⁷⁵ However, the 30% renewable energy scenario in 2030 includes the fact that subsidies to the renewable energy sector would more than double to US\$238 billion. According to IRENA, “this is a market correction for the fact that carbon dioxide and health costs of fossil fuels are not priced.”¹⁷⁶ Yet, “subsidies per unit of modern renewable energy continue to fall during this period (up to 2030, KK) due to technology learning and rising fossil fuel costs.”¹⁷⁷ It is also important to note that subsidies needed to implement the renewable energy roadmap amount to only 44% of fossil fuel subsidies worldwide in 2012, which were equivalent to US\$544 billion.¹⁷⁸ Seen from a different angle, the IEA has calculated that in 2013, only 8% of global carbon dioxide emissions were subject to a carbon price while 15% of emissions received an incentive of US\$110 per ton in the form of fossil-fuel subsidies.¹⁷⁹

Notably, in various places renewable energy technologies are already able to compete with fossil fuels without support. In Europe for example, geothermal, hydro and onshore wind facilities are already competing with state-of-the-art fossil fuel power generation from coal and gas, even with the current low carbon prices in the EU Emissions Trading Scheme.¹⁸⁰ Technologies that are estimated to need a stronger carbon price signal to compete with fossil fuels without additional support include solar PV and off-shore wind.¹⁸¹ However, in places like Spain, Italy, southern Germany, southern California (USA), Australia and Denmark, the cost of decentralized solar PV systems are becoming lower than retail electricity prices that system owners would otherwise pay.¹⁸² A further challenge regarding renewable energy is that increasing the share of renewable energy in the energy mix requires investments in the infrastructure, given that sources like wind and solar energy have different characteristics as compared to conventional energy sources. The infrastructure adjustments that are required include decentralized production, smart grids, smart meters and storage technologies. The European Commission has estimated investment costs to be about billions of Euros each year.¹⁸³ However, the Commission also highlights that the costs of transition to a low-carbon economy do not differ substantially from the costs that will be incurred in any event because of the need to renew an aging energy system, rising fossil fuel prices and adherence to existing climate and energy policies.¹⁸⁴

¹⁷⁵ *Id.*

¹⁷⁶ *Id.* at 34.

¹⁷⁷ *Id.*

¹⁷⁸ *Id.* at 33.

¹⁷⁹ IEA, *supra* note 85, at 13.

¹⁸⁰ COM (2014) 15 final, *supra* note 129, at 184.

¹⁸¹ *Id.* at 184.

¹⁸² *Id.*

¹⁸³ *Id.* ¶ 40.

¹⁸⁴ *Id.* ¶ 37.

A range of policies are used to promote renewable energy. Feed-in tariffs (i.e., premium electricity tariffs) are the most common form of support, used by 71 countries and 28 states or provinces as of 2013.¹⁸⁵ Other policies such as capital subsidies, grants, favorable loan terms and rebates are also used in various countries.¹⁸⁶ China, EU Members and the US are among the key players in the rapidly growing renewable energy market. This is visible in a series of recent disputes launched under the WTO Dispute Settlement Understanding, as well as in domestic antidumping and countervailing duty investigations concerning renewable energy technologies.¹⁸⁷ For example, the *AD590 - Solar panel* anti-dumping case concerns China's exports of solar panels and their key components to the EU and constitutes the biggest anti-dumping and anti-subsidy investigation ever handled by the European Commission, with the Chinese exports to the EU amounting to €21 billion in 2011.¹⁸⁸ The investigation was launched in September 2012 following a complaint from EU Pro Sun, an *ad hoc* association representing more than 20 European companies producing solar panels and their key components.¹⁸⁹ China is the world's largest producer of solar panels, responsible for around 65% of the total production.¹⁹⁰ Around 80% of its exports are to the EU.¹⁹¹ The Commission pointed out that China's production capacity in 2012 was around 150% of global consumption, with the overcapacity resulting from "massive, government-supported investment boom in the last few years."¹⁹² Notably, China's production capacity in 2009 amounted to only 6.5 giga watts, while in 2012 it was 55 giga watts.¹⁹³

¹⁸⁵ REN21: RENEWABLE ENERGY POL'Y NETWORK FOR THE 21ST CENTURY, RENEWABLES 2013 – GLOBAL STATUS REPORT 68 (2013).

¹⁸⁶ Lewis, *supra* note 163, at 5, 6, Table 1.

¹⁸⁷ *Id.* at 7, 8 (for a detailed overview).

¹⁸⁸ Press Release, European Commission, EU Initiates Anti-dumping Investigation on Solar Panel Imports from China (Sept. 6, 2012), *available at* http://europa.eu/rapid/press-release_MEMO-12-647_en.htm [hereinafter Press Release of Sept. 6, 2012]. The author has analysed the *AD590 - Solar panel* case in more detail in Kati Kulovesi, *International Trade Disputes on Renewable Energy: Testing Ground for the Mutual Supportiveness of WTO Law and Climate Change Law*, 23 REV. EUR. COMMUN & INT'L ENVTL. L. (forthcoming, 2014) [hereinafter Kulovesi, *International Trade Disputes on Renewable Energy*].

¹⁸⁹ Press Release of Sept. 6, 2012, *supra* note 188.

¹⁹⁰ *Id.*

¹⁹¹ *Id.*

¹⁹² *Id.*

¹⁹³ Press Release, European Commission, EU Imposes Provisional Anti-dumping Duties on Chinese Solar Panels (June 4, 2013), *available at* http://europa.eu/rapid/press-release_MEMO-13-497_en.htm.

In June 2013, the Commission's anti-dumping investigation concluded that "a Chinese solar panel is sold to Europe far below its normal market value."¹⁹⁴ The average dumping rate was found to be 88%, while the anti-dumping duties imposed were set at an average of 47.6%, to remove the harm caused by the dumping to the European industry.¹⁹⁵ However, a two-month transitional period was announced with a reduced duty of 11.6%.¹⁹⁶ During this period, negotiations between China and the EU continued and in August 2013, the Commission accepted a price undertaking offered by the majority of Chinese solar panel exporters.¹⁹⁷ In December 2013, the EU imposed definitive anti-dumping measures on Chinese solar panels.¹⁹⁸ The average duty for exporters that cooperated in the investigation is 47.7%, which is the duty rate applicable to the majority of exporters.¹⁹⁹ A duty of 64.9% is applied to those exporters who did not cooperate in the European Commission's investigation, estimated to account for less than 20% of exports.²⁰⁰ The Commission stressed that these measures are expected "to stop the downward spiral of prices on solar panels," arguing that "green sustainable development is only possible with sustainable industries."²⁰¹ However, from the perspective of climate policy, it would seem that the combination of Chinese measures to boost its renewable energy industry,²⁰² the EU feed-in tariff scheme and other measures to promote renewable-energy consumption have played an important role in changing the economics of renewable energy in recent years, bringing technology costs down considerably and enabling on-shore wind and solar PV to compete with coal or gas-fired plants in some parts of the world. Thus, while the conclusion in the *AD590 -Solar Panels* case was that EU climate policies should not rely on unfair trade practices, it would

¹⁹⁴ *Id.*

¹⁹⁵ *Id.*

¹⁹⁶ Commission Regulation (EU) No 513/2013 of June 4, 2013 imposing a provisional anti-dumping duty on imports of crystalline silicon photovoltaic modules and key components (i.e. cells and wafers) originating in or consigned from the People's Republic of China and amending Regulation (EU) No 182/2013 making these imports originating in or consigned from the People's Republic of China subject to registration, O.J (L 152/5).

¹⁹⁷ Press Release, European Commission, EU Imposes Definitive Measures on Chinese Solar Panels, Confirms Undertaking with Chinese Solar Panel Exporters (Dec. 2, 2013), http://europa.eu/rapid/press-release_IP-13-1190_en.htm [hereinafter Press Release of Dec. 2, 2013].

¹⁹⁸ Council Implementing Regulation (EU) No. 1238/2013 of 2 December 2013 imposing a definitive anti-dumping duty and collecting definitively the provisional duty imposed on imports of crystalline silicon photovoltaic modules and key components (i.e. cells) originating in or consigned from the People's Republic of China, O.J (L 325/1).

¹⁹⁹ *Id.* See also Press Release of Dec. 2, 2013, *supra* note 197.

²⁰⁰ *Id.*

²⁰¹ Press Release of Dec. 2, 2013, *supra* note 197.

²⁰² Leslie Hook & Ed Crooks, *China's Rush into Renewables: The Way the World Turns*, FIN. TIMES, Nov. 28, 2011.

seem that the relationship between WTO law on trade remedies and climate policies merits further consideration.²⁰³

Renewable energy subsidies have also been recently addressed at the WTO. The WTO Appellate Body gave its decision in the *Canada-Renewables* case in the spring of 2013.²⁰⁴ The dispute arose when the EU and Japan challenged a feed-in-tariff scheme with a local content requirement, launched in the Canadian province of Ontario in 2009. Japan and the EU argued that the measure violated certain provisions of the Agreement on Trade-Related Investment Measures (TRIMs) and constituted a prohibited subsidy under the Agreement on Subsidies and Countervailing Measures (SCM). In its decision on the *Canada-Renewables*, the Appellate Body found measures with local content requirements incompatible with the TRIMs Agreement.²⁰⁵ However, it left the question of whether feed-in tariffs constitute subsidies unanswered, along with the question of how feed-in tariffs without the local content requirement would qualify under the SCM.²⁰⁶ This question is highly relevant in the practical climate policy perspective because, as seen above, feed-in tariffs to support renewable energy are used by more than 70 countries around the world. For a measure to qualify as a subsidy under Articles 1 and 2 of the SCM, it needs to: involve a financial contribution, or any form of income or price support, by a government or other public body; confer a benefit; and must also be specific. In the *Canada-Renewables* case the question of relevant markets and conferral of a benefit were the ones left open.²⁰⁷ The interpretation of the SCM Agreement in the dispute has received a rather critical reaction from scholars, who argue that the Appellate Body deliberately avoided a finding that feed-in tariffs constitute a subsidy.²⁰⁸ The author has argued elsewhere that the reluctance of the panel and Appellate Body to classify the feed-in tariff scheme as a

²⁰³ Kulovesi, *International Trade Disputes on Renewable Energy*, *supra* note 188.

²⁰⁴ *Canada-Renewables*, *supra* note 165. The author has analysed the case in more detail in Kulovesi, *International Trade Disputes on Renewable Energy*, *supra* note 188. See also Aaron Cosbey & Petros, C. Mavroidis *A Turquoise Mess: Green Subsidies, Blue Industrial Policy and Renewable Energy: The Case for Redrafting the Subsidies Agreement of the WTO*, 17 J. INT' ECON. L. 11 (2014) [hereinafter Cosbey and Mavroidis]; Luca Rubini, *What Does the Recent WTO Litigation on Renewable Energy Subsidies Tell Us About Methodology in Legal Analysis* (European University Institute Working Papers 2014/05), <http://cadmus.eui.eu/handle/1814/29518> [hereinafter Rubini].

²⁰⁵ *Canada-Renewables*, *supra* note 165.

²⁰⁶ *Id.* See also LIESBETH CASIER & TOM MOERENHOUT, INT'L INST. FOR SUSTAINABLE DEV., WTO MEMBERS, NOT THE APPELLATE BODY, NEED TO CLARIFY BOUNDARIES IN RENEWABLE ENERGY SUPPORT (2013), *available at*: http://www.iisd.org/pdf/2013/wto_members_renewable_energy_support.pdf [hereinafter CASIER & MORENHOUT].

²⁰⁷ *Canada-Renewables*, *supra* note 165.

²⁰⁸ See, e.g., Cosbey and Mavroidis, *supra* note 203; Rubini, *supra* note 203.

subsidy in the *Canada – Renewables* case can arguably be understood by reference to the tense relationship between renewable energy support measures and the SCM Agreement, which does not, in its current form, contain environmental exceptions or allow for considering the underlying policy objective of the subsidy.²⁰⁹

Overall, the question of renewable energy subsidies appears to be a complex one for the WTO as well as for scholars. It has been argued that a successful WTO challenge on renewable energy subsidies may “ironically benefit the environment on balance as it will level the playing field for the most efficient producers of RE and related technology.”²¹⁰ On the other side, it has also been pointed out that subsidies might be considered as a second best alternative in the absence of proper taxation policies, leading to a sufficiently high carbon price to encourage the massive private investments that are needed in the renewable energy sector.²¹¹ Indeed, as shown above, subsidies are seen as necessary under the IRENA roadmap for doubling the share of renewables in the global energy mix by 2030. As put by Lewis, “a change in the way energy resources are subsidized and priced globally, or the introduction of a high price on carbon, could change the political economy of renewable energy support.”²¹² However, for renewables to continue to expand under the current political and economic rationale that is advanced for their support, “subsidies and policies that encourage local economic development benefits must persist, and, as a result, continued trade conflict seems inevitable.”²¹³

As seen above, from the WTO law perspective, the status of some of the most commonly used renewable energy support measures remains open. This can also be seen as problematic, given that the exception for environmental subsidies in the SCM expired in 1999. In view of the debate on renewable energy subsidies under the WTO, scholars have suggested that discussions on non-actionable subsidies, including environmental ones, should be revived.²¹⁴ This is because the SCM does not contain environmental exceptions similar to those in Article XX of the GATT, leaving limited scope for considering climate policy objectives. Others have noted that while such negotiations are unlikely to yield results at present, WTO Members should start a discussion on various renewable energy support mechanisms

²⁰⁹ Kuloesi, *International Trade Disputes on Renewable Energy*, *supra* note 188. See also Cosbey and Mavroidis, *supra* note 203.

²¹⁰ Bigdeli, *supra* note 166, at 192.

²¹¹ *Id.* at 188-9.

²¹² Lewis, *supra* note 163, at 17.

²¹³ *Id.* at 17-8.

²¹⁴ Bigdeli, *supra* note 166, at 190. Drawing attention to shortcomings of Article 8.2(c), Bigdeli argues that redefinition of environmental exemption in the SCM should be based on a necessity test similar to that included in Article XX of the GATT.

including feed-in tariffs, in relevant committees of the WTO to build trust among its membership.²¹⁵

IV. CONCLUSIONS

This article has argued that substantive overlap between the UNFCCC and the WTO legal regimes is already considerable and such links can be expected to increase if governments undertake serious efforts to achieve the global climate target of limiting temperature increase to 2°C from pre-industrial times. The article has also sought to challenge the continuing emphasis in the academic debate on the WTO and UNFCCC on such (currently non-existent) climate policies that involve BCAs and trade bans. In other words, the article has argued that while trade bans and BCAs targeting PPMs remain among the most prominent topics in the academic debate, there are currently no concrete examples of such climate policies. Moreover, their implementation, at least in the foreseeable future is not looking likely. The article also argued that a research focus on potential conflicts, risks conveying the false impression that climate policies are typically problematic viewed from the WTO perspective. Indeed, it has sought to demonstrate that some of the most common climate policies affecting international trade, such as energy efficiency requirements for various products, can be designed and implemented in a way that is compatible with WTO law. Finally, the article highlighted the important role that renewable energy plays in the climate policy scenarios for achieving the 2°C target. It argued that renewable energy support policy is an area where links between the WTO and climate policies have been most pronounced and problematic thus far, as illustrated by the recent surge of WTO disputes and domestic trade remedy cases on renewable energy support measures between the world's most prominent economies. Highlighting the role of renewable energy subsidies in scenarios to increase the share of renewable energy to a level compatible with the 2°C climate target, this article discussed the uncertainties caused by the Appellate Body's recent decision in the *Canada-Renewables* dispute, which left the question concerning the legal status of feed-in tariffs unanswered and drew attention to the shortcomings of the SCM Agreement when viewed from a climate policy perspective. This, together with the other recent international trade disputes on renewable energy thus raised the question of what would be the best way to further tackle the increasingly relevant question of the relationship between renewable energy support policies and WTO law.

²¹⁵ CASIER & MORENHOUT, *supra* note 206, at 6.