

Renewable Energy Subsidies and the WTO

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I. INTRODUCTION

Renewable energy is a key tool in the fight against climate change.¹ Although

¹ See INT'L ENERGY AGENCY, ENERGY, CLIMATE CHANGE & ENVIRONMENT (2016),

renewable energy only constitutes a small percentage of the world's total energy supply, it grew at a faster rate than the world's total energy supply between 1990 and 2014.² Government subsidies were largely responsible for this growth;³ many governments are eager to reduce reliance on fossil fuels and position themselves as leaders of the green energy revolution.⁴

Various World Trade Organization (WTO) agreements regulate subsidies at the international level.⁵ These agreements seek to avoid or limit the market-distorting effects of protectionist industrial policies in order to promote a level international playing field.⁶ The WTO's Agreement on Subsidies and Countervailing Measures (SCM Agreement), for instance, regulates whether countries may provide subsidies that are limited to a certain enterprise or industry.⁷ Recently, a growing number of countries have alleged that other countries' renewable energy support programs constitute illegal subsidies under the SCM Agreement.⁸

WTO members may adjudicate alleged SCM Agreement violations in two ways: through unilateral domestic adjudication or through adjudication before the WTO itself.⁹ WTO adjudication begins when a member government submits a "request for consultations" alleging that another member government is violating one or more WTO agreements.¹⁰ If consultations fail, the complaining

<http://www.iea.org/publications/freepublications/publication/ECCE2016.pdf>.

² INT'L ENERGY AGENCY, 2016 KEY RENEWABLES TRENDS: EXCERPT FROM RENEWABLES INFORMATION 3 (2016), <https://euagenda.eu/upload/publications/untitled-69169-ea.pdf>.

³ See *id.* at 9.

⁴ See John Mathews, *China's Continuing Renewable Energy Revolution – Latest Trends in Electric Power Generation*, ASIA PAC. J. (Sept. 1, 2016), <http://apjjf.org/2016/17/Mathews.html>; see also *Follow the Leader: How Eleven Countries Are Shifting to Renewable Energy*, CLIMATE REALITY PROJECT, (Feb. 3, 2016, 9:08 AM), <https://www.climate realityproject.org/blog/follow-leader-how-11-countries-are-shifting-renewable-energy> [hereinafter *Follow the Leader*].

⁵ See generally Marrakesh Agreement Establishing the World Trade Organization, Apr. 15, 1994, 1867 U.N.T.S. 154 [hereinafter Marrakesh Agreement]; see also UNITED NATIONS CONFERENCE ON TRADE & DEV., DISPUTE SETTLEMENT: WORLD TRADE ORGANIZATION SUBSIDIES AND COUNTERVAILING MEASURES 3 (2003), http://unctad.org/en/docs/edmmisc232add15_en.pdf [hereinafter DISPUTE SETTLEMENT]; Agreement on Agriculture, Apr. 15, 1994, Marrakesh Agreement Establishing the World Trade Organization, 1867 U.N.T.S. 410 [hereinafter Agreement on Agriculture].

⁶ See Yonov Frederick Agah, *An Insurance Policy Against Protectionism*, G7 GER.: SCHLOSS ELMAU SUMMIT, 104–05 (2015), https://www.wto.org/english/thewto_e/dg_e/g7_2015.pdf.

⁷ See WORLD TRADE ORG., *Overview: Agreement on Subsidies and Countervailing Measures ("SCM Agreement")*, https://www.wto.org/english/tratop_e/scm_e/subs_e.htm (last visited Feb. 21, 2018) [hereinafter *Overview*].

⁸ See Joanna Lewis, *The Rise of Renewable Energy Protectionism: Emerging Trade Conflicts and Implications for Low Carbon Development*, GLOBAL ENVTL. POL. 10, 16 (2014), http://www.mitpressjournals.org/doi/pdf/10.1162/GLEP_a_00255.

⁹ Agreement on Subsidies and Countervailing Measures, Apr. 15, 1994, Marrakesh Agreement Establishing the World Trade Organization, 1869 U.N.T.S. 14, Arts. 7, 10 [hereinafter SCM Agreement].

¹⁰ See WORLD TRADE ORG., *Dispute Settlement: Disputes by Agreement*, <https://www.wto.org/>

country may ask the WTO's Dispute Settlement Body (DSB) to establish a dispute settlement panel for the purpose of trying the issue and issuing a panel report, which the DSB must approve before it can take effect.¹¹ Panel reports are generally upheld because the DSB may only reject them by consensus of the entire Body.¹² WTO members may appeal adverse decisions to the organization's Appellate Body, a standing body of seven people that can uphold, modify, or reverse the legal findings and conclusions of a panel.¹³ If the DSB adopts an Appellate Body Report, the parties to the dispute must accept its findings.¹⁴

As of January 2018, WTO members had filed a total of six complaints before the WTO alleging that government-sponsored renewable energy programs violated the SCM Agreement.¹⁵ Of these six complaints, two were consolidated and resulted in an Appellate Body Report,¹⁶ two are currently pending,¹⁷ and two were otherwise resolved.¹⁸

Ultimately, these decisions provide little guidance as to whether, and to what extent, the SCM Agreement regulates renewable energy subsidies. This uncertainty, combined with increasing litigiousness,¹⁹ disincentivizes government support for renewable energy and hampers international efforts to address climate change. To reduce this uncertainty, WTO members should

english/tratop_e/dispu_e/dispu_agreements_index_e.htm (last visited Apr. 15, 2018) [hereinafter *Dispute Settlement*].

¹¹ See WORLD TRADE ORG., *Understanding the WTO: Settling Disputes*, https://www.wto.org/english/thewto_e/whatis_e/tif_e/disp1_e.htm (last visited Apr. 15, 2018) [hereinafter *Understanding the WTO*]; see also *Dispute Settlement*, *supra* note 11.

¹² *Understanding the WTO*, *supra* note 12.

¹³ See *id.*

¹⁴ WORLD TRADE ORG., *Appellate Body*, https://www.wto.org/english/tratop_e/dispu_e/appellate_body_e.htm (last visited Apr. 15, 2018).

¹⁵ See *Dispute Settlement*, *supra* note 10.

¹⁶ See generally Appellate Body Report, *Canada – Certain Measures Affecting the Renewable Energy Generation Sector / Canada – Measures Relating to the Feed-in Tariff Program*, WTO Doc. WT/DS412/AB/R/WT/DS426/AB/R, (adopted May 6, 2013) [hereinafter Appellate Body Report, *Canada – Renewable Energy*].

¹⁷ See generally Request for Consultations by China, *European Union and Certain Member States—Certain Measures Affecting the Renewable Energy Generation Sector*, WTO Doc. WT/DS452/1 (Nov. 7, 2012); Request for Consultations by India, *United States—Certain Measures Relating to the Renewable Energy Sector*, WTO Doc. WT/DS510/1 (Sept. 19, 2016).

¹⁸ See generally Request for Consultations by the United States, *China—Measures Concerning Wind Power Equipment*, WTO Doc. WT/DS419/1 (Jan. 6, 2011) [hereinafter Request for Consultations by the U.S., *China—Wind Power Equipment*]; Request for Consultations by the United States, *India—Certain Measures Relating to Solar Cells and Solar Modules*, WTO Doc. WT/DS456/1 (Feb. 11, 2013) [hereinafter Request for Consultations by the U.S., *India—Solar Cells and Solar Modules*].

¹⁹ See *Dispute Settlement*, *supra* note 11; *Disputes by Agreement*, WORLD TRADE ORG., (Before the *Canada – Certain Measures Affecting the Renewable Energy Generation Sector* dispute in 2010, no member government had initiated a WTO dispute alleging that another member government's renewable energy program violated a WTO agreement).

negotiate new rules to regulate renewable energy subsidies under the SCM Agreement. These new rules could clarify the extent to which renewable energy subsidies are permissible in a way that case-by-case WTO adjudication could not.

Part II of this paper provides background information on renewable energy, discusses the economic justifications for renewable energy subsidies, and describes recent global trends in the provision of such subsidies. Part III briefly discusses the history of subsidies regulation under international trade law, provides an overview of the SCM Agreement, and describes the WTO's dispute resolution mechanism. Part IV discusses recent challenges to renewable energy subsidies under the SCM Agreement. Part V discusses the lessons that may be drawn from this case law. The paper concludes that the WTO's rules on renewable energy subsidies are unclear and, consequently, that governments do not know whether their renewable energy programs violate the SCM Agreement. Part VI discusses ways to resolve this uncertainty and concludes that WTO members should negotiate new rules specific to renewable energy subsidies regulation under the SCM Agreement.

II. BACKGROUND

A. *Renewable Energy*

In 2015, delegates from 195 countries agreed to a watershed climate deal, known as the Paris Agreement, to keep global warming to “well below” 2 degrees Celsius above pre-industrial levels by 2100.²⁰ Under the Paris Agreement, parties aim to reach peak global greenhouse gas emissions “as soon as possible” and then transition to a decarbonized global economy.²¹ The majority of greenhouse gases come from burning fossil fuels to produce energy.²² Unlike fossil fuels, most renewable energy sources do not produce direct greenhouse gas emissions.²³ Renewable energy is, for this reason, a critical tool in the fight against climate change.²⁴

²⁰ Conference of the Parties Twenty-first Session, U.N. Framework Convention on Climate Change, *Adoption of the Paris Agreement*, at art. 4.1, U.N. Doc. FCCC/CP/2015/10/Add.1 (Dec. 12, 2015) [hereinafter *Adoption of the Paris Agreement*], http://unfccc.int/files/essential_background/convention/application/pdf/english_paris_agreement.pdf.

²¹ *See id.*

²² *See Climate Change: Basic Information*, U.S. ENVTL. PROTECTION AGENCY, https://19january2017snapshot.epa.gov/ghgemissions/sources-greenhouse-gas-emissions_.html, (last updated Jan. 17, 2017) (Although the Trump Administration's Environmental Protection Agency removed many previously published webpages from epa.gov, these pages remain available on the Agency's archived website).

²³ *Renewable Energy Explained*, U.S. ENERGY INFO. ADMIN., http://www.eia.gov/energyexplained/?page=renewable_home (last updated June 1, 2017).

²⁴ INT'L ENERGY AGENCY, *supra* note 2.

According to the International Energy Agency, renewable energy is defined as “energy that is derived from natural processes . . . that are replenished at a higher rate than they are consumed.”²⁵ Fossil fuels, on the other hand, are nonrenewable because they are drawn from limited reserves that do not naturally replenish on a timeframe that is meaningful to humans.²⁶ Renewable energy sources include solar, wind, geothermal, hydropower, bioenergy (including biogas, liquid biofuel, and biomass), and tidal power.²⁷

In 2014, renewable energy sources accounted for approximately 13.8 percent of the world’s total primary energy supply.²⁸ Solid biofuels were the principal renewable energy source, at 66.2 percent of the global renewables supply, largely due to widespread use for residential heating and cooking in developing countries.²⁹ Hydropower was the second largest source of renewable energy at 17.7 percent of the global renewables supply.³⁰ Other renewable energy sources—including geothermal, liquid biofuels, biogases, solar, wind, and tidal power—accounted for the remaining 16.1 percent of the global renewables supply.³¹

Renewable energy sources grew at an average annual rate of 2.2 percent between 1990 and 2014.³² However, solar photovoltaic and wind power grew significantly faster during this period, at average annual rates of 46.2 and 24.3 percent, respectively.³³ While familiar today, solar and wind power were relatively obscure sources of renewable energy in 1990.³⁴ Some commentators attribute this growth to government support programs for renewable energy (i.e., renewable energy subsidies).³⁵ Government subsidies for solar and wind energy have increased dramatically in recent years.³⁶ This increase can be attributed to the fact that many governments are eager to decrease dependence on fossil fuels, reduce greenhouse gas emissions, and stimulate growth in their domestic

²⁵ *Id.*

²⁶ See *Types of Renewable Energy*, RENEWABLE ENERGY WORLD, <http://www.renewableenergyworld.com/index/tech.html> (last visited Feb. 21, 2018).

²⁷ See INT’L ENERGY AGENCY, *supra* note 3.

²⁸ *Id.*

²⁹ *Id.*

³⁰ *Id.*

³¹ See *id.*

³² *Id.*

³³ *Id.*

³⁴ See *id.*

³⁵ Winfried Hoffmann, *PV Solar Electricity Industry: Market Growth and Perspective*, SOLAR ENERGY MATERIALS & SOLAR CELLS 1 (2006), <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.194.3005&rep=rep1&type=pdf>; see also Lewis, *supra* note 8, at 2020; Mark Wu & James Salzman, *The Next Generation of Trade and Environment Conflicts: The Rise of Green Industrial Policy*, NW. U. L. REV. 401, 418–20 (2014).

³⁶ See INT’L ENERGY AGENCY, WORLD ENERGY OUTLOOK 2013 95–96 (2013), <http://www.iea.org/publications/freepublications/publication/WEO2013.pdf>.

renewable energy industries.³⁷

B. *The Logic of Subsidies*

Governments have issued subsidies for thousands of years.³⁸ The ancient Roman government introduced a grain subsidy in the second century B.C. to reduce food costs for the Roman people.³⁹ While the term *subsidy* has various legal definitions, the Oxford English Dictionary defines the term as “a sum of money granted by the state or a public body to help an industry or business keep the price of a commodity or service low,” often in order to “support an undertaking held to be in the public interest.”⁴⁰ Governments implement subsidies for various reasons: to reduce commodity prices below what they would otherwise be in a free market; keep struggling businesses alive; support the development of new industries; and make domestic industries artificially competitive against imports.⁴¹

Dictionary definitions of the term *subsidy* generally ignore the fact that governments use a wide variety of financial and policy mechanisms—in addition to direct payments—to support industrial policy objectives. In addition to grants and other direct payments, governments may package subsidies as tax concessions, in-kind subsidies, subsidies through government procurement, and/or market price supports.⁴² Governments employ these subsidy variants in different situations to achieve different outcomes.⁴³

In a hypothetically perfect market, economists generally agree that subsidies distort prices, incentivize inefficient resource allocation, and generate a net loss in overall social welfare.⁴⁴ But in less-than perfect markets, subsidies may enhance overall welfare by correcting market failures—by aligning the costs and

³⁷ See Ilaria Espa & Sonia E. Rolland, *Subsidies, Clean Energy, and Climate Change*, INT’L CENTRE FOR TRADE & SUSTAINABLE DEVELOPMENT 1 (2015) https://www.ictsd.org/sites/default/files/research/E15_Subsidies_Espa%20Rolland_final.pdf; see also Mathews, *supra* note 5; *Follow the Leader*, *supra* note 5.

³⁸ PHILIP KAY, *ROME’S ECONOMIC REVOLUTION* 299 (2014).

³⁹ *Id.*

⁴⁰ *Subsidy*, *Oxford Living Eng. Dictionary*, <https://en.oxforddictionaries.com/definition/subsidy> (last visited Feb. 27, 2018); see also *Subsidy*, *Merriam-Webster Dictionary*, <https://www.merriam-webster.com/dictionary/subsidy> (last visited Apr. 15, 2018) (“[A] grant by a government to a private person or company to assist an enterprise deemed advantageous to the public”).

⁴¹ *Economics A-Z Terms Beginning with S: Subsidy*, ECONOMIST, <http://www.economist.com/economics-a-to-z/s/#node-21529341> (last visited Feb. 27, 2018).

⁴² See generally Ronald Steenblik, *A Subsidy Primer*, GLOBAL SUBSIDIES INITIATIVE & INT’L INST. FOR SUSTAINABLE DEV., <http://www.iisd.org/gsi/sites/default/files/primer.pdf> (last visited Apr. 15, 2018).

⁴³ See generally *id.*

⁴⁴ See WORLD TRADE ORG., *WORLD TRADE REPORT 2006: SUBSIDIES, TRADE AND THE WTO* 55 (2006), https://www.wto.org/english/res_e/booksp_e/anrep_e/world_trade_report06_e.pdf.

benefits of production and consumption.⁴⁵ Although economists disagree over the desirability and efficacy of government subsidy programs, many agree that subsidies are necessary to address climate change.⁴⁶ Nicholas Stern, former chief economist of the World Bank, once called climate change “the greatest and widest-ranging market failure ever seen.”⁴⁷

C. Renewable Energy Subsidies

Renewable energy subsidies have grown dramatically in recent years.⁴⁸ Worldwide, renewable energy subsidies grew from \$39 billion in 2007⁴⁹ to \$101 billion in 2012.⁵⁰ Despite this growth, fossil-fuel subsidies still dwarf renewable energy subsidies.⁵¹ The International Energy Agency estimates that fossil-fuel consumption subsidies totaled \$544 billion in 2012.⁵²

Governments subsidize renewable energy for many reasons. Most obviously, governments subsidize renewable energy in order to grow renewable energy industries.⁵³ But governments also subsidize renewable energy for other reasons: to address market failures in the energy sector, where unsubsidized renewable energy prices do not reflect the full social and environmental benefits of renewable energy use,⁵⁴ to increase the competitiveness of renewable energy relative to fossil fuel alternatives,⁵⁵ to stimulate economic growth,⁵⁶ and to promote energy independence.⁵⁷

⁴⁵ *Id.*

⁴⁶ See Declaration on Climate Finance, NOT A PENNY MORE, <https://notapennymore.info/declaration/> (last visited Apr. 15, 2018); see also Nicholas Stern, *Action on Fossil Fuel Subsidies Must Be Accelerated*, FINANCIAL TIMES (Nov. 12, 2015), <https://www.ft.com/content/ff3e07e6-5485-33a0-a1eb-f121cb6beeab>.

⁴⁷ NICHOLAS STERN, STERN REVIEW: THE ECONOMICS OF CLIMATE CHANGE i (2007).

⁴⁸ See INT’L ENERGY AGENCY, *supra* note 37, at 95.

⁴⁹ See INT’L ENERGY AGENCY, WORLD ENERGY OUTLOOK 2011 508 (2011), https://www.iea.org/publications/freepublications/publication/WEO2011_WEB.pdf (noting that renewable energy subsidies were \$39 billion in 2007).

⁵⁰ See INT’L ENERGY AGENCY, *supra* note 37, at 95.

⁵¹ See *id.* at 93.

⁵² *Id.* (noting that fossil fuel subsidies “distort energy markets in many countries, pushing up energy use and emissions, and engendering large economic costs”).

⁵³ See Adele Morris, *Clean Energy: Policies and Priorities*, BROOKINGS INSTITUTION (2012) <https://www.brookings.edu/research/clean-energy-policy-and-priorities/>; see generally *Tax Credits, Rebates & Savings*, U.S. DEPT. ENERGY, <http://energy.gov/savings> (last visited Feb. 28, 2018).

⁵⁴ Elena Cima & Paolo Farah, *The World Trade Organization, Renewable Energy Subsidies, and the Case of Feed-in Tariffs: Time for Reform Toward Sustainable Development?*, GEO. INT’L ENVTL. L. REV. 515, 518 (2015).

⁵⁵ INT’L ENERGY AGENCY, *supra* note 37, at 95.

⁵⁶ See Lewis, *supra* note 9, at 12.

⁵⁷ See *Advancing American Energy*, WHITE HOUSE, <https://obamawhitehouse.archives.gov/energy/securing-american-energy> (last visited Nov. 28, 2016).

Governments use a variety of subsidies and policy mechanisms to support renewable energy. These mechanisms include feed-in tariffs (FITs);⁵⁸ direct capital subsidies, grants, or favorable loans; local content requirements (i.e., requirements that firms use domestic goods and services); financial or tax incentives for local manufacturing; and customs duties or import tariffs to favor domestic goods or promote domestic manufacturing, among other incentive programs.⁵⁹

As of year-end 2015, feed-in policies—where governments typically guarantee renewable energy generators a specified payment per unit (e.g., USD/kWh) of renewable energy generated over a fixed period—remained the world’s most widely used form of renewable energy support.⁶⁰ Seventy-five national governments and thirty-five subnational governments had feed-in programs in 2015.⁶¹

Net energy metering also remained a popular form of renewable energy support.⁶² Net energy metering or net billing policies are regulatory arrangements under which utility customers with on-site electricity generation systems (e.g., rooftop solar systems) receive credits for excess renewable energy generation, which they can use to defray the cost of energy that they consume during other billing periods.⁶³ Fifty-two countries had implemented net energy metering or net billing policies as of year-end 2015.⁶⁴ Net energy metering policies may be considered subsidies insofar as they involve government price support for renewable energy.⁶⁵

Renewable portfolio standards (RPSs) were the third most popular form of government program designed to support renewable energy in 2015.⁶⁶ An RPS

⁵⁸ A feed-in tariff is a policy mechanism whereby a utility customer is effectively paid the retail rate for any electricity fed back into the grid. See *Feed-in tariff: A policy tool encouraging deployment of renewable electricity technologies*, U.S. ENERGY INFO. ADMIN., <https://www.eia.gov/todayinenergy/detail.php?id=11471>.

⁵⁹ See Lewis, *supra* note 9, at 14–15.

⁶⁰ RENEWABLE ENERGY POLICY NETWORK FOR THE 21ST CENTURY, RENEWABLES 2016 GLOBAL STATUS REPORT 109 (2016), http://www.ren21.net/wp-content/uploads/2016/05/GSR_2016_Full_Report_lowres.pdf.

⁶¹ *Id.* at 266.

⁶² *Id.* at 114.

⁶³ *Id.* at 267 (“Under net metering, customers typically receive credit at the level of the retail electricity price. Under net billing, customers typically receive credit for excess power at a rate that is lower than the retail electricity price. Different jurisdictions may apply these terms in different ways, however.”)

⁶⁴ RENEWABLE ENERGY POLICY NETWORK FOR THE 21ST CENTURY, *supra* note 61, at 114.

⁶⁵ See Lisa V. Wood, *Why Net Energy Metering Results in a Subsidy: The Elephant in the Room*, BROOKINGS INSTITUTION, <https://www.brookings.edu/opinions/why-net-energy-metering-results-in-a-subsidy-the-elephant-in-the-room/> (2016) (Net-energy metering is a government-imposed tariff that often results in a cost shift from net-energy metering customers to non-net-energy metering customers).

⁶⁶ See *id.*

is “an obligation placed by a government on a utility company, group of companies, or consumers to provide or use a predetermined minimum targeted renewable share of installed capacity, or of electricity or heat generated or sold.”⁶⁷ Twenty-six national governments and seventy-four subnational governments had implemented an RPS as of year-end 2015.⁶⁸ Although RPSs are not typically described as subsidies, they may include subsidy components: a regulated entity’s obligation to provide or use a set amount of renewable energy under an RPS may be bundled with a government commitment to financially support that entity (e.g., through tax credits). However, an RPS that does not include a financial support component is unlikely to constitute a subsidy; as discussed in Section II(b) above, subsidies are typically understood to include some form of government financial support for an industry or business.⁶⁹ For the first time in history, renewable energy investments in developing countries exceeded those in developed countries in 2015.⁷⁰ Developing countries, including China, India, and Brazil, invested \$156 billion in 2015, up 19 percent from 2014.⁷¹ China invested a massive \$102.9 billion, or 36 percent of the global total, in 2015;⁷² when China launched its Golden Sun solar program in 2009, the government subsidized “up to seventy percent of the installation cost for off-grid solar and up to fifty-percent of the installation, transmission, and distribution costs of a grid-connected solar array.”⁷³

III. SUBSIDIES REGULATION UNDER THE GLOBAL TRADE REGIME

Today, governments commonly use renewable energy subsidies to encourage domestic renewable energy development. Although pervasive, this practice may distort the international market by giving countries with these programs a competitive advantage in renewable energy.⁷⁴ Generally, global trade laws prohibit protectionist policies—policies that give domestic businesses an advantage over foreign competitors—in order to promote a level international playing field.⁷⁵ Tension between renewable energy subsidy programs and the global trade regime has spawned noteworthy international conflict in the last

⁶⁷ *Id.* at 268.

⁶⁸ *Id.*

⁶⁹ *See Subsidy*, *supra* note 41.

⁷⁰ *Id.* at 100 (this figure excludes investment in large hydropower).

⁷¹ *Id.*

⁷² *Id.*

⁷³ Wu & Salzman, *supra* note 36, at 420.

⁷⁴ *See* WORLD TRADE ORG., WORLD TRADE REPORT 2006: SUBSIDIES, TRADE AND THE WTO 55 (2006), https://www.wto.org/english/res_e/booksp_e/anrep_e/world_trade_report06_e.pdf; *see also* Cima & Farah, *supra* note 55, at 520.

⁷⁵ *See* Agah, *supra* note 6.

decade.⁷⁶

A. History

The international community first regulated subsidies under the General Agreement on Tariffs and Trade (GATT) in 1947.⁷⁷ GATT Article XVI discouraged countries from using export subsidies: “contracting parties *should seek to avoid* the use of subsidies on the export of primary products.”⁷⁸ Nonetheless, GATT member states could grant or maintain any subsidy so long as they notified the other member states.⁷⁹ GATT permitted countries to impose a countervailing duty if another country’s subsidy caused or threatened to cause material injury or serious prejudice to their interests, but did not establish a mechanism for countries to file complaints before an international dispute resolution body.⁸⁰ Some parties to GATT attempted to expand and strengthen international subsidies regulation under what became the 1979 Subsidies Code, with minimal success.⁸¹ Only twenty-four countries ratified and thus were bound by the 1979 Subsidies Code.⁸²

When the international community signed the Marrakesh Agreement in 1994 and established the WTO,⁸³ it also established a new and comprehensive legal framework for international subsidies regulation.⁸⁴ The centerpiece of this legal framework is the SCM Agreement, which regulates the use of domestic subsidies and countervailing measures by WTO member governments.⁸⁵ The SCM Agreement categorically prohibits certain subsidies and deems others actionable.⁸⁶ It has been heralded as a major improvement over previous attempts to regulate subsidies at the international level.⁸⁷ The international community also adopted the Agreement on Trade Related Investment Measures (TRIMS) in 1994, which restricts the ability of member governments to adopt investment measures giving preferential treatment to domestic over international

⁷⁶ See Lewis, *supra* note 9, at 16.

⁷⁷ See CHRIS WOLD ET AL., *TRADE AND THE ENVIRONMENT: LAW AND POLICY* 544 (2005).

⁷⁸ General Agreement on Tariffs and Trade, art. XVI, Oct. 30, 1947, 61 Stat. A-11, 55 U.N.T.S. (emphasis added) [hereinafter GATT].

⁷⁹ See *id.* art. XVI.

⁸⁰ See *id.* art. VI.

⁸¹ See WOLD ET AL., *supra* note 78, at 559.

⁸² *Id.*

⁸³ See Marrakesh Agreement, *supra* note 6.

⁸⁴ See generally *id.*

⁸⁵ *Overview*, *supra* note 8 (countervailing measures are used to “offset injury caused by subsidized imports”).

⁸⁶ See SCM Agreement, *supra* note 10, art. 3, 5.

⁸⁷ While the SCM Agreement covers a broad range of subsidies, it is worth noting that agriculture subsidies are generally regulated under the separate Agreement on Agriculture. *DISPUTE SETTLEMENT*, *supra* note 6, at 3. See generally Agreement on Agriculture, *supra* note 6.

firms.⁸⁸

1. Scope of the SCM Agreement

Unlike the GATT and 1979 Subsidies Code, the SCM Agreement actually defines the term “subsidy.”⁸⁹ The definition has three essential elements: (i) a financial contribution (ii) by a government or any public body within the territory of a member (iii) which confers a benefit.⁹⁰ All three elements are required for a subsidy to exist.⁹¹ The SCM Agreement does not apply to programs that do not meet its definition of subsidy.⁹²

Under the SCM Agreement, a “financial contribution” exists when a government makes a direct transfer of funds; a potential direct transfer of funds; forgoes or does not collect government revenue that is otherwise due; provides goods or services other than general infrastructure or purchases goods; makes payments to a funding mechanism, or entrusts or directs a private body to carry out one of these functions; or provides income or price support as defined under GATT Article XVI.⁹³ The WTO’s Appellate Body—a seven-member panel with authority to uphold, modify, or reverse legal findings of the WTO’s Dispute Settlement Body⁹⁴—has adopted a broad definition of “financial contribution” in its reports.⁹⁵

For a financial contribution to be considered a subsidy under the SCM Agreement, it must be made by a government or public body.⁹⁶ The term “government” refers to a national government, subnational government, or any other type of public entity.⁹⁷ A private body may qualify as a “government” for purposes of the SCM Agreement if it makes a financial contribution pursuant to entrustment or direction by a government.⁹⁸

Under the SCM Agreement, a government’s financial contribution only constitutes a subsidy if it confers a benefit.⁹⁹ The SCM Agreement does not

⁸⁸ See WORLD TRADE ORG., *Trade and Investment: Agreement on Trade Related Investment Measures*, https://www.wto.org/english/tratop_e/invest_e/invest_info_e.htm (last visited Mar. 3, 2018) (noting that the TRIMS Agreement prohibits measures that discriminate against foreign products or that lead to quantitative restrictions, such as local content requirements).

⁸⁹ SCM Agreement, *supra* note 10, art. 1.

⁹⁰ *See id.* art. 1.1.

⁹¹ *See id.*

⁹² *See id.* art. 1.

⁹³ *Id.* art. 1.1(a)(1).

⁹⁴ *See infra* section III.b.

⁹⁵ WOLD ET AL., *supra* note 78, at 539.

⁹⁶ SCM Agreement, *supra* note 10, art. 1.1.

⁹⁷ WORLD TRADE ORG., *Detailed Presentation of Subsidies and Countervailing Measures in the WTO*, 8 https://ecampus.wto.org/admin/files/course_385/module_1594/moduledocuments/scm-l2-r1-e.pdf (last visited Apr. 20, 2018) [hereinafter *Detailed Presentation*].

⁹⁸ *Id.*

⁹⁹ SCM Agreement, *supra* note 10, art. 1.

clarify what it means to “confer a benefit.”¹⁰⁰ However, the Appellate Body ruled in *Canada-Measures Affecting Exports of Civilian Aircraft* that “there can be no ‘benefit’ to the recipient unless the ‘financial contribution’ makes the recipient ‘better off’ than it would otherwise have been, absent that contribution.”¹⁰¹ There, the Appellate Body concluded that the existence of a benefit is determined via comparison to a market baseline: what the recipient received from the government versus what it could have received in the market under the government’s own definition of its energy-supply mix.¹⁰² In other words, the Appellate Body concluded that the appropriate market baseline is the competitive market for the renewable energy technology at issue, rather than the competitive wholesale electricity market as a whole.¹⁰³

A governmental measure is only subject to regulation under the SCM Agreement if it meets the SCM Agreement’s definition of a subsidy and is considered *specific*.¹⁰⁴ A subsidy is specific if it is provided on a selective basis to a particular enterprise or industry, or group of enterprises or industries, or to a particular region.¹⁰⁵ The basic principles underlying this requirement are (i) subsidies that distort the allocation of resources within an economy should be subject to discipline, and (ii) subsidies that are widely available within an economy are unlikely to distort the allocation of resources.¹⁰⁶

The SCM Agreement identifies four types of “specificity”: (i) enterprise-specificity, where access to a subsidy is limited to a particular company or companies; (ii) industry-specificity, where access to a subsidy is limited to a particular industry or industries; (iii) regional specificity, where access to a subsidy is limited to recipients located in a geographical region within the jurisdiction of the granting authority; and (iv) prohibited subsidies, where access to a subsidy is limited to export goods or goods using domestic inputs.¹⁰⁷

2. Subsidy Categories: Prohibited and Actionable

Under the SCM Agreement, all specific subsidies are either prohibited¹⁰⁸ or actionable.¹⁰⁹ SCM Article 3 prohibits subsidies the receipt of which is contingent upon export performance (i.e. export subsidies) and prohibits

¹⁰⁰ *Overview*, *supra* note 8.

¹⁰¹ Appellate Body Report, *Canada-Measures Affecting Exports of Civilian Aircraft*, ¶ 157, WTO Doc. WT/DS70/AB/R (adopted Aug. 20, 1999).

¹⁰² *See Overview*, *supra* note 8; *see also* Appellate Body Report, *Canada—Renewable Energy*, *supra* note 17, at 5.178.

¹⁰³ *See* Appellate Body Report, *Canada—Renewable Energy*, *supra* note 17, at 5.178.

¹⁰⁴ *Detailed Presentation*, *supra* note 98, at 10.

¹⁰⁵ *Id.*

¹⁰⁶ *Id.*; *see also* WOLD ET AL., *supra* note 78, at 539.

¹⁰⁷ *Overview*, *supra* note 8; *see also Detailed Presentation*, *supra* note 98, at 10–11.

¹⁰⁸ *See* SCM Agreement, *supra* note 10, art. 3.

¹⁰⁹ *See id.* art. 5.

governments from requiring businesses to use domestic over imported goods (i.e. local content subsidies, also known as domestic content requirements).¹¹⁰ According to the WTO, “these two categories of subsidies are prohibited because they are designed to directly affect trade and thus are most likely to have adverse effects on the interests of other members.”¹¹¹ Local content subsidies are also inconsistent with GATT Article III and other international trade rules.¹¹²

Under SCM Article 5, all specific subsidies that are not prohibited are actionable.¹¹³ Actionable subsidies are subject to legal challenge — either through the WTO’s multilateral dispute settlement process or unilateral countervailing actions — when they adversely affect another member’s interests.¹¹⁴

B. Dispute Resolution Mechanism

The Marrakesh Agreement also created a comprehensive dispute resolution framework under the SCM Agreement.¹¹⁵ This framework gives the WTO authority to issue legally enforceable decisions that directly affect national laws and policies.¹¹⁶ The WTO’s DSB, which consists of all WTO members, is responsible for settling disputes.¹¹⁷ The DSB, which has been very active since its inception,¹¹⁸ has authority to establish dispute resolution panels and accept or reject panel decisions.¹¹⁹ Either party to a dispute may appeal the panel’s decision to the seven-member Appellate Body, which must then issue a report that the DSB must accept or reject within thirty days.¹²⁰ The DSB monitors the implementation of rulings and has authority to sanction retaliation when a country does not comply with the outcome of the dispute resolution process.¹²¹

Although the WTO dispute settlement system did not explicitly incorporate *stare decisis*, various commentators have argued that the Appellate Body implicitly adopted this principle by “giving substantial and often controlling

¹¹⁰ *Id.* art. 3.

¹¹¹ *Overview, supra* note 8.

¹¹² *Id.*

¹¹³ *See* SCM Agreement, *supra* note 10, art. 5.

¹¹⁴ *Overview, supra* note 8.

¹¹⁵ *See generally* Marrakesh Agreement, *supra* note 6.

¹¹⁶ *See Understanding the WTO: Settling Disputes*, WORLD TRADE ORG., https://www.wto.org/english/thewto_e/whatis_e/tif_e/displ_e.htm [hereinafter *Settling Disputes*] (last visited Feb. 28, 2018); *see also* WOLDET AL., *supra* note 78, at 87.

¹¹⁷ *Settling Disputes, supra* note 117.

¹¹⁸ *See id.* (noting that by 2008, only 136 of the 369 disputes between WTO members reached the full panel process, the others were settled by the dispute resolution board).

¹¹⁹ *Id.*

¹²⁰ *Id.*

¹²¹ *Id.*

weight to the resolution of legal questions by prior panels or in prior Appellate Body reports” in practice.¹²² Thus, the Appellate Body’s reports may have precedential value.

IV. MULTILATERAL DISPUTES ABOUT RENEWABLE ENERGY SUBSIDIES

WTO members have filed an average of five complaints per year under the SCM Agreement since its enactment in 1995.¹²³ Until 2010, these complaints had nothing to do with renewable energy.¹²⁴ In 2010, Japan and later the EU filed complaints—the consolidated *Canada - Certain Measures Affecting the Renewable Energy Sector* and *Canada - Measures Relating to the Feed-in Tariff* complaints—alleging that Canada’s FIT program violated the SCM Agreement.¹²⁵ That dispute was the first time any member government had formally alleged, before the WTO’s adjudicatory body, that another member government’s renewable energy program violated the SCM Agreement.¹²⁶

Since the *Canada* complaints were filed in 2010, it has become more common for member governments to formally allege that another member government’s renewable energy program violates the SCM Agreement.¹²⁷ later in 2010, the U.S. formally alleged that a Chinese wind subsidy program violated the SCM Agreement;¹²⁸ in 2012, the U.S. alleged that India’s national solar initiative violated the SCM Agreement;¹²⁹ in 2013, China alleged that Greece, Italy, and other EU member states’ FIT programs violated the SCM Agreement;¹³⁰ and in 2016, India alleged that various U.S. subnational renewable energy measures violated the SCM Agreement.¹³¹ This increase in renewable energy trade disputes may have occurred in response to the increasing value of renewable energy subsidies worldwide,¹³² growth in the renewable energy market,¹³³ or a combination of factors.¹³⁴

¹²² See WOLD ET AL., *supra* note 78, at 112.

¹²³ See Kara Leitner & Simon Lester, *WTO Dispute Settlement 1995 -2012: A Statistical Analysis*, J. INT’L ECON. L. 203, 257–67 (2013).

¹²⁴ See *Dispute Settlement*, *supra* note 11.

¹²⁵ See generally Appellate Body Report, *Canada – Renewable Energy*, *supra* note 17.

¹²⁶ See *Dispute Settlement*, *supra* note 11.

¹²⁷ See Lewis, *supra* note 9, at 16.

¹²⁸ See generally Request for Consultations by the U.S., *China—Wind Power Equipment*, *supra* note 19.

¹²⁹ See generally Request for Consultations by the U.S., *India—Solar Cells and Solar Modules*, *supra* note 19.

¹³⁰ See generally Request for Consultations by China, *supra* note 18.

¹³¹ See generally Request for Consultations by India, *supra* note 18.

¹³² INT’L ENERGY AGENCY, *supra* note 37, at 95–96.

¹³³ INT’L ENERGY AGENCY, *supra* note 3, at 3.

¹³⁴ See generally Evan Musolino, *Renewable Energy Trade Disputes*, WORLDWATCH INSTITUTE (Mar. 21, 2012), <http://blogs.worldwatch.org/revolt/renewable-energy-trade-disputes/> (last visited Apr. 20, 2018).

Unfortunately, these trade disputes do not significantly clarify the extent to which the SCM Agreement regulates renewable energy programs.¹³⁵ Only one of the renewable energy disputes brought since 2010—*Canada - Certain Measures Affecting the Renewable Energy Sector* and *Canada - Measures Relating to the Feed-in Tariff*—has resulted in a WTO report.¹³⁶ That report merely establishes that the relationship between renewable energy programs and the SCM Agreement is rife with uncertainty. As of March 2018, the other disputes have resulted in settlement through bilateral negotiations, abandoned claims, or are still pending.¹³⁷ Each of these disputes, and the lessons learned from them, is described below.¹³⁸

A. Canada – Certain Measures Affecting the Renewable Energy Sector and Canada – Measures Relating to the Feed-in Tariff

In 2010, Japan and later the EU filed a WTO complaint alleging that the Canadian Province of Ontario's FIT program for wind and solar photovoltaic generators violated the SCM Agreement.¹³⁹ The FIT established a 20-year guaranteed price per kilowatt-hour of renewable energy generated from wind, solar, PV, renewable biomass, biogas, landfill gas, and hydropower.¹⁴⁰ Complainants argued that Ontario's FIT constituted a financial contribution under SCM Article 1.1(a), conferred a benefit under Article 1.1(b), was a subsidy under Article 1.1, and qualified as a prohibited subsidy under Article 3 because it contained a domestic content requirement.¹⁴¹

The Appellate Body concluded that the FIT constituted a financial contribution within the meaning of SCM Article 1.1(a),¹⁴² but did not determine whether the program conferred a benefit within the meaning of Article 1.1(b).¹⁴³ According to the Appellate Body, it was unable to determine whether the FIT conferred a benefit because complainants used the wrong market baseline to analyze benefits from the FIT program.¹⁴⁴ As discussed above, the Appellate Body determines whether a renewable energy program confers a benefit for purposes of the SCM Agreement by comparing the program at issue to a market

¹³⁵ See Appellate Body Report, *Canada—Renewable Energy*, *supra* note 17, at 5.178.

¹³⁶ See *id.*; see also *Dispute Settlement*, *supra* note 11.

¹³⁷ See *infra* section IV.a–e.

¹³⁸ *Id.*

¹³⁹ Request for Consultations by Japan, *Canada—Certain Measures Affecting the Renewable Energy Generation Sector*, 2–3, WTO Doc. WT/DS412/1 (Sept. 16, 2010).

¹⁴⁰ Appellate Body Report, *Canada—Renewable Energy*, *supra* note 17, at 1.3.

¹⁴¹ *Id.* at 3.

¹⁴² *Dispute Settlement: Canada—Certain Measures Affecting the Renewable Energy Generation Sector*, WORLD TRADE ORG., https://www.wto.org/english/tratop_e/dispu_e/cases_e/ds412_e.htm (last visited Mar. 3, 2018).

¹⁴³ *Id.*

¹⁴⁴ See Appellate Body Report, *Canada—Renewable Energy*, *supra* note 17, at 5.178.

baseline.¹⁴⁵ Here, the Appellate Body rejected complainants' argument that the appropriate market baseline was the wholesale electricity market as a whole.¹⁴⁶ Instead, the Appellate Body concluded that the appropriate market baseline is the competitive market for the renewable technology at issue (i.e., wind and solar).¹⁴⁷ Consequently, the Appellate Body did not determine whether the FIT constituted a subsidy under SCM Article 1 or whether it constituted a prohibited subsidy under SCM Article 3.¹⁴⁸

Nonetheless, the Appellate Body concluded that the challenged FIT's minimum domestic content requirement was invalid under the TRIMS Agreement and the GATT.¹⁴⁹ Ultimately, Canada removed and altered the domestic content requirements in its FIT program.¹⁵⁰

B. China – Measures Concerning Wind Power Equipment

In 2010, the U.S. challenged a Chinese wind subsidy program with a local content requirement before the WTO.¹⁵¹ The U.S. alleged that the Chinese wind subsidy program, which allocated grants to Chinese wind turbine manufacturers that used Chinese-made inputs rather than foreign-made inputs,¹⁵² violated SCM Article 3.¹⁵³ The United States (U.S.) estimated that Chinese grants may have been between \$6.7 million and \$22.5 million and could have totaled several hundred million dollars between 2008 and 2011.¹⁵⁴ Despite the initiation of WTO consultations, China and the U.S. settled the dispute through bilateral

¹⁴⁵ See *Overview*, *supra* note 8; see also Appellate Body Report, *Canada—Renewable Energy*, *supra* note 17, at 5.178.

¹⁴⁶ See Appellate Body Report, *Canada—Renewable Energy*, *supra* note 17, at 5.178.

¹⁴⁷ See *id.*

¹⁴⁸ See *id.* at 5.220.

¹⁴⁹ *Dispute Settlement: Canada—Certain Measures Affecting the Renewable Energy Generation Sector*, *supra* note 143; see also *Trade and Investment: Agreement on Trade Related Investment Measures*, WORLD TRADE ORG., https://www.wto.org/english/tratop_e/invest_e/invest_info_e.htm (last visited Mar. 3, 2018) (noting that the TRIMS Agreement prohibits measures that discriminate against foreign products or that lead to quantitative restrictions, such as local content requirements).

¹⁵⁰ Communication from Canada, *Canada—Certain Measures Affecting the Renewable Energy Generation Sector*, WTO Doc. WT/DS412/19 (Jun. 6, 2014).

¹⁵¹ See Request for Consultations by the U.S., *China—Wind Power Equipment*, *supra* note 19, at 1.

¹⁵² INT'L CENTRE FOR TRADE AND SUSTAINABLE DEV., *China to End Challenged Subsidies in Wind Power Case*, BIORIS (June 13, 2011), <http://www.ictsd.org/bridges-news/biores/news/china-to-end-challenged-subsidies-in-wind-power-case>.

¹⁵³ Request for Consultations by the U.S., *China—Wind Power Equipment*, *supra* note 19, at 1.

¹⁵⁴ See *China Ends Wind Power Equipment Subsidies Challenged by the United States in WTO Dispute*, OFFICE OF THE U.S. TRADE REPRESENTATIVE (June 2011), <https://ustr.gov/about-us/policy-offices/press-office/press-releases/2011/june/china-ends-wind-power-equipment-subsidies-challenged>.

negotiations.¹⁵⁵ In 2011, China agreed to eliminate its wind subsidy program and the associated local content restrictions, which U.S. Trade Representative Ron Kirk described as “particularly harmful.”¹⁵⁶ The U.S. considered this a major victory.¹⁵⁷

C. India – Certain Measures Relating to Solar Cells and Solar Modules

In 2013, the U.S. filed a complaint alleging that certain Indian government support programs under the Jawaharlal Nehru National Solar Mission contained domestic content requirements that violated the SCM Agreement.¹⁵⁸ Despite this initial allegation, neither the WTO panel nor the Appellate Body evaluated the contested measures under the SCM Agreement.¹⁵⁹ Apparently, neither the U.S.’s second request for consultations nor its subsequent request that the WTO establish a dispute settlement panel referenced the SCM Agreement.¹⁶⁰ Nonetheless, the WTO Appellate Body ruled that India’s domestic content requirements violated the TRIMs Agreement and the GATT.¹⁶¹

D. EU and Certain Members – Certain Measures Affecting the Renewable Energy Generation Sector

In 2012, China filed a complaint before the WTO alleging that Greece, Italy, and other EU member states’ FIT programs constituted subsidies that violated the SCM Agreement¹⁶²—similar to the complaints that Japan and the EU filed against Canada in *Canada – Certain Measures Affecting the Renewable Energy Sector* and *Canada – Measures Relating to the Feed-in Tariff*.¹⁶³

¹⁵⁵ *See id.*

¹⁵⁶ *Id.*

¹⁵⁷ INT’L CTR. FOR TRADE & SUSTAINABLE DEV., *US Proclaims Victory in Wind Power Case; China Ends Challenged Subsidies*, 15 BRIDGES 21 (June 9, 2011), <http://www.ictsd.org/bridges-news/bridges/news/us-proclaims-victory-in-wind-power-case-china-ends-challenged-subsidies>.

¹⁵⁸ *See* Request for Consultations by the U.S., *India—Solar Cells and Solar Modules*, *supra* note 19, at 1.

¹⁵⁹ *See* Panel Report, *India—Certain Measures Relating to Solar Cells and Solar Modules*, WTO Doc. WT/DS456/R, FN1 (adopted Feb. 24, 2016); *see also* Appellate Body Report, *India—Certain Measures Relating to Solar Cells and Solar Modules*, WTO Doc. WT/DS/456/AB/R (adopted Sept. 16, 2016) [hereinafter Appellate Body Report, *India*].

¹⁶⁰ *See* Panel Report, *India—Certain Measures Relating to Solar Cells and Solar Modules*, *supra* note 160.

¹⁶¹ *Dispute Resolution: India—Certain Measures Relating to Solar Cells and Solar Modules*, WORLD TRADE ORG., https://www.wto.org/english/tratop_e/dispu_e/cases_e/ds456_e.htm (last updated Jan. 25, 2018).

¹⁶² *Dispute Settlement: European Union and its Member States—Certain Measures Relating to the Energy Sector*, WORLD TRADE ORG., https://www.wto.org/english/tratop_e/dispu_e/cases_e/ds476_e.htm (last updated April 20, 2017).

¹⁶³ *See* Request for Consultations by China, *supra* note 18, at 1; *see also supra* section IV.a (discussion of *Canada - Certain Measures Affecting the Renewable Energy Sector* and *Canada - Measures Relating to the Feed-in Tariff*).

The DSB convened a panel to resolve this dispute and was expected to issue a report by May 2017.¹⁶⁴ However, the panel did not release a report in May 2017 “due to the complexity of the dispute and the large volume of evidence.”¹⁶⁵ At that time, the panel stated it expected to issue its final report to the parties no later than the end of 2017.¹⁶⁶ As of March 2018, the report has not been released and the dispute remains unresolved.¹⁶⁷

E. United States – Certain Measures Relating to the Renewable Energy Sector

In September 2016, India filed a complaint before the WTO alleging that certain government-sponsored renewable energy measures in the U.S. violate the SCM Agreement.¹⁶⁸ Specifically, India alleged that domestic content requirements and subsidies instituted by the states of Washington, California, Montana, Massachusetts, Connecticut, Michigan, Delaware, and Minnesota violate the SCM Agreement.¹⁶⁹ Among the challenged programs is California’s Self-Generation Incentive Program, where the California Public Utilities Commission offers retail electric and gas customers of specified investor-owned utilities an additional incentive for installing distributed generation or advanced energy storage technologies from a California supplier.¹⁷⁰ India also challenged Michigan’s RPS, which incentivizes the use of solar equipment manufactured or constructed in Michigan.¹⁷¹

India alleged that these U.S. programs violate Article 3 of the SCM Agreement, insofar as they provide subsidies contingent upon the use of domestic over imported goods.¹⁷² In the alternative, India alleged that these U.S. measures violate Articles 5(a) (prohibiting use of subsidies that injure the domestic industry of another member), and 5(c) (prohibiting use of subsidies that cause serious prejudice to the interests of another member) of the SCM Agreement because they “appear to cause serious prejudice to the interests of India through displacement or impedance of imports into the U.S. of like products from India, and through lost sales in the U.S. of like products imported from India.”¹⁷³ The Dispute Settlement Body convened a panel in March 2017 to

¹⁶⁴ *Dispute Settlement: European Union and its Member States—Certain Measures Relating to the Energy Sector*, WORLD TRADE ORG., https://www.wto.org/english/tratop_e/dispu_e/cases_e/ds476_e.htm (last updated April 20, 2017).

¹⁶⁵ *Id.*

¹⁶⁶ *Id.*

¹⁶⁷ *See id.*

¹⁶⁸ *See* Request for Consultations by India, *supra* note 18, at 1.

¹⁶⁹ *See id.* at 1–3.

¹⁷⁰ *See id.*

¹⁷¹ *See id.*

¹⁷² *See id.* at 4.

¹⁷³ *See id.*

try this case.¹⁷⁴ The timeline for this case is uncertain.

V. THE WTO DECISIONS: LIMITED PRECEDENT AND LEGAL
UNCERTAINTY

The six renewable energy complaints filed under the SCM Agreement as of January 2018 shed some, albeit limited, light on the relationship between the SCM Agreement and member governments' renewable energy programs.

A. *Lessons from the Canada Dispute*

In *Canada – Certain Measures Affecting the Renewable Energy Sector and Canada – Measures Relating to the Feed-in Tariff*, the Appellate Body did not determine whether the SCM Agreement regulated the contested FIT.¹⁷⁵ The Appellate Body did, however, discuss whether the FIT conferred a benefit under SCM Article 1.1(b).¹⁷⁶ This discussion clarified the process for conducting a FIT benefit analysis under SCM Article 1.1(b).¹⁷⁷ According to the Appellate Body, complainants erred by comparing Ontario's FIT program to its competitive wholesale electricity market as a whole to determine whether the program conferred a benefit under Article 1.1(b).¹⁷⁸ Instead, they should have compared Ontario's FIT program to the competitive markets for wind- and solar-PV generated electricity, which "are created by the government definition of the energy supply-mix."¹⁷⁹ The Appellate Body concluded that "the relevant question is whether wind power and solar PV electricity suppliers would have entered the wind- and solar-PV generated electricity markets absent the FIT program, not whether they would have entered the blended wholesale electricity market."¹⁸⁰

The Appellate Body considered demand- and supply-side factors before determining the relevant market for Article 1.1(b)'s benefit analysis.¹⁸¹ On the demand-side, the Body noted that consumers typically do not differentiate between electricity, which is physically identical no matter how it is produced, based on the production technology used: "there is high demand-side substitutability between electricity generated through different technologies."¹⁸²

¹⁷⁴ See *id.*

¹⁷⁵ See Appellate Body Report, *Canada—Renewable Energy*, *supra* note 17, at 5.199; see also Rajib Pal, *Has the Appellate Body's Decision in Canada – Renewable Energy / Canada – Feed-in Tariff Program Opened the Door for Production Subsidies?*, 17 J. INT'L ECON. L. 125, 126 (2014).

¹⁷⁶ See Appellate Body Report, *Canada—Renewable Energy*, *supra* note 17, at 5.178.

¹⁷⁷ See *id.*; see also *supra* section IV.a.

¹⁷⁸ See *id.*

¹⁷⁹ See *id.*; see also Pal, *supra* note 176.

¹⁸⁰ See Appellate Body Report, *Canada—Renewable Energy*, *supra* note 17, at 5.199.

¹⁸¹ See *id.* at 5.171.

¹⁸² See *id.* at 5.170.

The Appellate Body placed more weight on supply-side factors, however:

Even if demand-side factors weigh in favor of defining the relevant market as a single market for electricity generated from all sources of energy, supply-side factors suggest that important differences in cost structures and operating costs and characteristics among generating technologies prevent the very existence of wind power and solar PV generation, absent government definition of the energy supply-mix of electricity generation technologies.¹⁸³

Ultimately, the Appellate Body concluded that the benefit comparison under Article 1.1(b) should be conducted with reference to the relevant government's definition of its energy supply-mix.¹⁸⁴ The Appellate Body noted, "the definition of a certain supply-mix by the government cannot in and of itself be considered as conferring a benefit within the meaning of Article 1.1(b) of the SCM Agreement."¹⁸⁵ Under this standard, parties opposing a government's renewable energy support program will need to show that the program caused renewable energy producers to enter a specific renewable energy market.¹⁸⁶

The Appellate Body's rationale and conclusion in *Canada – Renewable Energy / Canada – Feed-in Tariff Program* regarding the appropriate methodology for conducting a benefit analysis under SCM Article 1.1(b) seems to give governments significant latitude to implement support programs for nascent renewable energy industries without fear of sanctions under the SCM Agreement. Under this framework, any government support measure for renewable energy that remedies an "important difference in cost structures and operating costs and characteristics" between renewable energy and competing alternatives and supports "the very existence of" a renewable energy industry may escape regulation under the SCM Agreement.¹⁸⁷ This is the primary purpose of many government support programs for renewable energy.

The Appellate Body's decision in *Canada* may also indicate that the Body is inclined to find renewable energy support programs such as FITs exempt from regulation under the SCM Agreement. At least one commentator has suggested that Ontario's FIT program would likely have conferred a benefit and constituted a subsidy had the Appellate Body not rejected the wholesale electricity market as the relevant benchmark:

Had the relevant market [for the benefit analysis] been the 'competitive wholesale electricity market as a whole,' there would have been little doubt that the FIT Program conferred a 'benefit,' and therefore constituted a

¹⁸³ See *id.* at 5.178.

¹⁸⁴ See *id.*

¹⁸⁵ See *id.* at 5.175.

¹⁸⁶ See *id.* at 5.199.

¹⁸⁷ See *id.* at 5.178.

‘subsidy,’ because the FIT Program provided wind and solar PV electricity producers with rates higher than the wholesale market rate for electricity in Ontario and ensured the entry of these producers into the Ontario electricity market when they otherwise would not have existed if left to operate under market conditions without government intervention.¹⁸⁸

It is possible that the Appellate Body rejected the wholesale electricity market as a benefit analysis baseline under SCM Article 1.1(b)—and adopted the more lenient separate electricity market standard—in order to safeguard FIT programs from legal challenge under the SCM Agreement.¹⁸⁹ This decision indicates that the Appellate Body is inclined to “exempt government support for renewable electricity from the disciplines of the SCM Agreement.”¹⁹⁰ Subsequent decisions will confirm or deny this hypothesis.

B. *Lessons from the China-Wind Dispute*

While it may be tempting to conclude that China settled the *China-Wind* dispute because the U.S. had a stronger case under the SCM Agreement, China may have settled for other reasons. Around the time of settlement, various Chinese sources noted that the disputed domestic content requirement in China’s wind energy program had only a minor impact on its wind industry and that its removal was insignificant.¹⁹¹ China may have preferred to avoid a high-profile international dispute over a governmental support program that did not significantly benefit its wind industry.¹⁹² At the time of the *China-Wind* dispute, the WTO’s adjudicatory bodies had never concluded that a government-sponsored renewable energy program constituted a subsidy under the SCM Agreement,¹⁹³ and it would have been difficult for China to evaluate the strength of the U.S. case against it. Thus, it is unlikely (or at least unclear) that China opted to settle because it feared an adverse decision under the SCM Agreement.

C. *Lessons from the India-Solar Dispute*

Ultimately, the U.S. dropped its allegation that India’s support programs for the Jawaharlal Nehru National Solar Mission contained domestic content requirements that violated the SCM Agreement.¹⁹⁴ The U.S. may have dropped

¹⁸⁸ Pal, *supra* note 176.

¹⁸⁹ *See id.* at 129.

¹⁹⁰ *Id.*

¹⁹¹ *See* Lewis, *supra* note 9, at 11–12.

¹⁹² *See id.*

¹⁹³ *See generally* Request for Consultations by the U.S., *China—Wind Power Equipment*, *supra* note 19; *see also* Appellate Body Report, *Canada—Renewable Energy*, *supra* note 17 (the only renewable energy challenge brought under the SCM Agreement prior to the *China-Wind* dispute).

¹⁹⁴ *See* Panel Report, *India—Certain Measures Relating to Solar Cells and Solar Modules*,

this allegation due to a belief that it had a greater likelihood of prevailing on its claims under the TRIMs Agreement and GATT, which it eventually did.¹⁹⁵ Although SCM Article 3 prohibits subsidies with domestic content requirements, the Appellate Body has never enforced this provision with respect to a renewable energy program.¹⁹⁶ In contrast, the TRIMs Agreement and the GATT also prohibit domestic content requirements and have been enforced.¹⁹⁷ For these reasons, WTO members may view the SCM Agreement's prohibition on domestic content requirements as weak and redundant.

D. The Pending EU and US Disputes: What Might We Learn?

1. The EU Dispute

It is difficult to predict, based on existing WTO precedent, how the Appellate Body will resolve the *EU and Certain Members – Certain Measures Affecting the Renewable Energy Generation Sector* dispute. As discussed above, a governmental measure is only subject to regulation under the SCM Agreement if it meets the SCM Agreement's definition of a subsidy and is considered *specific*.¹⁹⁸

First, the Appellate Body will analyze whether the contested FIT programs constitute subsidies—government financial contributions that confer a benefit—under Article 1 of the SCM Agreement.¹⁹⁹ The Appellate Body will almost certainly find that the contested FIT programs constitute financial contributions under Article 1.1(a)(1). In the *Canada* dispute, the Appellate Body held that a challenged FIT program constituted a government “purchase of goods” under Article 1.1(a)(1)(iii) and thus a financial contribution.²⁰⁰ This conclusion was reasonable; in government-operated FIT systems, the government is responsible for purchasing electricity—a good—from a renewable energy supplier pursuant

supra note 160; *see also* Appellate Body Report, *India*, *supra* note 160.

¹⁹⁵ See WORLD TRADE ORG., *India—Solar Cells (DS456)*, in WTO DISPUTE SETTLEMENT: ONE PAGE CASE SUMMARIES 191 (2017), https://www.wto.org/english/tratop_e/dispu_e/cases_e/1pagesum_e/ds456sum_e.pdf.

¹⁹⁶ See generally Appellate Body Report, *Canada – Renewable Energy*, *supra* note 17; Request for Consultations by China, *European Union and Certain Member States—Certain Measures Affecting the Renewable Energy Generation Sector*, WTO Doc. WT/DS452/1 (Nov. 7, 2012); Request for Consultations by India, *United States—Certain Measures Relating to the Renewable Energy Sector*, WTO Doc. WT/DS510/1 (Sept. 19, 2016); Request for Consultations by the U.S., *China—Wind Power Equipment*, *supra* note 19; Request for Consultations by the U.S., *India—Solar Cells and Solar Modules*, *supra* note 19.

¹⁹⁷ See *id.*

¹⁹⁸ *Detailed Presentation*, *supra* note 98, at 10.

¹⁹⁹ SCM Agreement, *supra* note 10, art. 1.

²⁰⁰ WORLD TRADE ORG., *Canada – Renewable Energy / Canada – Feed-In Tariff Program (DS412 426)*, in WTO DISPUTE SETTLEMENT: ONE PAGE CASE SUMMARIES 173 (2017), https://www.wto.org/english/tratop_e/dispu_e/cases_e/1pagesum_e/ds412sum_e.pdf.

to a contract.²⁰¹ As in *Canada*, the renewable energy programs at issue in this dispute are FITs. There is no reason to suspect that the Appellate Body will depart from its prior analysis, where it reasonably concluded that FITs constitute financial contributions under Article 1.1(a)(1) of the SCM Agreement.

It is less clear whether the Appellate Body will determine that the contested FITs confer a benefit within the meaning of Article 1.1(b) of the SCM Agreement. In the *Canada* dispute, the Appellate Body concluded that the benefit comparison under Article 1.1(b) should be conducted with reference to a government's own definition of its energy supply-mix.²⁰² Here, the complainants will likely argue—taking note of the Appellate Body's conclusions in the *Canada* dispute—that the contested FITs confer benefits within the specific renewable energy markets they are designed to promote (as opposed to the wholesale electricity market).²⁰³ The Appellate Body will thus have an opportunity to proceed farther in the benefit analysis than it did in the *Canada* dispute. Unfortunately, the WTO has not made the parties' arguments for and against the existence of a benefit publicly available. Although it is not possible to say whether the Appellate Body will, or should, find that the contested FIT programs confer a benefit under Article 1.1(b), the Body's analysis is likely to be context-specific.

The Appellate Body's analysis may clarify whether it is, in fact, intent on finding that government support programs for renewable energy—such as FITs—are exempt from regulation under the SCM Agreement. If the contested FIT programs confer clear benefits to the recipients (i.e. make them better off within the specific renewable electricity markets than they otherwise would have been) the Appellate Body should hold that the FIT programs constitute subsidies under Article 1.1 of the SCM Agreement.²⁰⁴ The Appellate Body should not write FITs out of the SCM Agreement by judicial fiat. Such an approach would generate legal uncertainty and insulate certain renewable energy subsidies from international regulation altogether without WTO member input. While protecting renewable energy subsidies from international scrutiny may be desirable, WTO members should make this important and nuanced political decision—not the Appellate Body. The Appellate Body serves an adjudicatory function and does not possess the administrative or technical expertise necessary to craft sensible international policy for renewable energy subsidies.

If the Appellate Body is willing to find that the EU program confers a benefit under SCM Article 1.1(b), the Body may conclude for the first time that a government-sponsored renewable energy program is a subsidy under SCM Article 1. The Appellate Body would then proceed to analyze whether the FIT

²⁰¹ See RENEWABLE ENERGY POLICY NETWORK FOR THE 21ST CENTURY, *supra* note 61, at 266.

²⁰² See Appellate Body Report, *Canada – Renewable Energy*, *supra* note 17, at 5.178.

²⁰³ See *id.* at 5.199.

²⁰⁴ SCM Agreement, *supra* note 10, art. 1.

constitutes a specific subsidy under SCM Article 2. Unfortunately, there is only a small amount of case law on this provision; the criteria used to determine whether an Article 1.1 subsidy is considered “specific” remains unclear.²⁰⁵ However, Article 2 states that a subsidy is specific when it is limited to a particular industry or industries.²⁰⁶ Given that FITs are limited to the renewable energy industry—and are not available to the electricity industry as a whole—it seems fairly likely that the Appellate Body would conclude that FITs are specific subsidies under Article 2.

If the Appellate Body finds that the contested FITs constitute specific subsidies under Articles 1 and 2, the Body is sure to conclude that the FITs are prohibited under Article 3 for containing domestic content requirements (any subsidy that contains a domestic content requirement is per se prohibited under Article 3).²⁰⁷ Should the Appellate Body reach this conclusion, it would be the first time a member government’s renewable energy program was found to violate the SCM Agreement.

2. The US Dispute

If the Appellate Body’s *EU* resolution seems difficult to predict, despite its similarity to the *Canada* dispute, it is almost impossible to predict how the WTO might resolve the *United States – Certain Measures Relating to the Renewable Energy Sector* dispute. The DSB, and the Appellate Body if the case proceeds that far, will first have to determine whether any of the eleven contested subnational renewable energy programs are governed by and violate the SCM Agreement.²⁰⁸ The contested renewable energy programs include FITs, as in the *Canada* and *EU* disputes, but also renewable portfolio standards and other government support programs.²⁰⁹

The WTO could theoretically conclude that none of the challenged renewable energy programs constitute a specific subsidy subject to regulation under the SCM Agreement. In its *Canada* report, the Appellate Body stressed that the “definition of a certain supply-mix by the government cannot *in and of itself* be considered as conferring a benefit within the meaning of Article 1.1(b) of the SCM Agreement”;²¹⁰ in other words, “where a government creates a market, it cannot be said that the government intervention distorts the market as there would not be a market if the government had not created it.”²¹¹ If the Appellate

²⁰⁵ See STEVE CHARNOVITZ, GREEN SUBSIDIES AND THE WTO 56 (2014), <http://documents.worldbank.org/curated/en/607731468331864128/pdf/WPS7060.pdf>.

²⁰⁶ Overview, *supra* note 8; see also *Detailed Presentation*, *supra* note 98, at 10–11.

²⁰⁷ SCM Agreement, *supra* note 10, art. 3.

²⁰⁸ See Request for Consultations by India, *supra* note 18, at 1–4.

²⁰⁹ See *id.* at 1–3.

²¹⁰ See Appellate Body Report, *Canada—Renewable Energy*, *supra* note 17, at 5.175.

²¹¹ PETROS MAVROIDIS, THE REGULATION OF INTERNATIONAL TRADE: THE WTO

Body is disinclined to regulate renewable subsidies, it might find that all challenged programs “create new markets” and do not confer benefits under SCM Article 1.1(b).

It is, perhaps, equally possible that the WTO’s adjudicatory body will conclude that one or more of the contested programs confers a benefit under Article 1.1(b). If so, the body would proceed to analyze whether the subsidies are prohibited under Article 3 or actionable under Article 5.²¹² If the analysis proceeds this far, it may mark the first time that the WTO evaluates whether a renewable energy subsidy causes adverse trade effects to another WTO member’s interests.²¹³ The process of demonstrating that a subsidy causes adverse trade effects is highly fact-intensive, making it nearly impossible to predict how the WTO would rule in this regard.²¹⁴

These trade disputes highlight tension between governments’ legitimate interest in promoting clean energy and the international community’s interest in promoting free trade. Domestic programs designed to promote renewable energy—while crucial to the fight against climate change—can distort international trade. In its current state, the SCM Agreement does not balance these competing interests; it promotes free trade at the expense of other values. With regard to the *Canada* dispute, it is possible that the Appellate Body abstained from finding that the FIT program constituted a subsidy because it recognizes the value in state programs that promote climate change mitigation. In other words, the WTO’s adjudicatory bodies may be interested in interpreting the SCM Agreement in a way that safeguards renewable energy programs in international trade disputes. Only time will tell.

VI. STRATEGIES TO ADDRESS UNCERTAINTY AND REDUCE LEGAL RISK

As of January 2018, the WTO’s adjudicatory bodies have never found that the SCM Agreement regulates a government-sponsored renewable energy support program.²¹⁵ Although *Canada – Certain Measures Affecting the Renewable Energy Sector* and *Canada – Measures Relating to the Feed-in Tariff* shed some

AGREEMENTS ON TRADE IN GOODS 221 (2016).

²¹² See SCM Agreement, *supra* note 10, art. 3, 5.

²¹³ There are three types of adverse effects under the SCM Agreement: (i) *injury* to the domestic industry of another member; (ii) *serious prejudice* to the interests of another member; and (iii) *nullification or impairment of benefits* accruing directly or indirectly to other members under GATT. The SCM Agreement defines injury to mean “material injury to a domestic industry, threat of material injury to a domestic industry or material retardation of the establishment of such an industry.” SCM Agreement, *supra* note 10, art. 5.

²¹⁴ *Overview*, *supra* note 8.

²¹⁵ See generally Appellate Body Report, *Canada – Renewable Energy*, *supra* note 17; Request for Consultations by China, *supra* note 18; Request for Consultations by India, *supra* note 18; Request for Consultations by the U.S., *China—Wind Power Equipment*, *supra* note 19; Request for Consultations by the U.S., *India—Solar Cells and Solar Modules*, *supra* note 19.

light on the relationship between renewable energy programs and the SCM Agreement, the extent to which the Agreement regulates government-sponsored renewable energy programs remains highly uncertain. Today, governments generally do not know whether or not their renewable energy support programs violate the SCM Agreement—only that countries are more willing to challenge these programs under international trade law than they were before 2010. If unaddressed, the combination of legal uncertainty and increased litigiousness could chill investment in renewable energy by disincentivizing member governments from adopting new renewable energy support programs. In turn, this could impede the global fight against climate change.

Legal uncertainty about the extent to which the SCM Agreement regulates renewable energy subsidies could be resolved in various ways. WTO members could take a passive role and wait for the WTO's adjudicatory bodies to clarify legal standards under the SCM Agreement through future case law. Or, WTO members could actively promote new rules to clarify the status of renewable energy subsidies under the SCM Agreement. While the passive approach is less politically controversial and thus more likely, the active approach is more desirable. Comprehensive rules for renewable energy subsidies under the SCM Agreement could benefit both members—by reducing legal uncertainty and balancing trade and renewable energy concerns—and the environment.

As an alternative, member governments could obviate the need to address this legal uncertainty by reducing the need for renewable energy support programs altogether. One way that member governments could do this is by taking steps to reduce or eliminate existing fossil fuel subsidies. A reduction in fossil fuel subsidies would make unsubsidized renewable energy a more cost-competitive energy alternative.

A. Option One: Wait for Clarification from WTO Adjudicatory Bodies

Instead of addressing the SCM Agreement's ambiguous treatment of renewable energy support programs head-on, WTO members could simply wait for the WTO's adjudicatory bodies to clarify, through case-by-case adjudication, the extent to which the Agreement regulates government-sponsored renewable energy programs. As discussed above, the WTO's adjudicatory bodies may eventually interpret the SCM Agreement—perhaps in the *EU* or *US* disputes—to exclude renewable energy support programs from its regulatory scope. Although this approach has the benefit of requiring no political action, it is risky: there is no guarantee that the WTO's adjudicatory bodies would actually interpret the SCM Agreement to exclude renewable energy subsidies. Instead, they may determine that certain renewable energy support programs are regulated by and violate the SCM Agreement. Such a determination would stymie the global fight against climate change.

Moreover, it would take the WTO's adjudicatory bodies many years to clarify

the extent to which renewable energy programs are or are not regulated under the SCM Agreement. The WTO dispute resolution process is slow²¹⁶ and renewable energy subsidy challenges under the SCM Agreement arise infrequently.²¹⁷

The precedent that may emerge from future WTO case law would likely be piecemeal and incomplete—it is unlikely that the WTO would develop a comprehensive strategy for the international regulation of renewable energy subsidies through SCM litigation. While the WTO developed such a body of case law, governments would be left to operate in an environment of legal uncertainty. Ultimately, WTO members are in a better position than a judicial body to resolve the policy tension between governments' interest in renewable energy programs and the international community's interest in free trade.

B. Option Two: Affirmatively Revise the SCM Agreement

In lieu of waiting for the WTO's adjudicatory bodies to clarify the SCM Agreement's applicability to renewable energy subsidies through litigation, WTO members could resolve the current uncertainty by negotiating new rules to regulate renewable energy subsidies under the SCM Agreement. It would, of course, be difficult to garner the political consensus required to amend the SCM Agreement, which took many years to negotiate.²¹⁸ But new rules could dramatically reduce the uncertainty that currently shrouds renewable energy support programs and better balance environmental and free trade concerns.

New rules could also clarify the extent to which renewable energy subsidies are permissible under the SCM Agreement. These rules could take various forms. For one, WTO members could clarify Article 1 of the SCM Agreement to explicitly exclude certain renewable energy programs, such as FITs, from the Agreement's definition of "subsidy." The members could also adopt language in SCM Article 1.1(b) stating that certain renewable energy programs do not confer a "benefit," or adopt language under SCM Article 2 stating that certain renewable energy programs are not "specific." Alternatively, WTO members could adopt a legal exception for environmental subsidies—or simply renewable energy subsidies—under the SCM Agreement. Such an exception could include a list of WTO-approved renewable energy subsidies, such as FITs.

If WTO members can muster the political will, they should endeavor to adopt new rules to govern renewable energy subsidies under the SCM Agreement.

²¹⁶ See, e.g., *European Union and Certain Member States — Certain Measures Affecting the Renewable Energy Generation Sector (DS452)*, WORLD TRADE ORG., https://www.wto.org/english/tratop_e/dispu_e/cases_e/ds452_e.htm (last updated Dec. 5, 2012) (complaint filed in 2012 remains in consultation stage as of April 2018).

²¹⁷ *Dispute Settlement*, *supra* note 11 (only six of the over one hundred disputes brought under the SCM Agreement involved challenges to member governments' renewable energy programs).

²¹⁸ See *Overview*, *supra* note 8.

New rules would better address the current state of uncertainty surrounding renewable energy subsidies—and balance competing trade and environmental concerns—than would piecemeal WTO decisions.

C. Option Three: Reduce Fossil Fuel Subsidies

WTO members could, to an extent, obviate the need for renewable energy subsidies—and thus avoid the legal issues associated with their implementation—by curtailing global fossil fuel subsidies. If fossil fuels did not receive significant financial support from governments around the world, unsubsidized renewable energy might become a competitive alternative to fossil fuels.²¹⁹ Reducing fossil fuels subsidies could also have significant climate benefits.²²⁰ While it is unlikely that WTO members will agree to abolish fossil fuel subsidies anytime soon because the value of such subsidies is so large,²²¹ members may become more interested in this option as member governments come to see climate change as a more pressing concern.

VII. CONCLUSION

The WTO's rules on renewable energy subsidies are unclear; governments do not know whether their renewable energy support programs violate the SCM Agreement. This legal uncertainty, coupled with increasing litigiousness, exposes governments' renewable energy programs to unknown legal risk and disincentivizes governments from making future investments in renewable energy.

To reduce this uncertainty, WTO members should endeavor to negotiate new rules to regulate renewable energy subsidies under the SCM Agreement. New rules could clarify the extent to which renewable energy subsidies are permissible under the SCM Agreement in a way that case-by-case WTO adjudication could not.

²¹⁹ JANET REDMAN, DIRTY ENERGY DOMINANCE: HOW THE U.S. FOSSIL FUEL INDUSTRY DEPENDS ON SUBSIDIES AND CLIMATE DENIAL 12 (2017), http://priceofoil.org/content/uploads/2017/10/OCI_US-Fossil-Fuel-Subs-2015-16_Final_Oct2017.pdf.

²²⁰ *Id.* at 4.

²²¹ See *Energy Subsidies*, INT'L ENERGY AGENCY, <https://www.iea.org/statistics/resources/energysubsidies/> (last visited Feb. 4, 2018) (“The value of global fossil-fuel consumption subsidies in 2016 is estimated at around USD 260 billion.”).