

HARNESSING INTERNATIONAL TRADE RULES FOR CLIMATE ACTION: OPPORTUNITIES, CHALLENGES, AND AVENUES FOR REFORM

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International trade law has often been pitted against environmental protection both by advocacy groups and in the scholarly literature.¹ Yet dismissing trade law and its institutions as inimical to climate policy is too simplistic and foregoes opportunities for a constructive dialogue at a time when global cooperation is essential to reaching collective goals. This Article challenges the assumption that international trade law is a barrier to climate action and explores how climate policies can be supported by trade law. It also identifies areas where trade rules constrain climate action and where trade liberalization principles need

¹ See Shivani Sagar Kalra, *International Trade Law: A Driver of Climate Action or a Roadblock?*, 51 INT'L J. LEGAL INFO. 166, 166 (2023); Fabio Morosini, *Trade and Climate Change: Unveiling the Principle of Common but Differentiated Responsibilities from the WTO Agreements*, 42 GEO. WASH. INT'L L. REV. 713, 715 (2010) (discussing whether climate change policies are consistent with WTO agreements); Cinnamon Carlarne, *The Kyoto Protocol and the WTO: Reconciling Tensions Between Free Trade and Environmental Objectives*, 17 COLO. J. INT'L ENV'T. L. & POL'Y 45, 46–47 (2006); Regis Y. Simo, *Of Sustainable Development in Africa: Addressing the (In)Congruence of Plastic Bag Regulations with International Trade Rules*, 45 BROOK. J. INT'L L. 241, 249 (2019); Gregory C. Shaffer, *The World Trade Organization Under Challenge: Democracy and the Law and Politics of the WTO's Treatment of Trade and Environment Matters*, 25 HARV. ENV'T. L. REV. 1, 1 (2001) (mapping the opposition to the WTO's approach to environmental governance); Daniel C. Esty, *Beyond Rio: Trade and the Environment*, 23 ENV'T. L. 387, 390 (1993) (providing an early outline of the conflicts between trade and environmental policy); Christina L. Toenshoff, *Defensive Issue Linkage: Exploring the Origins of Environmental Content in Trade Agreements*, 33 ENV'T. POL. 953, 954 (2024) (discussing mobilization against trade deals by environmental groups).

to yield to environmental priorities. Such an assessment is timely because several sustainability-oriented reforms are currently surfacing within the trade regime and outside of it (e.g., under the auspices of the United Nations Framework Convention on Climate Change).² Therefore, a strategic opportunity may exist to challenge the status quo and its underlying assumptions in the service of greater flexibility in trade law for climate policies.

Several prominent cases have highlighted the tension between trade obligations and environmental policies.³ This issue is ever more salient as the urgency of climate change has yet to outweigh collective action hurdles for state action in most multilateral forums, including the World Trade Organization (WTO). The core pillars of international trade law are: (1) non-discrimination obligations between foreign producers exporting to a particular market and between importers and domestic producers and (2) decreased obstacles to trade (quantitative and regulatory) for producers seeking access to foreign markets. Exceptions allow states to derogate from these principles to protect their markets and to pursue a limited set of other policy objectives (e.g. health and safety measures, some environmental protection, economic protection).

In our analysis, we find that existing trade rules are more flexible than commonly recognized. Indeed, most trade rules allow countries to address climate change by supporting low-carbon energy and industry, discouraging carbon-intensive activities that harm the planet, and introducing key standards for industries, firms, and new products. Additionally, countries are increasingly experimenting with new policy tools that will enable them to reach their climate goals. Although these

² See, e.g., *Fossil Fuel Subsidy Reform*, WTO, https://www.wto.org/english/tratop_e/envir_e/fossil_fuel_e.htm [<https://perma.cc/NF9Y-ZX3V>] (providing information on the WTO's Fossil Fuel Subsidy Reform (FFSR) initiative); *Plastics Pollution and Environmentally Sustainable Plastics Trade*, WTO, https://www.wto.org/english/tratop_e/ppesp_e/ppesp_e.htm [<https://perma.cc/729J-T3V2>] (introducing an initiative launched in 2020 by a group of WTO countries). See also *UN Ocean Conference 2025: Remarks by Director General Ngozi Okonjo-Iweala*, WTO (June 10, 2025), https://www.wto.org/english/news_e/spno_e/spno60_e.htm [<https://perma.cc/RS6W-A6EA>]; *WTO Members Discuss Pathways for Sustainable Agriculture in Global Trade*, WTO., (May 6, 2025), https://www.wto.org/english/news_e/news25_e/agri_07may25_e.htm [<https://perma.cc/3FDY-8AAC>]. There are also relevant projects and work being done by organizations other than the WTO. See, e.g., TESS FORUM, <https://tessforum.org> [<https://perma.cc/EUW6-ZF6N>] (describing a partnership of the Geneva Graduate Institute and the United Nations Environment Programme launched in 2021); REMAKING TRADE FOR A SUSTAINABLE FUTURE <https://remakingtradeproject.org/> [<https://perma.cc/J4YX-QR2J>].

³ See, e.g., Panel Report, United States—Restrictions on Imports of Tuna, WTO Doc. WT/DS29/R (June 16, 1994); Appellate Body Report, United States—Import Prohibition of Certain Shrimp and Shrimp Products, WTO Doc. WT/DS58/AB/R (adopted Nov. 6, 1998) [hereinafter US—Shrimp].

policies sometimes implicate trade rules, trade rule exceptions are the main conduit for allowing climate regulation. Nevertheless, the overriding focus on non-discrimination in WTO jurisprudence has frequently led to climate policies being struck down, even when the policy objective, such as environmental or climate protection, is upheld as legally valid. Ultimately, transformative trade policy for a climate objective may call for a different balancing of these non-discrimination requirements and environmental policy objectives.

We begin by identifying how trade rules intersect with the major climate action goals of mitigation, adaptation, and transformation. Second, we identify where opportunities for climate policy are built into the global trade rules. Trade lawyers refer to these opportunities to pursue domestic regulation, including climate action, as “policy space.” Third, we identify the constraints that remain within the trade rules, both in terms of policy prohibitions and prevalent legal challenges. Finally, we draw conclusions about what reforms may be needed to enable greater ambition for countries deploying climate policies while still maintaining a coherent trade agenda.

I. HOW DOES CLIMATE POLICY IMPLICATE TRADE RULES?

The environmental literature typically classifies climate policies based on their contribution to the following three goals: carbon and emissions mitigation, adaptation to the changing climate and its impacts, and transformation of local and global economies, each of which is described in more detail in the following sections.⁴

These policies include a wide range of instruments including government subsidies (e.g., for renewable energy and green industries), standards and regulation (e.g., on emissions and energy efficiency), taxation (e.g., carbon or emissions taxes), and government procurement. Domestic climate policymaking, however, does not take place in a vacuum. Indeed, all domestic laws, regulations, and requirements (as well as tax measures) must comply with international trade rules. These trade rules originate from treaties within the WTO as well as hundreds of bilateral and regional trade agreements.

WTO rules and other trade agreements cover a broad range of issues, virtually all of which can impact domestic climate action. The General Agreement on Tariffs and Trade (GATT) requires countries to commit to maximum limits on the tariffs they would charge to imported goods

⁴ See generally Mark Pelling, Karen O'Brien & David Matyas, *Adaptation and Transformation*, 133 CLIMATIC CHANGE 113 (2015) (describing mitigation, adaptation, and transformation frameworks in environmental law).

(called “bound tariffs”).⁵ The GATT also sets three other major obligations (referred to as “disciplines” in trade law): (1) prohibition on quotas,⁶ (2) prohibition on treating imports from some countries more favorably than the treatment afforded to GATT countries (called the “most-favoured-nation” (MFN) obligation),⁷ and (3) prohibition on treating imported goods less favorably than their domestic equivalent (called the “national treatment” obligation).⁸ Beyond these major obligations, the GATT includes basic rules on domestic subsidies which seek to prevent countries from trying to undermine imports, or to gain an advantage on foreign markets by using government support (including subsidies, tax breaks, export financing, etc.).⁹

With international trade growing steadily in the post-World War II period, and traditional trade barriers like tariffs rapidly disappearing, high-income countries sought other ways of facilitating trade. The resulting WTO agreements covered a much broader, more comprehensive swath of policy actions. WTO members were required to commit to new rules on domestic subsidies under the Agreement on Subsidies and Countervailing Measures (SCM Agreement).¹⁰ Members had to ensure that health measures for food and feedstock (under the Agreement on Sanitary and Phyto-Sanitary Measures)¹¹ and technical product regulations (under the Agreement on Technical Barriers to Trade)¹² were not used as disguised protectionism. For instance, sanitary and phytosanitary measures, such as quarantine for pest control and rules on additives and toxins in food had to be non-discriminatory, transparent and based on recognized benchmarks.¹³ Lastly, the Agreement on Trade-Related Investment Measures (TRIMS

⁵ For an overview of tariff commitments, see *Schedules of Concessions*, WTO, https://www.wto.org/english/tratop_e/schedules_e/goods_schedules_e.htm [<https://perma.cc/3A7X-EGQR>].

⁶ General Agreement on Tariffs and Trade, Oct. 30, 1947, 61 Stat. A-11, 55 U.N.T.S. 194, art. XI [hereinafter GATT].

⁷ *Id.* art. I.

⁸ *Id.* art. III.

⁹ *Id.* art. XVI. This was later expanded by the Agreement on Subsidies and Countervailing Measures. See *infra* note 10.

¹⁰ Agreement on Subsidies and Countervailing Measures, Apr. 15, 1994, Marrakesh Agreement Establishing the World Trade Organization, Annex 1A, 1869 U.N.T.S. 14 [hereinafter SCM Agreement].

¹¹ Agreement on the Application of Sanitary and Phytosanitary Measures, Apr. 15, 1994, Marrakesh Agreement Establishing the World Trade Organization, Annex 1A, 1867 U.N.T.S. 493 [hereinafter SPS Agreement].

¹² Agreement on Technical Barriers to Trade, Apr. 15, 1994, Marrakesh Agreement Establishing the World Trade Organization, Annex 1A, 1868 U.N.T.S. 120 [hereinafter TBT Agreement].

¹³ SPS Agreement, *supra* note 11, arts. 2–3.

Agreement) prohibits WTO members from imposing certain conditions on foreign investment that would distort trade patterns (e.g., requiring foreign investors to use domestic inputs).¹⁴ Hundreds of trade agreements concluded amongst smaller subsets of countries largely replicate these rules; we therefore use the WTO rules as a benchmark in our analysis.

While there was a consensus around the need to reduce trade barriers¹⁵ and level the playing field for all countries, states were also cognizant of the need for exceptions within this overall scheme. States may want to regulate public health, environmental protection, public morals, and currency trading, and should be allowed to do so if they are not engaging in disguised protectionism. The WTO agreements as well as many other trade agreements acknowledge these pursuits as legitimate.¹⁶ States also recognize that in some situations, they may need to take unilateral measures to avert domestic crises or to respond to other countries' policies or multinational firms' actions that injure their markets. These escape hatches are called "trade remedies" or trade defenses, and they involve procedures for imposing extra tariffs or other trade restrictions that would otherwise be prohibited. Such tariffs might respond to another country's use of subsidies (per the Agreement on Subsidies and Countervailing Measures),¹⁷ or to global market conditions resulting in imports showing up on the domestic market at unaccountably low prices (per the Agreement on Antidumping)¹⁸ or in unexpectedly high quantities (per the Agreement on Safeguards).¹⁹ Some of the specific ways that these agreements may impact climate action are laid out in Table 1.

Recent research has explored the extent to which countries face actual or potential legal constraints in their pursuit of green industrial policy under the international trade and investment regime, using policy

¹⁴ Agreement on Trade-Related Investment Measures, Apr. 15, 1994, Marrakesh Agreement Establishing the World Trade Organization, 1868 U.N.T.S. 186, Annex Illustrative List [hereinafter TRIMS Agreement].

¹⁵ Marrakesh Agreement Establishing the World Trade Organization, Apr. 15, 1994, 1867 U.N.T.S. 154, 33 I.L.M., preamble [hereinafter Marrakesh Agreement].

¹⁶ GATT, *supra* note 6, art. XX; SPS Agreement, *supra* note 11, art. 2.1; TBT Agreement, *supra* note 12, preamble, art. 2.2.

¹⁷ SCM Agreement, *supra* note 10, part V.

¹⁸ Agreement on Implementation of Article VI of the General Agreement on Tariffs and Trade 1994 art. 9, Jan. 1, 1995, Marrakesh Agreement Establishing the World Trade Organization, Annex 1A, 1869 U.N.T.S. 3 [hereinafter Antidumping Agreement].

¹⁹ Agreement on Safeguards art. 5, April 15, 1994, Marrakesh Agreement Establishing the World Trade Organization, Annex 1A, 33 I.L.M. 1125 [hereinafter Agreement on Safeguards].

data from the Global Trade Alert database.²⁰ Green industrial policy is a subset of climate policy that aims to shape or transform the structure or composition of economic activity toward a low-carbon economy.²¹ Bandara et al. created a dataset that maps countries' green industrial policies.²² The authors selected those policies which the Global Trade Alert identified as “affecting” a pre-defined list of low-carbon technologies, including policy instruments such as subsidies, trade restrictions, foreign investment measures, localization measures, public procurement policies, and trade defense instruments.²³ The authors found that advanced economies tend to be the most active policymakers but also use a materially different policy mix than emerging markets and developing economies. While the most common policy instrument used overall (in volume and proportionally to other policies) was the subsidy, almost half of all policies by emerging markets and developing economies were trade restrictions, and an additional 10 percent were discriminatory localization measures.²⁴

Subsidies, trade restrictions, foreign investment measures, localization measures, public procurement policies, and trade defense instruments have all been used at various times to reach the three goals of climate action—carbon emissions mitigation, adaptation to the changing climate, and perhaps most importantly, the transformation of

²⁰ *GTA Data Center*, GLOB. TRADE ALERT, <https://globaltradealert.org/data-center> (last visited Aug. 25, 2025). The Global Trade Alert tracks policies around the world that may have a positive or negative impact on trade. It categorizes those policies based on the economies that might be impacted, as well as the products and sectors that may be impacted. For an overview of the database by its creator, see generally Simon J. Evenett, *Protectionism, State Discrimination, and International Business Since the Onset of the Global Financial Crisis*, 2 J. INT'L BUS. POL'Y 9, 16 (2019) (cataloging trade distorting policies introduced following the Global Financial Crisis). The quantitative analysis supporting this article is drawn from Praveena Bandara, Rachel Thrasher, Yudong (Nathan) Liu & Alessandro Iaia, *Green Industrial Policies: Opportunities and Obstacles from the Global Trade and Investment Regime*, CLIMATE POL'Y, 1, 6–15 (2025).

²¹ See PAGE, GREEN INDUSTRIAL POLICY AND TRADE: A TOOL-BOX 7 (2017); Oliver Exton, *IMF Work on Industrial Policy and Green Industrial Subsidies*, WTO TESSD INFORMAL WORKING GRP. (June 17, 2024), https://www.wto.org/english/tratop_e/tessd_e/17062024_e/07_Subsidies-4_Presentation%20by%20IMF.pdf [<https://perma.cc/JKT4-SZBR>]; CAROLYN FISHER, STRATEGIC SUBSIDIES FOR GREEN GOODS, RESOURCES FOR THE FUTURE WORKING PAPER RFF-DP 16-12 (2016).

²² For the countries for which the GTA provides data, the authors included policies which affect trade in a predefined list of low-carbon technologies and a separate list of relevant transition minerals. Bandara et al., *supra* note 20, at 4.

²³ GLOB. TRADE ALERT, THE GTA HANDBOOK 23, <https://sgeptupload.s3.eu-west-1.amazonaws.com/gta/GTA+handbook.pdf> [<https://perma.cc/9DLY-JZBJ>] (noting that each policy has a product field that “designates which specific goods are affected by the documented policy change”); Bandara et al., *supra* note 20, at 5 (identifying products related to solar power, wind power, and EVs as the focus of that paper).

²⁴ Bandara et al., *supra* note 20, at 7.

local and global economies. As we see below, while some of these policies are in tension with the trade rules described above, there is substantial flexibility in the rules. This allows countries to reach their climate goals and engage in significant amount of innovative policymaking. Nevertheless, there is room for improvement to ensure that the trade rules actively facilitate the ability of countries to make climate policy, especially green industrial policy.

*Table 1. Basic WTO Trade Rules at a Glance*²⁵

Agreement	A WTO Member must...	Trade Objectives
GATT	<ul style="list-style-type: none"> • Treat goods from other WTO members at least as favorably as equivalent goods from other trading partners (MFN) • Treat imported goods at least as favorably as domestic goods (National Treatment) • Not introduce trade barriers EXCEPT import taxes (tariffs) • Not introduce or apply import tariffs above bound rates 	Level the playing field among producers and between importers and domestic competitors
SPS/TBT	<ul style="list-style-type: none"> • Maintain a “legitimate objective” in health and safety measures, as defined in the Agreements • Not use the legitimate objective as a disguised restriction to trade • Use internationally recognized standards where available and relevant • Use scientific evidence as a basis for sanitary and phytosanitary health and safety measures (SPS Agreement) • Not unjustifiably discriminate against imported products • Publish regulatory measures covered by the TBT and SPS Agreements 	Prevent protectionism disguised as health and safety measures and ensure transparency in domestic regulation
SCM	<ul style="list-style-type: none"> • Not introduce subsidies contingent on local content or exporting requirements 	Prevent or disincentivize subsidies that distort trade patterns and undermine competing producers in other countries

²⁵ SPS/TBT refers to the Agreements on Sanitary and Phyto Sanitary Measures and Technical Barriers to Trade. TRIMs refer to the Agreement on Trade-Related Investment Measures. AD/CVD/SG refers to the three separate agreements governing unilateral trade remedies, including the Agreement on Anti-Dumping Duties, the Agreement on Subsidies and Countervailing Measures, and the Agreement on Safeguards.

TRIMS	<ul style="list-style-type: none"> • Not introduce rules on investment that act as quantitative restrictions on imports of goods or services • Not introduce investment measures that prefer domestic products over imports 	Prevent rules on investment in a WTO member's territory to restrict or distort trade in ways that would otherwise be prohibited by the GATT and other trade agreements
Agreement on Antidumping, SCM & Agreement on Safeguards	<ul style="list-style-type: none"> • Apply established methodology in domestic proceedings to determine whether and how to calculate the number of tariffs needed to counteract: (1) the presence of "dumping" by foreign firms, (2) certain harmful subsidization by other countries or (3) sudden unexplained surges in imports 	Allow WTO members to enact protectionist tariffs in response to certain subsidies by other WTO members or in response to certain changes to world trade and competition conditions that injure or may injure domestic industries ("trade remedies")

A. Mitigation

Climate action has mostly focused on decarbonization through the reduction of greenhouse gas (GHG) emissions in production and transportation, the promotion of renewable energy, and phasing out of fossil fuels. Starting with the Kyoto Protocol, and in the subsequent agreements leading to the Paris Agreement, the United Nations Framework Convention on Climate Change (UNFCCC) systems emissions reduction targets and commitments have been translated into domestic policies, legislation, and other regulatory efforts to reduce emissions and increase resilience.²⁶ Protecting biodiversity in the face of climate-driven extinction is another aspect of mitigation measures.

Emissions mitigation measures impact trade patterns because of the global structure of supply chains and because of the transboundary nature of GHG emissions. In particular, states wishing to account for the climate impact of goods and services consumed domestically seek to calculate and mitigate emissions produced abroad for products consumed domestically so that emissions restrictions on domestic production are not simply circumvented by displacing production to

²⁶ Elena Hooijschuur et al., *Analysis of Cost-Effective Reduction Pathways for Major Emitting Countries to Achieve the Paris Agreement Climate Goal*, 4 GLOB. ENV'T CHANGE ADVANCES 1, 4 (2025), <https://doi.org/10.1016/j.gecadv.2025.100014>.

another country (the leakage phenomenon).²⁷ For example, the EU's carbon border adjustment mechanism (CBAM) is a border tax adjustment scheme imposing a carbon tax on certain imported products equivalent to what producers would have had to pay if they had produced the good in the EU.²⁸ However, seeking to account for, and manage, GHG emissions happening elsewhere but "embedded" in imports requires compliance with trade rules, and indeed, the EU's CBAM scheme has been challenged at the WTO.²⁹

Emissions mitigation measures often include renewable energy promotion, including policies supporting extraction, processing, and distribution along critical minerals supply chains, wind and solar capacity development and energy support, industrial policies for the development of more advanced batteries, and policies supporting the manufacture and use of electric vehicles (EVs). A complete transition away from fossil fuels will require heavy government support, such as subsidies, which, in turn, has implications under trade rules.³⁰ In fact, government support for the climate transition has already led to a slew of trade disputes.

Under the WTO agreements and most other free trade agreements, countries are theoretically free to choose the level of risk mitigation that they wish to pursue regarding environmental, human, plant, or animal health. However, when challenged, the trade restrictiveness of the measure is typically assessed against the contribution it makes to the stated objective. The effectiveness of a given climate mitigation measure is therefore relevant to trade law analyses, in particular to

²⁷ Justin Caron, *Empirical Evidence and Projections of Carbon Leakage: Some, But Not too Much, Probably*, in HANDBOOK ON TRADE POLICY AND CLIMATE CHANGE 58–75 (Michael Jakob ed., 2022); Michael Grubb et al., *Carbon Leakage, Consumption and Trade*, 47 ANN. REV. ENV'T & RES. 753, 755 (2022); Stefano Verde, *The Impact of the EU Emissions Trading System on Competitiveness and Carbon Leakage: The Econometric Evidence*, 34 J. ECON. SURVEYS 320, 321 (2020).

²⁸ *Carbon Border Tax Adjustment*, EUR. COMM'N, https://taxation-customs.ec.europa.eu/carbon-border-adjustment-mechanism_en [<https://perma.cc/DTP8-9LYU>].

²⁹ Request for Consultations by the Russian Federation, *European Union and Its Member States—Carbon Border Adjustment Mechanism*, WTO Doc. WT/DS639/1 (May 19, 2025). See also *infra* note 57 and accompanying text.

³⁰ Request for Consultations by the Russian Federation, *European Union and Its Member States—Carbon Border Adjustment Mechanism*, WTO Doc. WT/DS639/1 (May 12, 2025). See also *infra* note 57 and accompanying text.

³⁰ See, e.g., BRIGITTA BRAND-IMELI, AGREEMENT ON CLIMATE CHANGE, TRADE AND SUSTAINABILITY (ACCTS) (2025), https://www.wto.org/library/events/event_resources/envir_30062025/834_2667.pdf [<https://perma.cc/VV7A-S8BD>] (presented at WTO Trade and Environment Week); *Fossil Fuel Subsidy Reform*, *supra* note 2; U.N. DEP'T OF ECON. & SOC. AFFS., THE SUSTAINABLE DEVELOPMENT GOALS REPORT 2024, at 11 (2024), <https://perma.cc/5SMS-49R7>.

prevent greenwashing of protectionist measures. Trade rules enabling states to take measures to protect biodiversity within their borders, in international waters, and potentially even in other states' territories have been at the core of some of the most notable trade disputes.³¹

B. Adaptation

Adaptation is described in climate policy literature as the process of seeking to make “adjustments to enhance the viability of social and economic activities and to reduce their vulnerability to climate, including its current variability and extreme events as well as longer term climate change.”³² Adaptation measures include evolutions in the natural environment, community initiatives to adapt and respond to changes in the climate, and the deployment of infrastructure such as flood defenses.³³

Despite the range of measures deployed under the auspices of the UNFCCC, adaptation gaps persist. Many countries' climate initiatives prioritize short-term risk reduction over long-term adaptation needs.³⁴ Perhaps most critically, limits to adaptation are being reached in some sectors and regions. In particular, the Intergovernmental Panel on Climate Change (IPCC) anticipates that a number of agricultural improvement measures will become less effective beyond 2 degrees Celsius of global warming.³⁵ Additionally, maladaptation (action taken to reduce climate pressures in some areas but which unexpectedly exacerbates other weaknesses to climate change) is also a growing issue and disproportionately affects vulnerable groups.³⁶

³¹ See, e.g., *US—Shrimp*, *supra* note 3, ¶ 133; Appellate Body Report, *European Communities—Measures Prohibiting the Importation and Marketing of Seal Products*, ¶ 5.173, WTO Doc. WT/DS401/AB/R (adopted June 18, 2014). See generally Barbara Cooreman, *Addressing Environmental Concerns Through Trade: A Case for Extraterritoriality?*, 65 INT'L & COMPAR. L.Q. 229 (2016) (discussing state strategies to unilaterally enforce environmental protection measures).

³² Barry Smit et al., *An Anatomy of Adaptation to Climate Change and Variability*, 45 CLIMATIC CHANGE 223, 228 (2000).

³³ See Benjamin K. Sovacool, *Hard and Soft Paths for Climate Change Adaptation*, 11 CLIMATE POL'Y 1177, 1178–79 (2011).

³⁴ UNFCCC, *Decisions Adopted by the Conference of the Parties Serving as the Meeting of the Parties to the Paris Agreement*, U.N. Doc. FCCC/PA/CMA/2023/16/Add.1 (Dec. 13, 2023), https://unfccc.int/sites/default/files/resource/cma2023_16a01E.pdf.

³⁵ IPCC, *Climate Change 2023: Synthesis Report, Contribution of Working Groups I, II and III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change* (Hoesung Lee & J. Ramón Romero eds., 2023).

³⁶ IPCC, *Climate Change 2022: Impacts, Adaptation and Vulnerability, Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change*, at 68, 71, 73, 85–111 (Hans-Otto Pörtner et al. eds., 2022).

Adaptation is particularly important to the agricultural sector, and policies in that field frequently intersect with trade issues. For instance, trade rules on sanitary and phytosanitary standards (per the WTO's SPS Agreement) are salient to climate adaptation needs in agriculture since they deal with toxins, additives, and pests in food and feedstock.³⁷ The increased need for public stockholding of food to protect against crop failure or damage resulting from extreme weather events triggers government procurement and subsidies questions under many trade agreements. Additionally, environmental standards—whether for energy efficiency in infrastructure, waste reduction, or water conservation—overlap with trade disciplines per the Agreement on Technical Barriers to Trade (TBT Agreement), as illustrated in Table 1.

Fisheries represent another important sector for adaptation. Unsustainable fishery subsidies have led to overfishing.³⁸ At the same time, ocean resources have become endangered because of eutrophication, acidification, pollution, and rising temperatures.³⁹ In addition to existing disciplines on subsidies (see Table 1), WTO members recently concluded an agreement aimed at reducing certain fishery subsidies, particularly those which would further drive down fishing stocks. The agreement also calls for further curbs to fisheries subsidies in future negotiations.⁴⁰

C. Transformation

The IPCC first discussed transformation in its Special Report on Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation (SREX): “Transformation involves fundamental changes in the attributes of a system, including value systems; regulatory, legislative, or bureaucratic regimes; financial institutions; and technological or biophysical systems.”⁴¹

³⁷ FAO of the U.N., *Standards as a Tool for Climate Action: Practices and Opportunities* (2023); Standards & Trade Dev. Facility, *Climate Change and the SPS Framework: Briefing Note 2* (2022); see U.N. Conf. on Trade & Dev., *Climate Change Impacts and Trade Policy Responses: Overview of Measures and Tools*, U.N. Doc. UNCTAD/DITC/TAB/2023/5 (2023), https://unctad.org/system/files/official-document/ditctab2023d5_en.pdf (mapping climate-related non-tariff measures).

³⁸ Robert Arthur et al., *The Cost of Harmful Fishing Subsidies 5* (Int'l Inst. for Env't & Dev., Working Paper, 2019), <https://www.iied.org/sites/default/files/pdfs/migrate/16654IIED.pdf>.

³⁹ U.N. Dep't of Econ. & Soc. Affs., *The Sustainable Development Goals Report 2024—June 2024*, at 36 (2024).

⁴⁰ WTO, *Ministerial Decision of 17 June 2022*, WTO Doc. WT/MIN(22)/JUN/33, (2022), <https://docs.wto.org/dol2fe/Pages/SS/directdoc.aspx?filename=q:/WT/MIN22/33.pdf>.

⁴¹ IPCC, *MANAGING THE RISKS OF EXTREME EVENTS AND DISASTERS TO ADVANCE CLIMATE CHANGE ADAPTATION* 441 (C.B. Field et al. eds., 2012).

Transformation therefore tackles broader systemic issues, including rethinking the legal and regulatory status quo.⁴²

While more politically difficult to undertake, transformation aims to address the deep-seated causes of climate change by identifying new institutional and policy responses. Ultimately, it calls for transforming whole economies. Trade law reform has a role to play in this context. As we argue below, trade law allows for a range of climate policies, but it presents some systemic obstacles that need to be revisited. Beyond creating a permissive environment for climate policy, transformation may also require trade law to become an agent of policy change. In particular, transformation may require economic restructuring supported by industrial policies. At present, trade law severely hamstrings how states can deploy green industrial policies that support the development and production of low carbon technology.

Transformational trade policy will likely also require new coalitions, new approaches to disciplines and commitments that account for states' needs and capabilities, technical support and other forms of cooperation, and short-term flexibilities to ease the hardships of transitions. Table 2 illustrates the diversity of climate-related trade cases and their relationship to trade rules.

Table 2. Illustrative List of Challenged Climate Policies and Their Intersection with Trade Rules

Domestic Climate Action & WTO Case	Relevant Trade Rules	Affected Products	Climate Goals
US—Inflation Reduction Act ⁴³ Canada—Feed-in-Tariff Program ⁴⁴ India—Solar Cells ⁴⁵	GATT rules on non-discrimination; Prohibition on local content requirements and incentives (Subsidies Agreement; TRIMS Agreement)	Wind and solar energy products, batteries, electric vehicles	Mitigation Adaptation Transformation

⁴² *Id.* at 133.

⁴³ Pub. L. No. 117-169, 136 Stat. 1818 (2022); Request for Consultations by China, *United States—Certain Tax Credits Under the Inflation Reduction Act*, WTO Doc. WT/DS623/1 (Mar. 28, 2024).

⁴⁴ For an overview of the program, see *Ontario's FIT/microFIT Programs*, CAN. REVENUE AGENCY, <https://www.canada.ca/en/revenue-agency/services/tax/businesses/topics/ontario-s-fit-microfit-programs.html> (last visited Mar. 10, 2026); Appellate Body Report, *Canada—Measures Relating to the Feed-in Tariff Program*, WTO Doc. WT/DS426/AB/R (adopted May 24, 2013) [hereinafter *Canada—FIT*].

China—Rare Earths ⁴⁶	GATT prohibition on quantitative restrictions	Batteries and cells, electrical filaments and apparatus for making batteries; hydrometers and thermometers and other instruments for measuring or checking pressure	Mitigation Adaptation
EU and Certain Member States—Palm Oil (Malaysia) EU and Certain Member States—Palm Oil (Indonesia) ⁴⁷	GATT rules on non-discrimination and quantitative restrictions; Subsidies Agreement; TBT Agreement	Biofuels, especially palm oil and other palm products	Mitigation Adaptation Transformation

⁴⁵ For an overview of the program, see *Jawaharlal Nehru National Solar Mission (JNNSM)*, INDIA SCI., TECHN. & INNOVATION PORTAL, <https://www.indiascienceandtechnology.gov.in/st-visions/national-mission/jawaharlal-nehru-national-solar-mission-jnnsms> [<https://perma.cc/49E8-67P9>]; Appellate Body Report, *India—Certain Measures Relating to Solar Cells and Solar Modules*, WT/DS456/AB/R (adopted Oct. 14, 2016) [hereinafter *India—Solar Cells*].

⁴⁶ The government of China has passed a number of regulations restricting exports over the years. See, e.g., *China's Rare Earth Regulations Responsible Step Toward Sustainable Global Supply, Security*, PEOPLE'S REPUBLIC OF CHINA, STATE COUNCIL INFORMATION OFFICE: CHINA VOICES (June 10, 2025), http://english.scio.gov.cn/chinavoices/2025-06/10/content_117918955.html; Craig A. Hart, *Mapping China's Strategy for Rare Earths Dominance*, ATL. COUNCIL GLOB. ENERGY CTR (June 2025), <https://www.atlanticcouncil.org/wp-content/uploads/2025/06/Mapping-Chinas-strategy-for-rare-earth-dominance.pdf>; Request for Consultations by the United States, *China—Export Duties on Certain Raw Materials*, WTO Doc. WT/DS508/1 (July 14, 2016); Request for Consultations by the European Union, *China—Export Duties on Certain Raw Materials*, WTO Doc. WT/DS509/1 (July 25, 2016); Appellate Body Report, *China—Measures Related to the Exportation of Rare Earths, Tungsten and Molybdenum*, WTO Doc. WT/DS431/AB/R, WT/DS432/AB/R, WT/DS433/AB/R (adopted Aug. 29, 2014).

⁴⁷ Panel Report, *European Union—Certain Measures Concerning Palm Oil and Oil Palm Crop-Based Biofuels (Malaysia)*, WTO Doc. WT/DS600/R (adopted Apr. 26, 2024) [hereinafter *EU—Palm Oil (Malaysia)*]; Panel Report, *European Union—Certain Measures Concerning Palm Oil and Oil Palm Crop-Based Biofuels (Indonesia)*, WTO Doc. WT/DS593/R (adopted Feb. 24, 2025) [hereinafter *EU—Palm Oil (Indonesia)*].

EU—CBAM (Russia) ⁴⁸	GATT rules on non-discrimination and quantitative restrictions; Subsidies Agreement Protocols of Accession	Hard-to-abate industrial sectors, various	Mitigation Transformation
Brazil—Retreaded Tyres ⁴⁹	GATT rules on non-discrimination	Retreaded tires	Mitigation
Indonesia—Raw Materials ⁵⁰	GATT rules on quantitative restrictions; Subsidies Agreement	Raw nickel	Transformation
US—Safeguard Measure on PV Products (China) ⁵¹ Australia—AD/CVD on Certain Products (China) ⁵²	Safeguards Agreement; Subsidies Agreement; Agreement on Anti-dumping Duties	Wind and solar energy products	Mitigation Transformation

Source: GTA 2025; authors' categorization

II. WHAT CLIMATE ACTIONS ARE SUPPORTED BY TRADE AGREEMENTS?

Whether a particular policy is permitted within the global trade regime, however, depends on the instrument used and its implementation. The following section highlights areas where current trade rules make space for, and even encourage, climate policies. First, we explore the Agreement on Sanitary and Phyto-sanitary measures (SPS) and the Agreement on Technical Barriers to Trade (TBT) to

⁴⁸ Request for Consultations by Russia, *European Union and its Member States—Carbon Border Adjustment Mechanism*, WTO Doc. WT/DS639/1 (May 12, 2025).

⁴⁹ Appellate Body Report, *Brazil—Measures Affecting Imports of Retreaded Tyres*, WTO Doc. WT/DS332/AB/R (Dec. 3, 2007) [hereinafter *Brazil—Tyres*].

⁵⁰ Panel Report, *Indonesia—Measures Relating to Raw Materials*, WTO Doc. WT/DS592/R, (Nov. 30, 2022) [hereinafter *Indonesia—Raw Materials*].

⁵¹ Panel Report, *United States—Safeguard Measure on Imports of Crystalline Silicon Photovoltaic Products*, WTO Doc. WT/DS562/R (circulated Sep. 2, 2021) [hereinafter *US—Safeguard Measure on PV Products (China)*]; see also Request for Consultation by the Republic of Korea, *United States—Safeguard Measure on Imports of Crystalline Silicon Photovoltaic Products*, WTO Doc. WT/DS545/1 (May 14, 2018).

⁵² Panel Report, *Australia—Anti-Dumping and Countervailing Duty Measures on Certain Products from China*, WTO Doc. WT/DS603/R (adopted Apr. 26, 2024) [hereinafter *Australia—AD/CVD on Certain Products (China)*].

highlight how global trade rules have explicitly made room for countries to protect human, animal, and plant health, as well as to regulate the environmental impacts of goods that come across their borders. Second, we reveal how policy space exists within trade rules on subsidies. Third, we discuss the potential role of taxes and tariffs in promoting cleaner production and facilitating the move toward a low carbon economy. Finally, we explore the flexibilities provided to countries through general exceptions and specific carve-outs in the rules for public policymaking, public procurement, and unilateral trade remedies.

A. SPS and TBT Measures: Deploying Environmental Standards

Product standards on energy efficiency, GHG emissions, and sustainability of production chains all bear on the deployment of climate change policies. States may therefore use technical regulations, standards, and conformity assessment procedures relating to products and their “processes and production methods”⁵³ to embed climate policies in production and consumption.

The TBT Agreement and the SPS Agreement enable states to take these types of regulatory actions, so long as they neither arbitrarily nor unjustifiably discriminate between WTO Members, nor result in disguised restrictions to trade.⁵⁴ Per these Agreements, measures must fulfil a legitimate objective, including the protection of human health or safety, animal or plant life or health, or the environment.⁵⁵ Both Agreements create presumptions favoring internationally agreed-upon standards, which may assist in the coordination of climate-related policies. Regional and global regulatory convergence also has the potential to contribute to necessary transformative climate change policies. For instance, the International Standards Organization has promulgated standards pertaining to decarbonization in the energy sector.⁵⁶

UNCTAD compared nearly 90,000 measures from 150 countries to the Sustainable Development Goals to assess their impact on climate policy.⁵⁷ Over 2,000 climate-change-related technical barriers were

⁵³ TBT Agreement, *supra* note 12, annex 1.

⁵⁴ *Id.* art. 2.2; SPS Agreement, *supra* note 11, art. 1.3.

⁵⁵ TBT Agreement, *supra* note 12, art. 2.2; SPS Agreement, *supra* note 11, preamble.

⁵⁶ *Standards by ISO/TC 207/SC 7: Greenhouse Gas and Climate Change Management and Related Activities*, INT’L ORG. FOR STANDARDIZATION, <https://www.iso.org/committee/546318/x/catalogue/p/1/u/0/w/0/d/0> (last visited Mar. 12, 2026).

⁵⁷ U.N. Conf. on Trade & Dev. & U.N. Economic & Social Comm’n for Asia & the Pacific, *Trade Regulations for Climate Action: New Insights from the Global Non-Tariff Measures Database 5–6*, U.N. Doc. UNCTAD/DITC/TAB/2023/5 (2023).

identified, 26.4 percent of world trade.⁵⁸ These measures include rules on GHG emissions and energy efficiency (e.g., energy performance standards for cars, appliances and machinery, restrictions on the trade of incandescent light bulbs).

EU regulations on palm oil imports illustrate how these kinds of technical barriers can be used to achieve climate policy objectives. To reduce GHG emissions from the transportation sector, the EU established incentives to mix crop-based biofuels in diesel in order to reduce the amount of fossil fuels used for diesel. Some of this biofuel will be produced in the EU and will be subject to stringent environmental standards. But a significant portion of the biofuel needed will have to be imported. The issue, then, is the potential environmental impact of biofuel production abroad. Specifically, foreign producers might destroy valuable carbon sinks (e.g., virgin forests), disrupt ecosystems, and undermine biodiversity to create commercial palm oil plantations.

The EU wanted to ensure that any incentives it offered to countries exporting biofuels to the EU did not cause negative climate impacts on land use abroad. Therefore, EU regulations set biofuel crop product standards that excluded countries from the incentives scheme if the EU determined that these countries were likely to engage in environmentally harmful land use change in order to increase their exports of biofuels to the EU. Indonesia and Malaysia, in particular, were excluded on that basis. They therefore challenged the EU scheme at the WTO as being discriminatory. Adjudicators on the WTO panel found that the EU had not violated the TBT Agreement. Although these measures were still largely struck down under other WTO obligations, the *EU–Palm Oil* cases indicate that these kinds of climate policy measures may be allowed under the TBT Agreement despite having trade-restrictive impacts.⁵⁹

B. Policy Space for Green Subsidies

One of the most widely leveraged policy tools for pursuing environmental goals is subsidies. Approximately 80 percent of all green industrial policies from 2016 to 2023 have been identified as “subsidies and state aid.”⁶⁰ The scale of green industrial subsidies is likewise enormous and plays a major role for transformative industrial policies needed both for climate adaptation and transformation. In the renewable

⁵⁸ *Id.* at 9.

⁵⁹ *EU–Palm Oil (Malaysia)*, *supra* note 47; *EU–Palm Oil (Indonesia)*, *supra* note 47.

⁶⁰ Bandara et al., *supra* note 20, at 4–5.

energy sector alone, subsidies from China and the U.S. amount to hundreds of billions of dollars per year.⁶¹

The WTO's Agreement on Subsidies and Countervailing Measures (SCM Agreement) defines a subsidy as "a financial contribution by a government or any public body" where "a benefit is thereby conferred."⁶² However, the Agreement only regulates subsidies that are "specific to an enterprise or industry or group of enterprises or industries."⁶³ Although some subsidies are completely prohibited,⁶⁴ subsidies that are applicable across the board, such as consumption subsidies for electricity produced from renewable energy, or subsidies available to anyone provided that they meet objective criteria or conditions, are considered non-specific and are not regulated by the SCM Agreement. Specific subsidies are allowed with some limitations. This allows governments to support various segments of their economies for climate mitigation, adaptation, and transformation.

Although the WTO rules do allow challenges to "specific" subsidies through a WTO dispute consultation based on the adverse effects of the subsidy, to date, no country has requested consultations purely on the basis of an actionable (but not prohibited) green industrial subsidy.⁶⁵ WTO rules also allow members to initiate domestic unilateral trade remedies to address economic disruptions from other members' subsidies, a policy choice we discuss further below.⁶⁶ Otherwise, carefully designed non-discriminatory industrial subsidies are often allowed even where they may negatively impact other members.

⁶¹ Frank Bickenbach et al., *Foul Play? On the Scale and Scope of Industrial Subsidies in China* (Kiel Inst. for the World Econ., Policy Brief No. 173, 2024), https://www.ifw-kiel.de/fileadmin/Dateiverwaltung/IfW-Publications/fis-import/bc6aff38-abfc-424a-b631-6d789e992cf9-KPB173_en.pdf; Hunt Allcott et al., *The Effects of "Buy American:" Electric Vehicles and the Inflation Reduction Act* (Nat'l Bureau of Econ. Rsch., Working Paper No. 33032, 2024), https://www.nber.org/system/files/working_papers/w33032/w33032.pdf.

⁶² SCM Agreement, *supra* note 10, art 1.1.

⁶³ *Id.* art. 2.1.

⁶⁴ See discussion *infra* Section III.A.

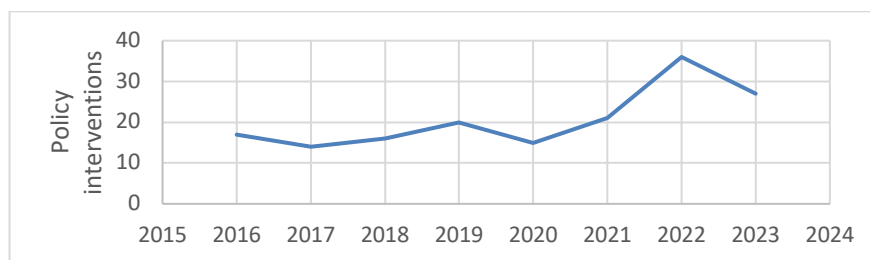
⁶⁵ See discussion *infra* Section III.A. See, e.g., Panel Report, *United States—Certain Tax Credits Under the Inflation Reduction Act*, WTO Doc. WT/DS623/R (Jan. 30, 2026); Panel Report, *European Union—Countervailing Duties on Imports of Biodiesel from Indonesia*, WTO Doc. WT/DS618/R (circulated Aug. 22, 2025); Panel Composed, *European Union—Definitive Countervailing Duties on New Battery Electric Vehicles from China*, WTO Doc. WT/DS630/4 (Oct. 13, 2025); Request for Consultations by the Republic of China, *European Union—Provisional Countervailing Duties on New Battery Electric Vehicles from China*, WTO Doc. WT/DS626/1 (Aug. 9, 2024).

⁶⁶ See discussion *infra* Section II.D.3.

C. Taxes and Tariffs

Climate mitigation policies increasing involve the use of taxes, particularly on domestic GHG emissions and imported products (see Figure 1). States' taxation power is an important factor in mobilizing resources for climate policy, as well as creating incentives for more sustainable consumption and production.

Figure 1. Number of Climate-Related Import Tariffs, Export Taxes, and Internal Taxes on Imports, 2016–23⁶⁷



Indirect taxes (e.g., sales tax on products and services) and other domestic taxes are generally allowed so long as they do not discriminate between imported and domestic goods.⁶⁸

The EU's Carbon Border Adjustment Mechanism (CBAM) illustrates the use of taxation for climate action.⁶⁹ The CBAM is designed to complement the EU's internal Emissions Trading Scheme (ETS), whereby EU producers must account and pay for the emissions resulting from their activities through a cap-and-trade system. This discourages producers from avoiding the costs of the emissions trading system by importing goods produced elsewhere, a phenomenon called carbon leakage. To avoid carbon leakage and place EU producers on a level playing field with foreign producers, the CBAM subjects imported products to emissions payment equivalent to what might have been due under the ETS. Importers must therefore pay for production emissions occurring abroad by buying emissions certificates. The cost of emissions certificates for these imported products may be allowed under WTO trade rules as a "charge equivalent to an internal tax" under GATT Article II:2(a).

⁶⁷ Compiled by authors based on data from Bandara et al., *supra* note 20.

⁶⁸ GATT, *supra* note 6, arts. II:2, III:3.

⁶⁹ Regulation 2023/956, of the European Parliament and of the Council of 10 May 2023 Establishing a Carbon Border Adjustment Mechanism, 2023 O.J. (L 130) 52 (EU).

While the EU considers the scheme to be WTO-compliant,⁷⁰ other members have expressed concerns, and Russia has challenged the scheme under the GATT and the SCM Agreement.⁷¹ More generally, countries are concerned that the CBAM might have discriminatory impacts on the EU's trade partners.⁷² As is often the case with climate instruments, the overall objective of the measure might be fine under trade law, but its implementation might be problematic. Beyond technical legal concerns, commentators and policymakers worry that the CBAM will have negative impacts on developing countries exporting to the EU.⁷³ In the meantime, the UK and Australia are on the verge of launching their own carbon border tax schemes to complement their domestic carbon pricing tools, and Canada has previously considered it.⁷⁴

Aside from taxes, states can, within certain boundaries, use tariffs to raise and lower the prices of high carbon goods and low carbon goods respectively. Generally, states commit to tariff maximums as part of their trade agreements (bound rates). However, states are free to apply lower rates and to vary those rates under the upper bound (applied rates)

⁷⁰ *Carbon Border Adjustment Mechanism*, EUR. COMM'N, https://taxation-customs.ec.europa.eu/carbon-border-adjustment-mechanism_en [<https://perma.cc/J5A8-UJUN>].

⁷¹ Request for Consultations, *European Union and its Member States—Carbon Border Adjustment Mechanism*, WTO Doc. WT/DS639/1 (May 19, 2025). Russia argues that the CBAM is inconsistent with a number of GATT provisions (including most-favored nation, national treatment, and the prohibition against quotas) and the SCM Agreement, as well as other WTO obligations. *Id.* at 4. The EU has refused to engage in consultations towards the settlement of the case because of Russia's actions in Ukraine. Communication, *European Union and its Member States—Carbon Border Adjustment Mechanism*, WTO Doc. WT/DS639/2 (May 26, 2025). It is unlikely that a WTO panel will decide the case before late 2026.

⁷² See, e.g., David A. Wirth, *Carbon Border Adjustment Mechanisms as a Tool of Economic Statecraft in A Multipolar World*, 39 MD. J. INT'L L. 72, 77–79, 80–82 (2024); Timothy Meyer & Todd N. Tucker, *A Pragmatic Approach to Carbon Border Measures*, 21 WORLD TRADE REV. 109, 115–20 (2022).

⁷³ See Guilherme Magacho, Etienne Espagne & Antoine Godin, *Impacts of the CBAM on EU Trade Partners: Consequences for Developing Countries*, 24 CLIMATE POL'Y 243 (2024); Ritu Srivastava, *Carbon Border Adjustment Mechanisms (CBAM) and Trade Dynamics: Implications for Developing Economies*, 6 ASIAN J. MGMT. & COM. 1157 (2025); Wirth, *supra* note 72, at 82, 84.

⁷⁴ HM REVENUE & CUSTOMS & HM TREASURY, INTRODUCTION OF A UK CARBON BORDER ADJUSTMENT MECHANISM FROM JANUARY 2027: GOVERNMENT RESPONSE TO THE POLICY DESIGN CONSULTATION (2024), https://assets.publishing.service.gov.uk/media/679cb194a9ee53687470a2fa/Introduction_of_a_UK_Carbon_Border_Adjustment_Mechanism_from_January_2027_-_Government_response_to_the_policy_design_consultation.pdf [<https://perma.cc/YBB7-2YLD>]; ANTONIE BONNET & IEVA BARŠAUSKAITĖ, INT'L INST. FOR SUSTAINABLE DEV., THE STATE OF BCA 2025: IISD REPORT 1, 9 (2025), <https://www.iisd.org/system/files/2025-02/state-of-bcas-2025.pdf> [<https://perma.cc/RQ46-K5RT>]; *Australia's Carbon Leakage Review*, DEP'T OF CLIMATE CHANGE, ENERGY, THE ENV'T & WATER (Feb. 13, 2026), <https://www.dcccew.gov.au/climate-change/emissions-reduction/review-carbon-leakage>.

so long as they do so in a non-discriminatory fashion as between importers of various countries (MFN obligation). In general, emerging markets and developing economies tend to have high bound tariffs and lower applied rates, whereas advanced economies have low bound and applied rates.⁷⁵ By way of illustration, we surveyed bound and applied tariff rates for certain high and low carbon alternative goods in the US, EU, Brazil, and India.⁷⁶ We found that US and EU bound and applied rates were low or nil, with very little variance between high and low carbon alternatives, except for motor fuels and biofuel alternatives.⁷⁷ Brazil and India showed high bound rates (between 25 and 40 percent) and typically much lower applied rates on all goods in our sample. However, there was no clear policy of applying higher rates to high carbon alternatives and lower rates to low carbon alternatives. Notably, Brazil had exempted tariffs on electric and hybrid vehicles since 2015 to boost adoption of such vehicles but is now phasing back in the 35 percent tariff applying to vehicles generally.⁷⁸

Countries with high bound rates may use tariffs as a tool to incentivize shifts to low carbon alternatives, as Brazil did with EV and hybrid vehicles. By contrast, countries with low bound rates would need to renegotiate their tariff commitments upwards in order to be allowed to impose higher tariffs on high carbon goods. GATT Article XXVIII allows such renegotiations, though it has been seldom used so far,⁷⁹ and

⁷⁵ WTO, ITC & UNCTAD, *WORLD TARIFF PROFILES 2023*, at 1, 14 (2023), https://www.wto.org/english/res_e/booksp_e/world_tariff_profiles23_e.pdf.

⁷⁶ Our sample included *hydraulic cement* and cement clinkers, *bamboo flooring panels* and wood sawn lengthwise, *reversible heat pumps* and non-reversible AC machines, *lithium batteries* and nickel-cadmium batteries, *fluorescent lamps* and tungsten halogen lamps, *hybrid cars* and gas-powered cars, *electric motorcycles* and gas motorcycles, *biodiesel*, *bioethanol* and motor fuel (low carbon alternative denoted in italics).

⁷⁷ For the United States, the motor fuel MFN tariff is 52.5 cents/bbl (HTS tariff line 2710.12.15, while tariffs for biodiesel and bioethanol are 4.6%–6.5% (HTS 3826.00) and 1.9% (HTS 2207.20.00), respectively. For the European Union, the MFN tariff rates were between 3.5% and 4.7% for motor fuels, 3.2% for biodiesel, and €10.2 per hectoliter for bioethanol. USITC (2026), *Harmonized Tariff Schedule of the United States Revision 4*, United States International Trade Commission. Available at <https://hts.usitc.gov/> (last visited March 5, 2026); European Union (2026), *Integrated Tariff for the European Union (TARIC) database*. Available at https://ec.europa.eu/taxation_customs/dds2/taric/taric_consultation.jsp (last visited March 5, 2026). See generally *Schedules of Concessions*, *supra* note 5 (providing an overview of tariff commitments for WTO member states).

⁷⁸ José Carlos Díaz Silva, *Brazil, Electric Vehicle Production and Great Power Competition*, OBSERVATORIO ECONÓMICO LATINOAMERICANO (Oct. 28, 2024), <https://www.obela.org/analisis/Brazil-electric-vehicle-production-and-Great-Power-Competition>.

⁷⁹ WTO, *GATT 1994-Article 28*, in *WTO ANALYTICAL INDEX: GUIDE TO WTO LAW AND PRACTICE* (2d ed. 2017), https://www.wto.org/english/res_e/publications_e/ai17_e/gatt1994_art28_oth.pdf.

the current US drive to unilaterally reset tariffs might further undermine multilateral tariff renegotiations.

D. Environmental Exceptions, Government Procurement, and Trade Defenses

1. GATT Article XX Exceptions

In some instances, a country may introduce a measure that is disallowed under the usual rules of the GATT or other WTO agreements but is permissible under the “general exceptions” of GATT Article XX. Determining whether GATT Article XX applies requires a two-step analysis. First, the measure must be *justified* as a listed exception, including if it is “necessary to protect human, animal or plant life or health”⁸⁰ or “relat[ed] to the conservation of exhaustible natural resources.”⁸¹ Second, the measure must not be *applied* in an arbitrary or unjustifiable manner or as a disguised restriction on trade (per the preamble paragraph called the *chapeau*).⁸² There is a rich literature regarding the potential and actual success of countries relying on these general exceptions.⁸³

Getting past the *chapeau* of a GATT Article XX analysis is the most challenging aspect of the WTO’s environmental exception. The first case to mention climate change at the WTO was *Brazil – Tyres* in 2007. Brazil introduced an import ban on used and retreaded tires to reduce tire waste, which posed health risks through the transmission of disease (as mosquito breeding grounds) and exposure to toxic fumes from tire fires.⁸⁴ The EU challenged the measures as unlawful quantitative restrictions on trade (under GATT Article XI). The Appellate Body, a standing WTO body of adjudicators set up to hear WTO cases on appeal, determined that the measure could be justified on the basis of its contribution to Brazil’s legitimate public policy goal. However, Brazil’s measure failed because the ban was not applied equally to all trading

⁸⁰ GATT, *supra* note 6, art. XX(b).

⁸¹ *Id.* art. XX(g).

⁸² *Id.* art. XX.

⁸³ See generally Tania Voon, *Multilateral Rules on Trade in Goods-Exceptions and Regulatory Autonomy*, in THE INTERNATIONAL LAW OF ECONOMIC INTEGRATION (Julien Chaisse & Christoph Hermann eds., 2025) (outlining various provisions that grant WTO Members discretion in conforming with WTO rules); Lorand Bartels, *The Chapeau of the General Exceptions in the WTO GATT and GATS Agreements: A Reconstruction*, 109 AM. J. INT’L L. 95 (2015) (providing an analysis of the various standards for introducing non-trade policies under the WTO); Abigail Pelton, Note, *Protecting Protectionism in the WTO: A Reinterpretation of the General Exceptions to Protect the IRA’s Local Content Requirements*, 49 COLUM. J. ENV’T. L. 100 (2024) (assessing the consistency of the US’s Inflation Reduction Act with the WTO rules and exceptions).

⁸⁴ *Brazil—Tyres*, *supra* note 49.

partners—there was an exception for fellow members of the MERCOSUR trading bloc.⁸⁵ Importantly for climate policy, however, the Appellate Body noted that empirical proof of the effectiveness of a measure in reaching its aim is not necessary to determine whether the measure is justifiable because, “for instance, measures adopted in order to attenuate global warming and climate change . . . that may manifest themselves only after a certain period of time—can only be evaluated with the benefit of time.”⁸⁶

The *EU–Palm Oil* disputes mentioned earlier faced a similar outcome. The panel in those cases found that while some of the measures did violate the non-discrimination standards in the GATT, they were justifiable because they were related to the conservation of exhaustible natural resources and because they were necessary to protect human, animal, and plant life and health. Nevertheless, the EU unsuccessfully argued that the application of their measures was sufficiently origin-neutral to comply with the *chapeau* of GATT Article XX.⁸⁷

2. Government Procurement

Historically, government procurement policies have been used to protect strategic domestic industries and promote development, making up an estimated 13–20 percent of global economic activity.⁸⁸ Because of government procurement’s critical policy role, it is explicitly carved out of many WTO obligations. For example, GATT Article III:8 relieves public procurement measures of the national treatment standard in laws, regulations, requirements, and subsidies. The General Agreement on Trade in Services likewise includes an article that removes government procurement from the scope of the market access and non-discrimination standards in the agreement.⁸⁹ While there is a WTO Agreement on Government Procurement, it is a plurilateral agreement and has only 49 Members (including the EU and its member states).⁹⁰

⁸⁵ *Id.* ¶¶ 217–19, 225–33.

⁸⁶ *Id.* ¶ 151.

⁸⁷ *EU–Palm Oil (Malaysia)*, *supra* note 47, ¶¶ 7.1070–72, 7.1092–99; *EU–Palm Oil (Indonesia)*, *supra* note 47, ¶¶ 7.1100–07.

⁸⁸ *Global Public Procurement Database: Share, Compare, Improve!*, WBG (Mar. 23, 2020), <https://www.worldbank.org/en/news/feature/2020/03/23/global-public-procurement-database-share-compare-improve> [<https://perma.cc/M5RJ-PHYX>].

⁸⁹ General Agreement on Trade in Services art. XIII, Apr. 15, 1994, Marrakesh Agreement Establishing the World Trade Organization, Annex 1B, 1869 U.N.T.S. 183 [hereinafter GATS].

⁹⁰ Agreement on Government Procurement, Apr. 15, 1994, Marrakesh Agreement Establishing the World Trade Organization, Annex 4(b), 1915 U.N.T.S. 103 [hereinafter GPA].

There is a growing interest in deploying “green” or “sustainable” government procurement practices in the interest of climate.⁹¹ In two recent instances, countries have attempted to assert the government procurement exception in defense of their local content requirements.⁹² In brief, Canada and India attempted to claim that their otherwise prohibited local content incentives and requirements for renewable energy investments were allowed by the carve-out for government procurement measures. The main value of the carve-out is that it permits governments to favor national or otherwise strategic industries in their contracts for the supply of goods or services, so long as the goods or services are not used for commercial resale in the market.

Neither Canada nor India prevailed before the Appellate Body because the sector experiencing discrimination (the inputs to the energy generation) was not the same as that which the government was purchasing (the energy itself).⁹³ Thus, although the government procurement carve-out may allow governments greater flexibility in their purchasing, it also highlights that such procurement measures must be carefully designed in compliance with the rules.

⁹¹ See generally Abderahman Rejeb et al., *Mapping the Knowledge Domain of Green Procurement: A Review and Bibliometric Analysis*, 26 ENV'T. DEV. & SUSTAINABILITY 300027 (2024) (summarizing the literature on green public procurement); Shirley-Ann Behravesh, Nicole Darnall & Stuart Bretschneider, *A Framework for Understanding Sustainable Public Purchasing*, 376 J. CLEANER PROD. 134122 (2022) (assessing the extent to which countries have adopted sustainable public procurement frameworks); Christopher McCrudden, *Corporate Social Responsibility and Public Procurement* (Apr. 30, 2006), <https://papers.ssrn.com/abstract=899686> (considering the relationship between corporate social responsibility, public procurement, and the law); Rachel Thrasher, *On Fairness and Freedom: The WTO and Ethical Sourcing Initiatives* (Glob. Econ. Governance Initiative, Working Paper No. 4, 2014), <https://www.bu.edu/pardee/files/2014/05/Thrasher-WTO-Ethical-Sourcing-Working-Paper.pdf> (mapping domestic ethical sourcing initiatives onto WTO government procurement commitments).

⁹² *Canada—FIT*, *supra* note 44; *India—Solar Cells*, *supra* note 45. See also *infra* Section III.A (exploring these instances in more depth).

⁹³ *Canada—FIT*, *supra* note 44, § 6; *India—Solar Cells*, *supra* note 45, § 8. Notably, Canada lost at the WTO but won an Investor-State Dispute Settlement case coming out of the same facts. When Mesa Power challenged the FIT program, the arbitration tribunal found that it did fall under the “government procurement” exception in the North America Free Trade Agreement, which was textually broader than the same exception in GATT Article III:8. Matthew Levine, *NAFTA Tribunal Dismisses Claims Against Canada on Green Energy Feed-In Tariff Program*, INT’L INST. FOR SUSTAINABLE DEV. (Aug. 10, 2016), <https://www.iisd.org/itm/en/2016/08/10/mesa-power-group-llc-v-government-of-canada-uncitral-pca-case-no-2012-17/>.

3. Trade Remedies: Preserving Domestic Industrial Capacity for Climate Adaptation and Mitigation

Classical economic theory says that goods should be produced in the place where it is most efficient to do so, either in absolute or in relative terms. In practice, however, green energy inputs are increasingly viewed as a strategic commodity, and states are interested in maintaining domestic production capacity, even if it would be more efficient to produce these green goods elsewhere. States are therefore protecting their domestic climate-related industries when they are overwhelmed by foreign competition. They often use trade remedies such as anti-dumping duties, countervailing duties, and safeguard duties.⁹⁴

Two recent cases show how high-income countries have relied on trade remedies to fend off surges of solar and wind products from China. In one case, China challenged a US quota on solar cell imports imposed to counteract what the US viewed as an unforeseen surge in imports of Chinese solar cells, and the Panel ruled in favor of the US.⁹⁵ In another, China challenged anti-dumping duties instituted by Australia based on a finding that Chinese wind tower producers were selling below market prices in Australia. Here, the Panel ruled in favor of China.⁹⁶

These two instances highlight the benefits and risks of trade remedy flexibilities. On the one hand, trade remedies may be a way for countries to secure domestic sustainable supplies and garner essential domestic political support for climate policy. On the other hand, these remedies may be used by high-income countries to target a country for geopolitical or protectionist reasons in response to lobbying by domestic industries. Trade remedies imposed by high-income countries may also harm low- and middle-income countries.⁹⁷ The preservation of trade remedies for climate action is important but at times hard to insulate from other economic and geopolitical agendas.

In conclusion, there is ample positive policy space to pursue climate goals. These areas include introducing climate-specific product and industry standards, subsidizing low-carbon economic activity (and disincentivizing high-carbon activity), promoting the innovation and

⁹⁴ See Table 1 and accompanying text.

⁹⁵ *US—Safeguard Measure on PV Products (China)*, *supra* note 51, § 8.

⁹⁶ *Australia—AD/CVD on Certain Products (China)*, *supra* note 52, § 8.

⁹⁷ Ministry of Com. of the People's Republic of China, Comments Regarding the Continuation Inquiry 621 Concerning Anti-Dumping Measure on Wind Towers from GOC (Sep. 20, 2023), https://www.industry.gov.au/sites/default/files/adc/public-record/2023-09/621_-_9_-_submission_-_foreign_government_-_government_of_china_-_goc_comments_concerning_measures_on_wind_towers.pdf.

diffusion of climate technology, and relying on key exceptions and carveouts to prioritize essential climate-friendly sectors. Nevertheless, trade agreements also present a gauntlet to run. Virtually all policies must fit in narrow bases of “legitimate policies” viewed as exceptions to primary liberalization objectives and avoid any kind of unjustifiable discrimination. For instance, a country may enact product standards relating to GHG emissions in order to promote energy efficiency, but only if the standards are not unjustifiably discriminatory, arbitrary or a disguised restriction to trade (see Figure 2). However, in practice, when a country’s given environmental policy is stripped of its features that run counter to trade obligations, it may no longer make sense from a climate perspective, or it may become politically unacceptable.

Figure 2. Climate Actions Allowed by Trade Law

A country may enact...	In order to...
Product standards	Promote energy efficiency, GHG emissions, etc.
Internationally agreed standards	Harmonize standards for climate goals
Economy-wide subsidies	Support demand of climate-friendly products
Specific subsidies (excluding prohibited subsidies)	Support climate mitigation/adaptation
Border tax adjustments	Avoid leakage of GHG emissions
Compulsory, government use licenses	Increase diffusion of climate tech
Public environmental/health policies	Protect life, health and conservation of resources
Government procurement policies	Promote local strategic industries/firms
Trade remedies	Protect from negative spillovers

IF the measure is NOT:
 Unjustifiably discriminatory
 Arbitrary
 Disguised restriction on trade

III. CLIMATE POLICY SPACE CONSTRAINTS IN TRADE LAW AND PRACTICE

Although there is significant policy space within trade rules for countries pursuing their climate goals, some policies continue to face significant constraints. This section examines two key areas of prohibited measures – local content and quantitative restrictions. In both instances, the policies are widely considered to be prohibited under trade rules, yet countries continue to rely on them to pursue their climate goals. In so doing, these countries increase the risk of legal challenges to their policies and simultaneously reveal a tension between countries’ policy practice and what the rules prescribe. The section concludes by highlighting that, outside the most clearly prohibited policies, even the basic non-discrimination and non-arbitrariness

standards pervasive in trade agreements play an outsized role in constraining climate action.

A. Prohibition of Local Content Requirements in Subsidies and Investment Measures

The literature on green industrial policies identifies how frequently countries deploy subsidies and foreign investment measures to support their green economic transformation.⁹⁸ These policies typically include conditions aimed at maximizing benefits to the local economy from public investment in strategic sectors. Conditions called “localization measures,” including local content requirements and incentives, as well as local manufacturing and local hiring requirements, specifically seek to redirect the tax monies expended by the government to the local economy, rather than to foreign suppliers. Industrial support conditions also seek to ensure that investors (domestic and foreign) wishing to avail themselves of government incentives to set up or expand production capacity in the host country integrate with the domestic economy by sourcing a minimum proportion of their inputs from local suppliers.

These tools are ubiquitous and have been used throughout history whenever a country has wanted to increase in their economic development or restructure their economy.⁹⁹ Data confirms that countries are continuing to use localization requirements as a core industrial policy tool.¹⁰⁰ Moreover, the most recent data suggests that localization measures are specifically on the rise in the context of measures supporting the electric vehicle industry.¹⁰¹

⁹⁸ Bandara et al., *supra* note 20, at 6–7; Réka Juhász et al., *The Who, What, When, and How of Industrial Policy: A Text-Based Approach* (STEG, Working Paper No. STEG WP050, SRG 78, 2023), <https://grp.cepr.org/publications/steg-working-paper/who-what-when-and-how-industrial-policy-text-based-approach>; SIMON J. EVENETT ET AL., *THE RETURN OF INDUSTRIAL POLICY IN DATA* (2024), <https://www.imf.org/en/Publications/WP/Issues/2023/12/23/The-Return-of-Industrial-Policy-in-Data-542828>.

⁹⁹ Rachel Thrasher et al., *Policy Space for Jobs and Clean Energy: Trade, Investment Rules, and Local Content Requirements in Renewable Energy Policies*, in *YEARBOOK ON INTERNATIONAL INVESTMENT LAW AND POLICY: 2018* (2019); Soojin Nam, *Inflation Reduction Act's Clean Vehicle Provisions: Analysis of Potential International Trade Law Violations*, in *REVOLUTIONARY APPROACH TO INTERNATIONAL LAW: THE ROLE OF INTERNATIONAL LAWYER IN ASIA*, 177 (Eric Yong Joong ed., 2023); Gobierno de México, *Plan México: Estrategia de Desarrollo Económico Equitativo y Sustentable Para la Prosperidad Compartida, Primer Borrador* (2025), https://www.planmexico.gob.mx/assets/pdf/Plan_Mexico_PrimerBorrador.pdf.

¹⁰⁰ Bandara et al., *supra* note 20, at 7–8.

¹⁰¹ Simon J. Evenett et al., *The Return of Industrial Policy in Data* (IMF, Working Paper No. 24/7, 2024), <https://www.imf.org/en/publications/wp/issues/2023/12/23/the-return-of-industrial-policy-in-data-542828>; Hanjie Wang, *Non-Tariff Barriers in Global EV Trade: The Case of*

Yet just as they are universally enjoyed, they are also universally prohibited. Of course, in practice, prohibited policies might not be challenged because they do not cause enough damage to be worth it. In other instances, they might not be challenged because countries design them in a way that is hard to detect. Nevertheless, by their nature, local content requirements favor domestic over imported products and therefore will always violate GATT Article III:4 (national treatment).¹⁰² Additionally, these measures are specifically prohibited under the TRIMS Agreement (Illustrative Annex) as a condition for foreign investment, and the SCM Agreement (Article 3) as a prohibited subsidy.¹⁰³ Similar prohibitions appear in most modern free trade agreements and international investment agreements beyond the WTO.¹⁰⁴

Given that these measures are so clearly prohibited, it is no surprise that they have been challenged frequently at the WTO. Older disputes involved local content requirements in the automotive industry, while more recent cases have focused on local content requirements that are part of investment incentives or subsidy programs to support renewable energy production. In 2009, the Canadian province of Ontario introduced incentives for investment in renewable energy generation, which granted priority grid access and guaranteed favorable government purchase prices to investors that utilized a certain percentage of locally produced inputs in generating green electricity. The EU challenged this as a violation of the non-discrimination standard, a prohibited subsidy, and a prohibited trade-related investment measure. Canada argued that since the provincial government was purchasing the energy for

Localization Barriers to Trade (Glob. China Initiative, Working Paper No. 047, 2026), <https://www.bu.edu/gdp/files/2026/02/GCI-WP-47-Global-EV-2026-FIN.pdf>.

¹⁰² GATT, *supra* note 6, art. III:4.

¹⁰³ SCM Agreement, *supra* note 10, art. 2; Agreement on Trade-Related Investment Measures annex, Illustrative List ¶¶ 1(b), 2(a), 2(c), Apr. 15, 1994, Marrakesh Agreement Establishing the World Trade Organization, Annex 1A, 1868 U.N.T.S. 186 [hereinafter TRIMS]. For a recent challenge, see Request for Consultation by the European Union, *Chinese Taipei—Measures Relating to Investments in Offshore Wind Installations*, WTO Doc. WT/DS625/1 (July 26, 2024).

¹⁰⁴ USMCA, *Agreement Between the United States of America, the United Mexican States, and Canada arts. 2.3, 14.4, 14.6, July 1, 2020*, Comprehensive and Progressive Agreement for Trans-Pacific Partnership arts. 9.4, 9.6, 9.8, 9.10, Mar. 8, 2018, <https://www.international.gc.ca/trade-commerce/trade-agreements-accords-commerciaux/agr-acc/tpp-ptp/text-texte/toc-tdm.aspx?lang=eng>; Agreement Establishing an Association Between the European Community and Its Member States, of the One Part, and the Republic of Chile, of the Other Part, art. 10.6, 2002 O.J. (L 352), https://eur-lex.europa.eu/eli/agree_internation/2002/979/oj/eng (last visited July 5, 2025); *Agreement Between the Government of the People's Republic of China and the Government of the Republic of Angola Concerning the Promotion and Reciprocal Protection of Investments* arts. 3, 9, 2023, <https://investmentpolicy.unctad.org/international-investment-agreements/treaty-files/8487/download>.

distribution to the general public, the purchase (and its terms and conditions) was a public procurement measure that fell within the carve-out of Article III:8 of the GATT. The Appellate Body rejected the argument for the reasons described above in Section II.D.2, because the products experiencing discrimination were different from the products that the government was purchasing.

Meanwhile, India introduced a very similar measure under its National Solar Mission that guaranteed prices and grid access for investors that used domestically produced solar cells and modules in their energy production.¹⁰⁵ The Appellate Body found once more that this kind of measure did not fall under the public procurement carveout.¹⁰⁶ In India's case, the program was phased over a set number of years, and by the time the WTO dispute resolution procedures had fully run their course, India's program was reaching completion. Designing illegal local content subsidies or investment measures for a limited period can be a way to get around the WTO prohibitions because adjudication of the case and the deployment of retaliatory measures in response to the violation of the WTO law may take longer than the duration of the infringing government program.

These cases continue to emerge in the climate context. The EU has complained about a UK low-carbon electricity generation incentive program that contains local content requirements.¹⁰⁷ China complained about both the Clean Vehicle Credit and Renewable Energy Tax Credit provisions of the Inflation Reduction Act (IRA).¹⁰⁸ The clear conflict between the rules and practice suggests that localization instruments are in fact a necessary feature of climate policies, without which countries will not be willing or able to provide incentives necessary to foster needed industrial and energy transitions. Various proposals for reform of the SCM Agreement are being developed by scholars,¹⁰⁹ but none tackle this political economy issue.

¹⁰⁵ See *Jawaharlal Nehru National Solar Mission (JNNSM)*, *supra* note 45; *India—Solar Cells*, *supra* note 45.

¹⁰⁶ *India—Solar Cells*, *supra* note 45, ¶¶ 5.1–41.

¹⁰⁷ Request for Consultation by the European Union, *United Kingdom—Measures Relating to the Allocation of Contracts for Difference in Low Carbon Energy Generation*, WTO Doc. WT/DS612/1 (Mar. 28, 2022), https://www.wto.org/english/tratop_e/dispu_e/cases_e/ds612_e.htm; *Press Release, Eur. Comm'n, EU and UK Agree on Way Forward in WTO Dispute Concerning UK's Green Energy Subsidy Scheme* (Jul. 1, 2022), https://policy.trade.ec.europa.eu/news/eu-and-uk-agree-way-forward-wto-dispute-concerning-uks-green-energy-subsidy-scheme-2022-07-01_en.

¹⁰⁸ *Indonesia—Raw Materials*, *supra* note 50.

¹⁰⁹ See, e.g., Elena Cima & Daniel C. Esty, *Making International Trade Work for Sustainable Development: Toward a New WTO Framework for Subsidies*, 27 J. INT'L ECON. L. 1, 1–17 (2024).

B. Prohibition on Import and Export Quantitative Restrictions

Quantitative restrictions (such as quotas) on imports and exports are also commonly deployed by countries seeking to meet their mitigation, adaptation, and transformation goals. Import restrictions are used to keep harmful products out and discourage demand for products with negative health or environmental impacts.¹¹⁰ Export restrictions, by contrast, are intended to ensure domestic access to products or resources that are critical to climate policies. Both types of quantitative restrictions have also been important tools for industrial development – to encourage domestic processing of raw materials (export) and temporarily protect nascent or strategic domestic industries from being overwhelmed by international competition (import).¹¹¹

Rules governing quantitative export and import restrictions are fairly straightforward: import restrictions or duties other than tariffs are prohibited under Article II of the GATT; quantitative restrictions on both imports and exports are prohibited under GATT Article XI, with a narrow subset of exceptions.¹¹² Other trade agreements have the same or similar rules.¹¹³

Despite these clear prohibitions, quantitative restrictions are used, particularly in the critical minerals sector, leading to trade disputes. China has long had restrictions on exports of rare earth metals.¹¹⁴ Indonesia, a major extractor and exporter of nickel ore, prohibited nickel ore exports beginning in 2014 as part of a strategy to develop its own downstream processing for lithium batteries to be used in EVs.¹¹⁵ The export ban was accompanied by a domestic processing requirement,

¹¹⁰ See, e.g., *US—Shrimp*, *supra* note 3; *Brazil—Tyres*, *supra* note 49; Appellate Body Report, *European Communities—Measures Affecting Asbestos and Products Containing Asbestos*, WTO Doc. WT/DS135/AB/R (adopted Apr. 5, 2001).

¹¹¹ Nathaniel Lane, *The New Empirics of Industrial Policy*, 20 J. INDUS. COMPET. & TRADE 209 (2020); Réka Juhász, *Temporary Protection and Technology Adoption: Evidence from the Napoleonic Blockade*, 108 AM. ECON. REV. 3339 (2018). For quantitative data, see Bandara et al., *supra* note 20, at 6–7.

¹¹² GATT, *supra* note 6, arts. II, XI. In addition, both the SPS and TBT Agreements require that measures aimed at protecting human, animal or plant life or health, as well as technical product regulations must be deployed only on the basis of sufficient scientific evidence or a relevant, existing international standard and must take the least trade restrictive form, SPS Agreement, *supra* note 11, arts. 2–3; TBT Agreement, *supra* note 12, art. 2.

¹¹³ Rachel Denae Thrasher & Kevin P. Gallagher, *21st Century Trade Agreements: Implications for Development Sovereignty*, 38 DENV. J. INT'L L. & POL'Y 313 (2010).

¹¹⁴ Panel Report, *China—Measures Related to the Exportation of Rare Earths, Tungsten, and Molybdenum*, WTO Docs. WT/DS431/AB/R, WT/DS432/AB/R & WT/DS433/AB/R (Aug. 4, 2014); see also *Indonesia—Raw Materials*, *supra* note 50.

¹¹⁵ Off. of Assistant to Deputy Cabinet Sec'y for State Documents & Translation, *Gov't Committed to Stop Raw Material Exports*, Sekretariat Kabinet Republik Indonesia (Jan. 10, 2020), <https://setkab.go.id/en/govt-committed-to-stop-raw-material-exports/>.

a domestic marketing obligation, and new export licensing requirements, all of which restricted trade. The EU challenged these measures as violating GATT Article XI as a prohibited export restriction and Article 3 of the Agreement on Subsidies as a prohibited subsidy. The WTO dispute settlement panel ultimately agreed with the EU's claims.¹¹⁶ When Indonesia argued that the measure was covered by GATT Article XX, the panel found that it did not even pass muster under step one of the analysis, meaning it was not considered justifiable on an environmental protection basis.¹¹⁷ Nevertheless, Namibia, Tanzania, and Zimbabwe have all followed Indonesia's move as applied to lithium ore, and thus may be vulnerable to similar WTO challenges.¹¹⁸

These cases highlight the mixed impact of trade restrictions on critical climate technology inputs. Principles of sovereignty over natural resources allow resource-rich countries to control the exploitation of finite resources with a view toward maximizing their domestic development and climate mitigation opportunities for the longer term. This is particularly critical for developing countries that need to build their domestic green industrial supply chain. The combined pressures of climate policy and development needs incentivize countries producing the raw materials to seek more advanced local processing in order to improve their terms of trade, their domestic manufacturing capability, and their access to environmental goods. Others argue that such export restrictions are inefficient on a global basis because they limit the immediate production of climate-friendly products.

C. Non-Discrimination Constraints

Many measures that the rules generally permit face obstacles in practice due to the pervasiveness of non-discrimination and non-arbitrariness standards throughout trade treaty obligations. If domestic and imported products are considered to be equivalent, imported products cannot be treated less favorably than their domestic counterparts (national treatment). Likewise, imported products from a WTO country cannot be treated less favorably than the equivalent product from any other country (most-favored nation treatment).

¹¹⁶ Panel Report, *Indonesia—Certain Measures Affecting the Automobile Industry*, WTO Docs. WT/DS54/R, WT/DS55/R, WT/DS59/R, WT/DS64/R (July 2, 1998).

¹¹⁷ *Id.* Indonesia has appealed the outcome and the next steps in the case are subject to the reconstitution of the Appellate Body, which currently has no members.

¹¹⁸ Kate Hairsine, *Lithium Mining in Africa Reveals Dark Side of Green Energy*, DW (Nov. 16, 2023), <https://www.dw.com/en/lithium-mining-in-africa-reveals-dark-side-of-green-energy/a-67413188>.

However, if products are considered to be different, then they can be treated differently without triggering these non-discrimination obligations. The analysis of whether two products are equivalent or not is called a “likeness” analysis. WTO jurisprudence confirms that both non-discrimination obligations and criteria for assessing likeness often defeat what would otherwise be valuable environmental actions.

Products are deemed to be like if their physical characteristics, end uses, consumer perception and their taste and habits regarding the products, and tariff classification are identical or highly similar. The process and production methods (dubbed PPMs) to make the products are typically not considered in this analysis. For example, a conventional agricultural product and its organic counterpart could not be considered different products and must be given the same market access advantages. Likewise, steel made using high emissions production methods (e.g., traditional coal-fired furnaces) and lower emissions steel likely could not be differentiated in terms of tariffs, taxes, or other conditions of market access.

While no case has been lost solely because the action in question was aimed at climate mitigation, adaptation, or transformation, WTO members have lost cases involving climate policies primarily because the policies were found to be discriminatory or arbitrary in their application. For example, the EU’s renewable energy policy involved in the *EU—Palm Oil* cases was ultimately struck down because of its discriminatory effects.¹¹⁹ Specifically, the EU had “fail[ed] to conduct a timely review” to determine which fuels presented a high risk of illegal land use change and there were “deficiencies in the design and implementation of the low ILUC-risk criteria.”¹²⁰ A WTO panel of arbitrators found these deficiencies to amount to “arbitrary or unjustifiable discrimination” against Indonesia and Malaysia.¹²¹ The EU had to redesign its policy to address the issue.

In fact, the presence of discriminatory effects has been consistently invoked by WTO panels as a reason to find a violation of WTO standards.¹²² Such discrimination is particularly problematic with respect to GATT Articles I (most-favored nation), III (national

¹¹⁹ *EU—Palm Oil (Malaysia)*, *supra* note 47; *EU—Palm Oil (Indonesia)*, *supra* note 47, and accompanying text.

¹²⁰ *EU—Palm Oil (Indonesia)*, *supra* note 47, ¶ 7.660.

¹²¹ *Id.*; *EU—Palm Oil (Malaysia)*, *supra* note 47, ¶ 7.636.

¹²² Lothar Ehring, *National Treatment Under the GATT 1994: Jurisprudential Developments on De Facto Discrimination*, in *THE PRINCIPLE OF NATIONAL TREATMENT IN INTERNATIONAL ECONOMIC LAW* 34, 38 (Thomas Cottier & Panagiotis Delimatsis eds., 2014); Lothar Ehring, *De Facto Discrimination in WTO Law: National and Most-Favored-Nation Treatment—or Equal Treatment?*, 36 *J. WORLD TRADE* 921, 933–34 (2002).

treatment), and XX (general exceptions). Combined, the national treatment and most-favored nation treatment standards make up 30 percent of the GATT treaty provisions invoked in WTO dispute settlements.¹²³ De facto discrimination has often been found even where the challenged measure is neutral with respect to nationality on its face, as was the case with *EU—Palm Oil*. Moreover, those provisions are ubiquitous in other trade agreements and likely to be interpreted in the same way.

IV. TRADE LAW REFORM FOR CLIMATE POLICY: WHAT SHOULD CHANGE?

The balance between trade law principles and the public policy objectives of climate mitigation, adaptation, and transformation needs to be reconsidered. In this section, we identify three principles to change that could guide reform of the global trade rules: (1) deferential policy space for the most vulnerable countries, (2) accounting for climate impacts in the trade bargain, and (3) incorporating climate equity issues into the allocation of costs and benefits of trade governance. We then highlight the role of institutional changes if those principles are to be operationalized. We identify two main avenues for redirecting the trade regime for a climate change policy objective: substantive principles for interpreting trade law and institutional mechanisms for improving policy coordination and integration between trade organizations and other international institutions involved in climate policy. Our goal is to offer avenues for thinking about how to balance climate policy needs and trade integration benefits in both the rules and the institutions that give structure to those rules.

A. Principles for Change to Align Trade Rules and Climate Policy Needs

If the mantra of non-discrimination needs to give way, what tests should we have instead? A tiered approach may be useful, recognizing states' extreme disparities regarding their needs, capacities, and roles in world trade. While exceptions to the main disciplines certainly have a role to play, reform efforts that solely call for a reinforcement of these exceptions (such as reviving Article 8 of the SCM agreement) fail to address the hurdles to climate policy stemming from the current

¹²³ Bernard M. Hoekman, Petros C. Mavroidis & Maarja Saluste, *Informing WTO Reform: Dispute Settlement Performance, 1995-2020*, 55 J. WORLD TRADE 1, 17 (2021).

system.¹²⁴ Likewise, sectoral agreements such as the WTO Agreement on Fisheries Subsidies, states' commitment at the UNFCCC to refrain from offering new fossil fuel subsidies, or negotiations on the Plastics Treaty are valuable but lack coherence and, in many cases, lag on operationalization.¹²⁵ This section explores what necessary exceptions might look like and what broader changes are needed.

1. Protecting Climate Policies of the Most Vulnerable Countries A Priori

A categorical exemption for Least Developed Countries (LDCs) from trade disciplines, or at the very least an exemption from challenges in dispute settlement, for their climate-oriented policy initiatives would reflect the fact that their contribution to world trade is so minimal that any resulting distortions are not a concern. In practice, LDC climate actions are unlikely to be challenged because their impact on trade patterns is likely to be minimal enough not to be worth litigating. The categorical exception we propose would legalize this *de facto* reality and hence increase certainty and predictability in the trade regime.

LDCs already benefit from categorical exemptions under the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS).¹²⁶ Numerous WTO provisions, including the Enabling Clause, provide additional flexibility for LDCs. A similar exemption could be granted to Small Island Developing States due to their limited resources and extreme exposure to the impacts of climate change. Because the Small Island Developing States category already exists in the UN

¹²⁴ See generally Sadeq Z. Bigdeli, *Resurrecting the Dead? The Expired Non-Actionable Subsidies and the Lingering Question of 'Green Space'*, 8 MANCHESTER J. INT'L ECON. L. 2 (2011) (assessing the pros and cons of resurrecting Article 8 of the SCM Agreement); 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* (Eur. U. Inst., Robert Schuman Ctr. for Advanced Stud., Global Governance Programme Pol'y Paper No. RSCAS 2014/17; Columbia L. Schl., The Ctr. for L. & Econ. Stud. Working Paper No. 473, 2014), <https://core.ac.uk/download/pdf/230181124.pdf> (laying out proposals for reforming WTO subsidies commitments in light of the *Canada—FIT* dispute).

¹²⁵ See, e.g., Natalie Jones et al., *How the G7 Can Advance Action on Fossil Fuel Subsidies in 2025*, INT'L INST. FOR SUSTAINABLE DEV. (April 8, 2025), <https://www.iisd.org/articles/deep-dive/how-g7-can-advance-action-fossil-fuel-subsidies-2025>; Karen McVeigh & Emma Bryce, *Plastic Pollution Talks Fail as Negotiators in Geneva Reject Draft Treaties*, GUARDIAN (Aug. 15, 2025), <https://www.theguardian.com/environment/2025/aug/15/plastic-pollution-talks-geneva-treaty>.

¹²⁶ Agreement on Trade-Related Aspects of Intellectual Property Rights art. 66, Apr. 15, 1994, Marrakesh Agreement Establishing the World Trade Organization, Annex 1C, 1869 U.N.T.S. 299, 33 I.L.M. 1197 (1994).

system,¹²⁷ the designation could be recognized in the WTO system and other trade treaties, as has been done with LDCs.

Country categorization tends to be contentious in both the trade and climate change regimes, but LDC exemptions are understood to encourage participation within the countries' respective abilities.¹²⁸

2. *Balancing Trade Openness and Climate Policy*

a. *De Minimis Exemptions*

Allowing any climate policy that has a de minimis impact on trade, regardless of possible breaches of trade disciplines and the country enacting the policy, would recognize the overriding value of climate actions over strict applications of trade rules. If a policy only leads to minimal trade distortions, it is unlikely to be challenged. Hence, a de minimis exemption would simply create an official safe-harbor for policymaking that is already unlikely to be challenged in practice. Importantly, enshrining such flexibility in practice would help to signal a shift in the ethos of trade integration regarding climate action.

In terms of implementation, such a de minimis carveout would not only require setting a threshold in the aggregate of allowed trade impact but also considering how the impacts are distributed. For instance, if the overall trade impact is below the established threshold, but the impacts significantly affect one trade partner relative to the value of their own trade, then that country could be entitled to some form of compensation, offset, or other benefit. This may help to protect a small economy from bearing the brunt of another country's climate policy trade impacts. Establishing thresholds is always difficult but not unprecedented in the WTO system: the Agreement on Agriculture sets exempted de minimis levels of government support as a percentage of the total value of agricultural production.¹²⁹ An expedited decision on whether a policy falls below the de minimis threshold, perhaps by the Committee on Trade and Environment, should ensure that only bona fide cases might proceed to the full dispute settlement system.

¹²⁷ U.N. Off. of the High Representative for the Least Developed Countries, Landlocked Developing Countries & Small Island Developing States, *List of SIDS*, U.N., <https://www.un.org/ohrlls/content/list-sids> (last visited July 5, 2025).

¹²⁸ The Paris Agreement encourages but does not mandate emissions reduction initiatives from LDCs and Small Island Developing States. Paris Agreement to the United Nations Framework Convention on Climate Change art. 4.6, Dec. 12, 2015, 3156 U.N.T.S. 79, T.I.A.S. No. 16-1104.

¹²⁹ Agreement on Agriculture arts. 6, 13, Apr. 15, 1994, Marrakesh Agreement Establishing the World Trade Organization, Annex 1A, 1867 U.N.T.S. 410.

b. Accounting for Environmental Impacts in the Trade Bargain

Climate instruments and cases have repeatedly noted trade law's relationship to climate action.¹³⁰ However, trade often treats product sustainability requirements as an afterthought through exceptions. Instead, trade law should prioritize sustainability policies over the decrease of barriers to trade when both objectives clash. A starting point here is to assess the environmental impacts of trade flows enabled by trade agreements. At present, the environmental impacts of trade are simply not accounted for in global equilibrium models seeking to evaluate the value of a trade bargain. As a result, the expected benefits of a trade negotiation may be overstated and lead to inefficient and inequitable results from an environmental harm and climate sustainability perspective. If country policymakers internalize the environmental costs of trade, then what they perceive as an efficient trade bargain may look very different. Instead of focusing solely on benefits to producers from increased access to foreign markets, a climate-oriented trade regime would be based on a more holistic understanding of gains and efficiency that includes environmental assets. While some models and research already exist to evaluate some of these impacts, further research must be supported and deployed to allow such assessments at a national and perhaps regional or multinational level. Negotiators and policymakers may then insist on discussing and computing these dimensions as part of the negotiations.

The principles of climate justice, including sharing the benefits and burdens of climate change equitably, respecting human rights and the right to development, ensuring participation and accountability in decision-making, prioritizing the most vulnerable populations who are least responsible for climate change, upholding gender equality, and ensuring that present generations act on behalf of future generations could guide a new understanding of what the trade regime is meant to achieve. At a conceptual level, if a climate measure's environmental benefits outweighed its trade costs, then it could be allowed, potentially subject to compensation with respect to adverse trade impacts for low-income countries only. Operationalizing such a principle raises a number of difficult questions. Some climate policies are more readily amenable to this approach. For instance, a country's climate action resulting in trade restrictions or distortions could be allowed if the de-

¹³⁰ See, e.g., *Obligations of States in Respect of Climate Change*, Advisory Opinion, ¶ 173 (July 23, 2025), <https://www.icj-cij.org/sites/default/files/case-related/187/187-20250723-adv-01-00-en.pdf>; *Climate Emergency and Human Rights*, Advisory Opinion AO-32/25, Inter-Am. Ct. H.R., ¶ 161–63 (May 29, 2025), https://www.corteidh.or.cr/docs/opiniones/seriea_32_en.pdf.

carbonization benefits of the measure outweigh its adverse trade impact.¹³¹ Such an approach would not necessarily require significant changes in existing rules but could be implemented through stand-still agreements on challenges in dispute settlement and safe-harboring of qualifying policies through waivers.

New trade disciplines, by contrast, could enshrine an obligation to uphold environmental standards as a priority over trade barriers. Environmental chapters in post-WTO trade agreements, such as the EU's "Trade and Sustainable Development" chapters, may offer avenues to pursue such an approach. Although such chapters are flexible, early indications are that the EU has been willing to give them real effect, including in disputes and in cooperation and policy coordination efforts.¹³² This willingness was demonstrated recently when the EU questioned whether Canada's forestry management practices aligned with the Comprehensive Economic and Trade Agreement between the European Union and Canada (CETA)'s sustainability objectives and biodiversity commitments.¹³³

Asian regionalism also presents valuable approaches. The Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) chapter on the environment aims to prevent parties from weakening their environmental commitments to gain trade advantages, calls for increased environmental commitments, and requires coordination across policies.¹³⁴ Article 20.3 explicitly recognizes these linkages: "a Party shall not waive or otherwise derogate from, or offer to waive or otherwise derogate from, its environmental laws in a manner that weakens or reduces the protection afforded in those laws in order to encourage trade or investment between the Parties."¹³⁵ The agreement also identifies specific subject

¹³¹ Martin Karlsson, Eva Alfredsson & Nina Westling, *Climate Policy Co-Benefits: A Review*, 20 CLIMATE POL'Y 292 (2020).

¹³² Panel of Experts Constituted Under Article 13.15 of the EU-Korea Free Trade Agreement, *Report of the Panel of Experts* (Jan. 25, 2021), https://policy.trade.ec.europa.eu/enforcement-and-protection/dispute-settlement/bilateral-disputes/korea-labour-commitments_en; European Commission, *Commission Staff Working Document, Strategic Dependencies and Capacities - Second Stage of In-Depth Reviews*, SWD (2021) 297 final (Nov. 2021), <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX%3A52021SC0297>.

¹³³ GLOB. AFFS. CAN., *Joint Cooperation Committee Report on the State of the EU-Canada Relationship (March 2023 to February 2025)*, § 8.3, https://www.international.gc.ca/transparency-transparence/canada-eu-ue/2023-2025.aspx?lang=eng#7_3; GLOB. AFF'S CAN., *Joint report: Meeting of the 7th CETA Bilateral Dialogue on forest products*, <https://www.international.gc.ca/trade-commerce/trade-agreements-accords-commerciaux/agr-acc/ceta-aecg/2024-12-16-bilateral-dialogue.aspx?lang=eng>.

¹³⁴ Comprehensive and Progressive Agreement for Trans-Pacific Partnership, ch. 20, Mar. 8, 2018, <https://treaties.un.org/Pages/showDetails.aspx?objid=080000028056a333>.

¹³⁵ *Id.* art. 20.3.

matters for collective action and cooperation: the transition to a low emissions and resilient economy, the protection of the ozone layer, the protection of the marine environment (including fisheries issues), biodiversity and conservation, and invasive species.¹³⁶ While the CPTPP takes the form of traditional legal obligations, the Indo-Pacific Economic Framework for Prosperity (IPEF) is built on voluntary cooperation on specific subject matters rather than obligations. Pillar III “Clean Economy” addresses clean energy, decarbonization and infrastructure. Despite the lack of hard obligations, IPEF is proving a useful platform for climate policies.¹³⁷ For instance, Japan has developed a significant “green diplomacy” under the aegis of IPEF to help disseminate climate-friendly technologies to Vietnam, the Philippines, Indonesia, and others.¹³⁸

c. Sectoral Approaches

A dogmatic approach to the desirability of specific trade instruments may prevent us from getting the policies we need. It ignores the political importance of domestic protection for industrial development purposes as we saw in the *Canada—FIT, India—Solar Cells* and *Indonesia—Raw Materials* cases. Indeed, it is often politically unacceptable to deploy scarce public resources without the prospect of the bulk of the benefits going to the local economy. Sector-specific approaches may be more tractable at a bilateral or multilateral level, however. For instance, many countries engaging in renewable energy support do so with local content requirements knowing that challenges would likely be successful. Therefore, it may be necessary to allow sector-specific flexibilities to accelerate the most critical green transitions. A significant body of literature exists on industrial policy design¹³⁹ as well as a growing

¹³⁶ *Id.* art. 20.

¹³⁷ Indo-Pacific Economic Framework for Prosperity Agreement Relating to a Clean Economy, June 6, 2024, <https://2021-2025.state.gov/wp-content/uploads/2024/11/IPEF-Clean-Economy-Agreement.pdf>.

¹³⁸ Purnima Bakshi, *Japan’s Contribution to Peace, Prosperity & Sustainability: Energy Transitions in the Indo-Pacific Region*, 36 PAC. REV. 203 (2023); Hiro Katsumata & Daiki Shibuichi, *Japan in the Indo-Pacific: Domestic Politics and Foreign Policy*, 36 PAC. REV. 305 (2023); Mireya Solís Okano-Heijmans, *Japan’s ‘Green’ Economic Diplomacy: Environmental and Energy Technology and Foreign Relations*, 25 PAC. REV. 339 (2012).

¹³⁹ See generally Chad P. Bown, *Modern Industrial Policy and the World Trade Organization*, 16 ANN. REV. ECON. 243 (2024) (surveying the economics of industrial policy in relation to the WTO and its rules); Ann Harrison, *What Makes Industrial Policy Work?* (CEPR Discussion Paper No. DP19693, 2024), <https://cepr.org/publications/dp19693> (identifying guidelines for designing effective industrial policy); Chiara Criscuolo et al., *An Industrial Policy Framework for OECD Countries: Old Debates, New Perspectives* (OECD Sci., Tech. & Innovation, Policy Paper No. 127, 2022), https://www.oecd.org/content/dam/oecd/en/publications/reports/2022/05/an-industrial-policy-framework-for-oecd-countries_233e3061/0002217c-en.pdf (establishing a

interest in “green industrial policies” related to climate change.¹⁴⁰ This body of analysis suggests that industrial policies are necessary to enable the green transition and can be designed in a way that maximizes their effectiveness while minimizing potential economic inefficiencies, including trade distortions. Criteria on well-designed industrial policy, such as accountability, public/private sector engagement and consultation, clear targets, and timeframes, could be required for sectors where trade-distorting policies are temporarily allowed.

d. Shifting Canons of Interpretation

As discussed in Part III, some constraints to climate action result from the “like” product analysis and non-discrimination obligations. Many of the issues hinge on the interpretation of WTO obligations rather than the text of the provisions. The criteria for likeness comes from cases.¹⁴¹ The landmark criteria commonly used for determining likeness originate from a GATT-era dispute from the 1970s in which the panel crafted an approach for interpreting “like or similar products”:

[T]he interpretation of the term should be examined on a case-by-case basis. This would allow a fair assessment in each case of the different elements that constitute a “similar” product. Some criteria were suggested for determining, on a case-by-case basis, whether a product is “similar”: the product’s end-uses in a given market; consumers’ tastes and habits, which change from

framework for analyzing the formulation of effective industrial policy); Ha-Joon Chang & Antonio Andreoni, *Industrial Policy in the 21st Century*, 51 DEV. & CHANGE 324 (2020) (developing a new theory of industrial policy and pointing to new areas for policy intervention); Ann Harrison & Andrés Rodríguez-Clare, *Trade, Foreign Investment, and Industrial Policy for Developing Countries*, in 5 HANDBOOK OF DEVELOPMENT ECONOMICS 4039 (Dani Rodrik & Mark Rosenzweig eds., 2010) (exploring the theoretical foundation for industrial policy and promoting a “soft” form of industrial policy that involves the government in supporting industrialization).

¹⁴⁰ See, e.g., OLIVER EXTON, IMF WORK ON INDUSTRIAL POLICY AND GREEN INDUSTRIAL SUBSIDIES 7 (2024), https://www.wto.org/english/tratop_e/tessd_e/17062024_e/07_Subsidies-4_Presentation%20by%20IMF.pdf [<https://perma.cc/2CFL-FMAK>] (presented to the WTO TESSD Informal Working Group); Yueling Huang et al., *Do Industrial Policies Increase Trade Competitiveness?* (Int’l Monetary Fund, Working Paper No. 2025/098, 2025), <https://www.imf.org/-/media/files/publications/wp/2025/english/wpia2025098-print-pdf.pdf>; Jan C. Steckel et al., *Distributional Impacts of Carbon Pricing in Developing Asia*, 4 NATURE SUSTAINABILITY 1005 (2021); Cristina Peñasco, Laura Díaz Anadón & Elena Verdolini, *Systematic Review of the Outcomes and Trade-Offs of Ten Types of Decarbonization Policy Instruments*, 11 NATURE CLIMATE CHANGE 257 (2021).

¹⁴¹ WTO documents provide a summary for the cases on likeness. See WTO, WTO ANALYTICAL INDEX: GATT 1994 – ARTICLE I, at 13–16 (2025), https://www.wto.org/english/res_e/publications_e/ai17_e/gatt1994_art1_jur.pdf; WTO, WTO ANALYTICAL INDEX: GATT 1994 – ARTICLE III, at 17 (2025), https://www.wto.org/english/res_e/publications_e/ai17_e/gatt1994_art3_jur.pdf.

country to country; the product's properties, nature and quality.¹⁴²

This language clearly states that the evaluation is to be conducted on a case-by-case basis (as has been reiterated in subsequent cases), and there is no indication that the criteria are exclusive or mandatory. In fact, the language is rather tentative. At any rate, while the dispute settlement rules at the WTO call for predictability and consistency, there is no *stare decisis* principle in trade law.

The dismissal of process and production methods as criteria for assessing likeness is also the result of panel and Appellate Body interpretations. However, some recent cases have left open a narrow window for the consideration of PPMs, particularly when dealing with cases involving the Agreement on Technical Barriers to Trade.¹⁴³ This Agreement expressly allows PPMs to be considered in devising technical regulations and standards.¹⁴⁴

Allowing environmental impacts related to process and production methods to form a basis for differentiation could expand the ability of states to control the climate impact of products and services entering their markets, whether through border measures or internal regulation. A shift in the interpretation of likeness criteria would allow for a better balancing of trade openness and environmental imperatives and would not require textual amendments to trade agreements at the WTO and elsewhere. Allowing environmental PPMs to be a basis for product or services differentiation would help to bypass many the restrictions on climate policy spawned by restrictive interpretation of non-discrimination obligations, such as MFN and national treatment. If two products are not considered like due to their PPMs, then they could be treated differently without raising any issue under GATT Articles I, III, XX and more. Differentiations could be deployed to favor low-carbon goods over their high-carbon equivalents.

3. Rethinking Equity Allocations

The trade regime must also account for the allocation of equities. At present, the trade regime is built on a two-step approach: international negotiations and commitments are meant to increase value for their participants in the aggregate, and individual states are meant to remedy

¹⁴² Report of the Working Party, Border Tax Adjustments, GATT Doc. L/3464 (Dec. 2, 1970).

¹⁴³ Elizabeth Trujillo, *The WTO Appellate Body Knocks Down U.S. "Dolphin-Safe" Tuna Labels But Leaves a Crack for PPMs*, 16 INSIGHTS (July 26, 2012), <https://www.asil.org/insights/volume/16/issue/25/wto-appellate-body-knocks-down-us-%E2%80%9Cdolphin-safe%E2%80%9D-tuna-labels-leaves> [<https://perma.cc/7PKY-XUD2>].

¹⁴⁴ TBT Agreement, *supra* note 12, arts. 2.2, 12.4, Annex 1A ¶ 1–2.

any adverse distributional impacts domestically. Historically, even the wealthiest welfare states have failed in that domestic redistributive mission. It is therefore apparent that the international trade regime cannot simply wash its hands of equity issues.

The issue is even more pronounced regarding climate change, where, historically, the bulk of emissions came from high-income economies, where they were unfettered, and the impact and vulnerabilities are most severe in low-income countries. At present and in the foreseeable future, China's share of emissions is another important factor in the international equities of climate change, even while it leads the world in developing and deploying climate technologies. Here again, climate justice may help to develop a more equitable approach, building on principles that are long-established in international environmental law, such as polluter-pays, intergenerational equity, and common but differentiated responsibilities and respective capabilities.¹⁴⁵

B. Institutional Linkages Between Trade and Climate Governance

Creating the necessary space for climate policy requires trade governance to act in concert with environmental and climate change institutions. The WTO is no stranger to cooperation across institutions regarding issues where the substantive expertise lies outside of the organization. Recently, the Agreement on Fisheries Subsidies was informed by the work of the Food and Agriculture Organization, the Organization for Economic Cooperation and Development and others on fisheries, and continued partnerships are recognized as critical to a successful implementation.¹⁴⁶

Moreover, trade disciplines can only be effectively reformed, and climate policy effectively deployed, where there are enough financial resources to do so.¹⁴⁷ While climate finance facilities, both public and private, have been created outside of trade agreements, the latter has a role to play in the deployment of climate finance. For instance, trade rules on local content, investment, and subsidies affect how and where capital investment might be allocated.

¹⁴⁵ See, e.g., Obligations of States in Respect of Climate Change, *supra* note 130, ¶¶ 146–61; Climate Emergency and Human Rights, *supra* note 130, ¶¶ 149, 247–265, 287, 305–313; The Environment and Human Rights, Advisory Opinion AO 23/17, Inter-Am. Ct. H. R., ¶¶ 175–80, (Nov. 15, 2017) https://corteidh.or.cr/docs/opiniones/seriea_23_ing.pdf.

¹⁴⁶ WTO, LEVERAGING GLOBAL PARTNERSHIPS TO IMPLEMENT THE WTO AGREEMENT ON FISHERIES SUBSIDIES FOR A SUSTAINABLE AND FOOD-SECURE FUTURE (2024), https://www.wto.org/english/res_e/booksp_e/fishsubsidies624_e.pdf.

¹⁴⁷ AMAR BHATTACHARYA ET AL., THIRD REPORT OF THE INDEPENDENT HIGH-LEVEL EXPERT GROUP ON CLIMATE FINANCE: RAISING AMBITIONS AND ACCELERATING DELIVERY OF CLIMATE FINANCE (2024).

When support comes from international institutions, conditions associated with such funding could be considered as grounds for waivers of any conflicting trade obligation. For instance, resources from the Green Climate Fund,¹⁴⁸ the Special Climate Fund,¹⁴⁹ the Adaptation Fund¹⁵⁰ (all related to the UNFCCC), funding by the World Bank,¹⁵¹ and others typically have their own mandates and priorities regarding the use of the funds.

CONCLUSION

Important policy space exists within rules that govern global trade. These include introducing climate-specific product and industry standards, subsidizing low-carbon economic activity (and disincentivizing high-carbon activity), and relying on key exceptions and carveouts to prioritize essential climate-friendly sectors. Nevertheless, there is a gauntlet to run: virtually all policies must fit in narrow bases of “legitimate policies” viewed as exceptions to primary liberalization objectives and avoid any kind of (unjustifiable) discrimination.” In practice, these constraints significantly limit the deployment of climate policies.

Additionally, a subset of climate policies, used with relative frequency especially by emerging markets and developing economies, are expressly prohibited by trade rules, despite their usefulness in addressing climate and development goals in tandem: localization requirements and import/export restrictions.

This article presents avenues for mitigating these obstacles to climate policies in the trade law realm, ranging from a different design for future trade agreements to exceptions and waivers to modulate existing trade agreements. Political willpower, financial resources, and research support to improve operationalization are also critical components of ensuring that trade agreements play the most valuable role possible in the face of climate change.

¹⁴⁸ *Standard Conditions (Projects)*, GREEN CLIMATE FUND (Oct. 31, 2025), <https://www.greenclimate.fund/sites/default/files/document/gcf-standard-conditions-projects-31-october-2025.pdf>.

¹⁴⁹ See generally *The Special Climate Change Fund (SCCF)*, U.N., <https://unfccc.int/topics/climate-finance/resources/reports-of-the-special-climate-change-fund> (describing the SCCF and its functioning under the UNFCCC).

¹⁵⁰ See generally *Apply for Funding*, ADAPTATION FUND, <https://www.adaptation-fund.org/apply-funding/> (describing the Adaptation Fund and how to apply for funding).

¹⁵¹ See, e.g., WBG, STANDARD CONDITIONS FOR FINANCING MADE BY THE WORLD BANK OUT OF THE CANADA CLEAN ENERGY AND FOREST CLIMATE FACILITY (2022), <https://ppfdocuments.azureedge.net/efb923df-e2e3-48da-8c3d-91b65f073cc5.pdf>.