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Simmons, Zachary Scott

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Subsidizing Solar: The Case for an Environmental Goods and Services Carve-out from the Global Subsidies Regime

Zachary Scott Simmons

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I.

INTRODUCTION

Anthropogenic climate change is the seminal challenge of the 21st century. The warming of the planet and accompanying consequences have the potential to negatively impact every state on Earth, and to unknown degrees. When and how states decide to tackle this phenomenon—either through unilateral initiatives

or multilateral action—will in large part determine the extent to which the most negative of its potential effects are incurred. Within the last decade, many states have made a strong commitment to reducing carbon dioxide emissions, the primary driver of climate change, in an attempt to abate the warming of the planet. As these emissions are inextricably linked to the energy sector and the burning of fossil fuels (primarily coal, petroleum, and natural gas) for electricity generation, transportation, and industrial purposes, many states have focused on cleaning up their energy portfolios, introducing renewable sources of energy such as solar, wind, and biofuels into the mix. Due to high cost barriers in producing the technologies associated with these energy sources, however, most states have found it necessary to subsidize the manufacturers or purchasers of renewable energy technologies or the providers of electricity generated from renewable energy sources in order to make investments in renewable energy technologies worthwhile. These types of subsidies include grants, loans, and loan guarantees; tax incentives; local content requirements; renewable portfolio standards; and pricing support. These are available in numerous forms and combinations in most states with a renewable energy presence. The focus of this comment is on government support measures for solar energy, which has an important although still relatively small presence in major producers of renewable energy (and greenhouse gases) such as the United States and China.

In the last several years, government support measures for renewable energy development, including solar, have come under scrutiny for alleged inconsistency with international trade laws, including the Subsidies and Countervailing Measures Agreement (SCM Agreement) and a few other World Trade Organization (WTO) agreements. The SCM Agreement governs permissible and impermissible subsidies and serves as a bulwark against protectionist, trade-distorting practices amongst WTO member states. States have challenged each other's support measures for renewable energy development, alleging that they constitute protectionist policies aimed at "distorting" the balance of trade in favor of domestic over foreign manufacturers and in violation of the SCM Agreement. While most of these allegations

have focused on government support measures aimed explicitly at favoring domestic over foreign manufacturers (i.e. local content requirements, etc.), other less meritorious claims (focusing on non-trade-distorting measures such as R&D support, etc.) have started to emerge and more may be lurking on the horizon. Challenges of the latter type are predatory in the sense that if successful, they can impair a state's ability to support its renewable energy industries through legitimate means, to the ostensible advantage of the challenging state's own renewable energy industries (which are likely the beneficiaries of equivalent support measures). Unfortunately, the rules of the SCM Agreement provide inadequate protection against such frivolous claims and leave states with insufficient policy space to implement beneficial measures in support of the development of renewable energy, including solar.

The inadequacy of the SCM Agreement stems from the two tracks available to states in challenging subsidies: multilateral dispute settlement and unilateral countervailing action. Under the first track, multilateral dispute settlement, a state's non-trade-distorting renewable energy support measures are vulnerable to attack because of the vague language of the provisions governing forms of "actionable" (i.e. challengeable) subsidies. Furthermore, Article XX of the General Agreement on Tariffs and Trade (GATT),¹ which shields certain government behavior in furtherance of environmental objectives from discipline, does not apply to subsidies and the SCM Agreement. As a result, a state may be faced with the reality of having to remove all or part of certain support measures for renewable energy industries like solar at the behest of the WTO Dispute Settlement Body.

Under the second track, unilateral countervailing action, a state's renewable energy technology exports that benefited from non-trade-distorting subsidies may also face easy challenge. Through this process, an allegedly injured industry in one state can petition the government to impose countervailing duties on imports (i.e. the alleged source of injury) from another state.

1. The overarching multilateral treaty governing international trade law.

Here, one of the SCM Agreement's requirements for imposing countervailing duties—a causal link between subsidized imports and injury to the domestic industry—requires complex (if not totally impossible) counterfactual analysis,² especially in the context of the energy sector which is subject to a variety of market forces. Government agencies investigating subsidized imports are thus forced to rely upon the Agreement's two other criteria—presence of subsidized imports and injury to the domestic industry—which are easily demonstrable. This reliance creates a bent toward finding for the allegedly injured domestic industry in a countervailing duty investigation and has negative implications for exporters of solar energy technologies, among others. This was recently demonstrated by the U.S. countervailing duty (and accompanying antidumping) investigation against Chinese solar panel manufacturers.

In light of the narrow policy space available to states in deploying reasonable support measures for solar energy development, a new multilateral framework is needed to address the questions of tariff and non-tariff barriers, including subsidies, as applied to environmental goods and services (i.e. tradable commodities and human services which provide environmental benefits). By explicitly detailing what forms of government support for renewable energy development are permissible, and by exempting such measures from coverage under the SCM Agreement, a comprehensive multilateral agreement would remedy the SCM Agreement's infirmities, closing off the easy road to both successful subsidies challenges through the WTO's dispute settlement mechanism and to applying countervailing measures against subsidized imports. While several proposals for environmental goods and services agreements (EGSAs) have been put forward in both regional and global forums, the Asia-Pacific Economic Cooperation's (APEC) recent adoption of an environmental goods agreement should be lauded and built upon at the global level. Specifically, the WTO should look to expand the APEC agreement by addressing non-tariff barriers—creating a category of permissible government

2. That the domestic industry would not have been injured if the imports in question had not been subsidized.

support measures for renewable energy development and exempting those measures from coverage under the SCM Agreement—and by concluding a *binding* agreement to which member states must adhere.

This comment proceeds in several stages. Part II addresses the importance of solar energy as a renewable energy source and substantiates the idea that government support measures for solar energy development are necessary. Part II also proposes guiding principles for determining what types of government support measures are, and should be explicitly recognized as, legitimate. Part III covers the current subsidies landscapes for solar energy development in the United States and China and describes several of the positive results which have flowed from government support measures in both countries. Part IV briefly lays out the architecture of the global subsidies regime in order to provide context for later discussion as to its problems per solar energy development. Parts V and VI address the shortfalls of the global subsidies regime, with the discussion divided between issues arising out of the multilateral dispute mechanism track and countervailing duty process, respectively. After detailing these shortfalls in depth, Part VII provides background information and suggestions relevant to the creation of a comprehensive environmental goods and services agreement as a carve-out from the global subsidies regime.

II.

THE IMPORTANCE OF SOLAR ENERGY AND SUBSIDIES FOR SOLAR ENERGY DEVELOPMENT

The purpose of this section is to establish two basic premises which lie at the heart of this comment. The first premise is that solar energy development³ is a good, and arguably necessary, feature of any state's climate change mitigation measures. The second premise is that, in order to foster solar energy development, states must provide support measures in order to

3. Defined broadly as the progression of the availability of solar energy as a viable alternative to energy from non-renewable sources, including related solar manufacturing and other activities geared toward making solar energy more accessible and widely used.

incentivize investment in solar technologies by subsidizing producers of solar energy technology (i.e. solar panels and component part technologies), consumers of solar energy technology/solar energy, or providers of electricity from solar energy sources (in any variety of combinations). While there is no clear international standard as to the legitimacy of subsidies for solar energy development, it would not be too difficult to develop a set of principles to guide this inquiry. As suggested below, it makes the most sense to deem only minimally or non-trade-distorting subsidies—those which do not result in an altered balance of trade favoring domestically-produced goods—as legitimate.

As to the first premise, solar energy development is a key component in the battle against climate change and its effects. This is because climate change and the warming of the planet are linked primarily to carbon dioxide emissions, the primary source of which is the burning of fossil fuels for energy purposes.⁴ Addressing the climate change challenge will require innovative policies aimed at spurring the development of cleaner energy sources and improving energy efficiency.⁵ Solar energy development is an integral part of this equation.

The United States provides a key example as to the impacts of the energy sector on global warming. In 2010, the United States emitted 6,821 teragrams (Tg) (million metric tons) of carbon dioxide, representing a 10.5 percent rate increase from 1990 levels.⁶ According to the U.S. Environmental Protection Agency (EPA), energy-related activities were the single largest source of carbon dioxide emissions in the United States,⁷ accounting for 87 percent of carbon dioxide emissions in 2010.⁸ Emissions from

4. Luca Rubini, *The Subsidization of Renewable Energy in the WTO: Issues and Perspectives* 3 (NCCR Trade Working Paper No. 2011/231, 2011), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1904267.

5. *Id.*

6. See generally U.S. ENVTL. PROT. AGENCY, *Trends in Greenhouse Gas Emissions*, in INVENTORY OF U.S. GREENHOUSE GAS EMISSIONS AND SINKS: 1990-2010 (2012), <http://www.epa.gov/climatechange/Downloads/ghgemissions/US-GHG-Inventory-2012-Chapter-2-Trends.pdf>.

7. *Id.*

8. See generally U.S. ENVTL. PROT. AGENCY, *Energy*, in INVENTORY OF U.S.

fossil fuel combustion comprised the majority of energy-related emissions with other energy-related activities such as the production, transmission, storage, and distribution of fossil fuels also contributing to emissions.⁹ Of those fossil fuel combustion activities in 2010, coal-based electricity generation accounted for 1,827 Tg of carbon dioxide emissions, with petroleum-based transportation fuels, natural gas-based electricity generation, and natural gas-based industrial activities accounting for 1,705 Tg, 399 Tg, and 394 Tg of carbon dioxide emissions, respectively.¹⁰ The United States contributes 18 percent of global carbon dioxide emissions (the global total was 30,313 Tg in 2009).¹¹

Enter *solar* to the mix of renewable energy sources being developed in order tackle the energy sector's carbon dioxide emissions problem. Solar energy production, like energy produced from other renewable sources, contributes little if at all to carbon dioxide emissions. Solar has unique advantages vis-à-vis other sources of renewable energy as well. First, solar is the most abundant energy resource on Earth with 173,000 terawatts (equivalent to 10,000 times the world's total energy needs) available at any given second on the planet.¹² Second, solar energy systems can be deployed with minimal land use impacts. It is estimated, for example, that a 100x100 mile area of the state of Nevada could supply the United States with all of its electricity needs (equivalent to a 17x17 mile portion of each of the 50 U.S. states if distributed equitably).¹³ It is further estimated that 90 percent of the United States' electricity needs could be met by building solar systems across the 5 million acres

GREENHOUSE GAS EMISSIONS AND SINKS: 1990-2010 (2012), <http://www.epa.gov/climatechange/Downloads/ghgemissions/US-GHG-Inventory-2012-Chapter-3-Energy.pdf>.

9. *Id.*

10. *Id.*

11. *Id.*

12. Erin Pierce, *Top 6 Things You Didn't Know About Solar Energy*, U.S. DEPT OF ENERGY (June 22, 2012), <http://energy.gov/articles/top-6-things-you-didnt-know-about-solar-energy>.

13. *Myths about Solar Energy*, U.S. DEPT OF ENERGY (Jan. 2003), <http://www1.eere.energy.gov/solar/pdfs/32529.pdf>.

of abandoned industrial sites present in the country.¹⁴ Finally, because solar systems can be deployed on existing structures, there are typically few negative environmental impacts associated with solar energy development.¹⁵ Some large utility-scale projects may present adverse environmental impacts for various wildlife populations,¹⁶ but these impacts can typically be mitigated.

As to the second premise, government support measures are necessary to ensure the development of solar energy. Various support measures that are geared toward manufacturers or consumers of solar technology or providers of electricity from solar energy sources include grants, loans, and loan guarantees; tax incentives; local content requirements; renewable portfolio standards; and pricing support.¹⁷ These government support measures represent key engines toward the success of solar in any country. This is the case for three primary reasons. First, the energy sector generally suffers from two related market failures—the lack of internalization of negative externalities (e.g. greenhouse gas emissions) associated with the use of fossil-fuel based energy sources, and the lack of internalization of positive externalities (e.g. no greenhouse gas emissions) associated with the use renewable energy sources.¹⁸ Neither the benefits of renewable energy technologies nor the true costs of fossil fuels are included in their prices, making energy from renewable sources relatively expensive and fossil fuels relatively cheap.¹⁹ Standard economic analysis suggests that public intervention is warranted whenever the market fails to provide desirable public goods or to tackle various externalities²⁰ and that is certainly the

14. *Id.*

15. David Anderson, *Solar Energy Benefits and Drawbacks*, S.F. GATE, <http://homeguides.sfgate.com/solar-energy-benefits-drawbacks-79613.htm> (last visited Mar. 16, 2014).

16. *Non-Hydroelectric Renewable Energy: Electricity from Non-Hydroelectric Renewable Energy Sources*, U.S. ENVTL. PROT. AGENCY, <http://www.epa.gov/cleanenergy/energy-and-you/affect/non-hydro.html> (last visited Mar. 16, 2014).

17. Rubini, *supra* note 4, at 5.

18. *Id.* at 6.

19. *Id.*

20. *Id.* at 5.

case as to solar energy and fossil fuels, respectively. This leads to the second reason why subsidies are needed in the process of solar energy development. While at the global level, subsidies for fossil fuel-based energy sources are estimated to be around \$550 billion annually, subsidies for renewable energy are estimated to be \$43-46 billion.²¹ This disparity exacerbates the effects of the aforementioned market failures and necessitates the direction of more financial support toward developing renewable energy sources such as solar in order to close this gap.

Finally, the up-front capital costs associated with solar manufacturing are quite high and consumers are generally not willing to pay a price that is high enough for manufacturers to recover any initial investments made in a workable timeframe (especially when cheaper, albeit less environmentally-friendly, energy alternatives remain available).²² “As a result, little significant investment in . . . [solar] technologies [is made] in the absence of some sort of government intervention.”²³ By providing financial support to those who produce solar technologies, thereby allowing them to sell their products at lower prices, or instead to purchasers of such technologies, governments can overcome cost barriers and incentivize investment in solar technologies, leading to the widespread use of solar energy. Once renewable energy industries such as solar reach maturity, it may be possible for manufacturers and electricity providers to be weaned off government support,²⁴ having become more

21. Arunabha Ghosh, *Governing clean energy subsidies: Why legal and policy clarity is needed*, INT'L CENTRE FOR TRADE AND SUSTAINABLE DEV. (Nov. 2011), <http://ictsd.org/i/news/bioresreview/117779/>.

22. International Institute for Sustainable Development, Canadian Environmental Law Association, Ecojustice Canada, *amicus curiae* submission, *Canada – Certain Measures Affecting the Renewable Energy Generation Sector* (DS 412) (May 10, 2012), http://www.iisd.org/pdf/2012/ecojustice_amicus_curiae_brief.pdf.

23. *Id.*

24. Recently, this line of reasoning has been advanced by major energy companies in Europe due to several concerns about renewable energy subsidies. One concern is high energy prices for European consumers that result from guaranteed pricing support for producers of renewable energy. Another concern is the fact that a *growing* supply of renewable energy into the grid, that has resulted from priority access to the grid for producers of renewable energy, in the face of *decreased* demand for electricity has forced utility companies to close

competitive and skilled at attracting investments from private sector sources. At present, however, the solar industry has yet to reach maturity in most states and continues to require government support in order to remain afloat.²⁵

In determining what subsidies are and should be explicitly recognized as legitimate, the current structure of the global subsidies regime suggests that we should look to what types of subsidies create trade-distorting effects (outright or as applied to various circumstances) in the solar industry and ban these government support measures. As discussed in Part IV, a number of the most trade-distorting subsidies such as local content requirements and export subsidies are already clearly banned. As to the spectrum of less overtly trade-distorting subsidies, it is clear that certain measures such as research and development (R&D) support and tax incentives, which spur the purchase of solar technology, should be deemed permissible. Again, this is because their aim and effect is to assist in the creation of new solar technologies and the realization of widespread use of solar energy. Between measures like local content requirements on the one hand, and R&D support on the other, however, lies a vast grey zone of other support measures. As discussed in Part VII, part of the challenge confronting states in developing a comprehensive environmental goods and services

(less profitable) natural gas plants, leaving countries in potentially poor shape to deal with unexpected increases in energy demand (electricity produced by renewable energy sources cannot be stored). The reality is, however, that subsidies have allowed Europe's renewable energy sector to progress toward maturity in the first place. According to James Conca of Forbes, "subsidies enticed enough investors into wind and solar that Germany now has almost 60,000 MWs of wind and solar capacity, or about 25 percent of that nation's total capacity." James Conca, *European Economic Stability Threatened by Renewable Energy Subsidies*, FORBES (Oct. 20, 2013), <http://www.forbes.com/sites/jamesconca/2013/10/20/european-economic-stability-threatened-by-renewable-energy-subsidies/>.

25. See generally Diane Cardwell, *Amid a Political Calm, a Tax Break for the Wind Industry Advances*, N. Y. TIMES, Aug. 2, 2012, at B1, available at <http://www.nytimes.com/2012/08/03/business/wind-industry-wins-senate-panels-support-for-a-tax-break.html?ref=windpower>; EIA Projects U.S. Non-Hydro Renewable Power Generation Increases, Led by Wind and Biomass, U.S. ENERGY INFO. ADMIN. (Feb. 28, 2012), <http://www.eia.gov/todayinenergy/detail.cfm?id=5170>.

agreement (EGSA) is to determine which of these support measures to deem legitimate and exempt from coverage under the Subsidies and Countervailing Measures Agreement (SCM Agreement).

III.

SUBSIDIES LANDSCAPES

This section will provide a brief overview of the types of government support measures for solar energy development which are at play in the markets of two solar energy leaders, the United States and China. This section will also call attention to the various successes associated with those support measures, in furtherance of the idea that government—whether in the United States, China, or elsewhere—is a crucial partner in the advancement of solar as a viable, widely-used energy source. This background will provide context for later discussion of the inadequacies of the global subsidies regime and why a carve-out is needed to provide adequate protection for many of the measures discussed.

A. *The American Landscape*

In the United States, the government has been in the business of supporting solar energy development since the Carter Administration.²⁶ With the Energy Tax Act of 1978, the government provided tax credits for homeowners who invested in solar panels.²⁷ At the same time, through the Utility Regulatory Policies Act, the government required utilities to purchase power from renewable sources for the first time.²⁸ From the mid-1980s to the early 2000s, solar manufacturing was on the decline, in part because of tax policies implemented by the Regan Administration.²⁹ The picture started to change in 2005 with

26. THE KEARNY ALLIANCE, CHINA'S SOLAR INDUSTRY AND THE U.S. ANTI-DUMPING/ANTI-SUBSIDY TRADE CASES 19 (May 2012), http://www.chinaglobaltrade.com/sites/default/files/china-global-trade-solar-manufacturing_may2012_0.pdf.

27. *Id.*

28. *Id.*

29. The Tax Reform Act of 1986 reduced the investment tax credit to 10

President Bush's Energy Policy Act, which included a 30 percent investment tax credit (ITC)³⁰ for property owners who installed commercial and residential solar energy systems.³¹ With the American Recovery and Reinvestment Act of 2009 (ARRA), an unprecedented \$90 billion in clean energy spending would also come to benefit the solar energy industry.³² In describing the most recent changes to the landscape, the following discussion will be divided by types of support measures, namely tax incentives; grants, loans, and loan guarantees; and other forms of government support (R&D support, land grants, etc.).

The central tax incentive benefiting the American solar energy industry is the 30 percent ITC in place for residential (Internal Revenue Code Section 25D) and commercial (Internal Revenue Code Section 48) renewable energy systems which stays in effect until the end of 2016.³³ The ITC, which came into effect with the Energy Policy Act of 2005 and was extended through the Emergency Economic Stabilization Act of 2008, "reduces tax liability for individuals or businesses that purchase qualifying solar energy technologies" by providing a federal "income tax credit equal to [30 percent of the value] of the 'energy property' placed in service during the taxable year."³⁴ In order to qualify for the Section 48 ITC, the solar system owner must be a tax-paying entity and must either construct the solar facility or acquire ownership at the time operation commences.³⁵ The ITC

percent in 1988. *Id.* at 20.

30. There is no connection between the investment tax credit and the U.S. International Trade Commission, which also uses the "ITC" acronym.

31. THE KEARNY ALLIANCE, *supra* note 26, at 20.

32. See Joseph E. Aldy, *Preliminary Review of the American Recovery and Reinvestment Act's Clean Energy Package 2* (Resources for the Future Discussion Paper No. 12-03, 2012), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1986948.

33. At which point solar projects will only be eligible for a 10 percent credit, Daniel K. Tracey, *The Missing Lending Link: Why a Federal Loan Guarantee Program is Critical to the Continued Growth of the Solar Power Industry*, 16 N.C. BANKING INST. 349, 355 (2012); THE KEARNY ALLIANCE, *supra* note 26, at 20.

34. Tracey, *supra* note 33, at 355; *Solar Investment Tax Credit (ITC)*, SOLAR ENERGY INDUS. ASS'N, <http://www.seia.org/policy/finance-tax/solar-investment-tax-credit> (last visited May 8, 2014).

35. Jenna Goodward & Mariana Gonzalez, *Bottom Line on Renewable*

remains available to both publicly-owned and investor-owned electric utilities.³⁶ As a stable, multi-year incentive, the goal of the ITC is to encourage private sector investment in solar manufacturing and solar project construction.³⁷ A second tax incentive, introduced by the ARRA, is the (now expired) 30 percent manufacturing tax credit (MTC) (Internal Revenue Code Section 48C).³⁸ With a cap of \$2.3 billion in total tax expenditures, MTCs were available to new, expanded, or re-equipped domestic manufacturing facilities that supported clean energy development.³⁹ The Department of Energy (DOE) and the Internal Revenue Service (IRS) allocated MTCs based on a project's commercial viability, job creation prospects, contribution toward greenhouse gas emissions reductions, and other factors.⁴⁰ Reaching the program cap in 2010, MTCs were successfully awarded to 183 renewable energy projects, with more than 50 solar facilities having received awards (i.e. nearly one-third of recipients).⁴¹ A production tax credit (PTC), which reduced the federal income taxes of qualified owners of renewable energy projects based on electrical output per kilowatt-hour (kWh) (and the sale of electricity to an unrelated third party), was previously available to solar energy producers but expired in 2005.⁴²

As to grants, loans, and loan guarantees, the Section 1603 Treasury Program created by the ARRA (which expired on September 30, 2011) allowed solar and other renewable energy developers to receive federal grant money in lieu of the Section 48 ITC mentioned above.⁴³ Section 1603 was instituted in recognition of the desirability of tax incentive policies for

Energy Tax Credits, WORLD RES. INST. (Oct. 2010), <http://www.wri.org/publication/bottom-line-series-renewable-energy-tax-credits>; Tracey, *supra* note 33, at 355.

36. Goodward & Gonzalez, *supra* note 35.

37. *Solar Investment Tax Credit (ITC)*, *supra* note 34.

38. THE KEARNY ALLIANCE, *supra* note 26, at 20.

39. Goodward & Gonzalez, *supra* note 35.

40. *Id.*

41. THE KEARNY ALLIANCE, *supra* note 26, at 20.

42. Goodward & Gonzalez, *supra* note 35; Tracey, *supra* note 33, at 354.

43. THE KEARNY ALLIANCE, *supra* note 26, at 20.

renewable energy development and the fact that a weakened national economy would restrict the availability of the private sector tax equity⁴⁴ that typically financed renewable energy projects.⁴⁵ Under Section 1603, an owner of commercial solar property could receive a grant equal to 30 percent of a project's cost.⁴⁶ Residential solar systems could also qualify if owned by a third-party developer through a power purchase agreement (PPA) or lease.⁴⁷ Eligible projects were to have commenced construction by December 31, 2011 and must be completed by December 31, 2016.

The DOE Loan Guarantee Program (LGP) is another major feature under this categorical umbrella. The LGP was first instituted by the Energy Policy Act of 2005 in order to assist renewable energy projects in obtaining long-term financing by encouraging lower-risk investments by private entities.⁴⁸ The DOE set out to achieve this objective by "guaranteeing to private lenders that if [a renewable energy] company default[ed] on a loan related to [a] project, the government [would] step in to repay the outstanding balance."⁴⁹ The DOE administers two

44. "Tax equity investors are passive owners of an asset or project that provides not only a return based on the asset's cash flow but also from federal tax deductions or credits," Tracey, *supra* note 33, at 357.

45. Goodward & Gonzalez, *supra* note 35.

46. *Id.*

47. A power purchase agreement typically involves the minimal or no-cost installation of a solar system and the subsequent charging by the installer, at a fixed-rate over a term of years, for the amount of energy that the solar system produces. The rate is typically less than the comparable rate paid for electricity from the grid. A solar lease, on the other hand, typically involves fixed monthly payments for the equipment and energy produced (i.e., does not vary according to the amount of energy produced). Both systems involve third-party ownership and allow for installers to take the value of any tax credits for which the installee would ordinarily be eligible. See Diane Cardwell, *Solar Installers Offer Deals, Gaining Converts*, N. Y. TIMES, May 9, 2012, at B1, available at <http://www.nytimes.com/2012/05/10/business/energy-environment/solar-installers-offer-homeowners-deals-gaining-converts.html?pagewanted=1>; Goodward & Gonzalez, *supra* note 35; see also Jeff Himmelman, *The Secret to Solar Power*, N.Y. TIMES MAGAZINE, Aug. 9, 2012, at MM24, available at <http://www.nytimes.com/2012/08/12/magazine/the-secret-to-solar-power.html>.

48. *Loan Guarantee Program*, SOLAR ENERGY INDUS. ASS'N, <http://www.seia.org/policy/finance-tax/loan-guarantee-program> (last visited Mar. 16, 2014).

49. *Id.*

primary loan programs. The permanent Section 1703 LGP, initially introduced in 2005, applies to projects that “avoid . . . reduce . . . or sequester . . . air pollutants” and employ “new or significantly improved technologies as compared to commercial⁵⁰ technologies.”⁵¹ The temporary Section 1705 LGP, introduced in the ARRA (and which expired on September 30, 2011), was geared toward “the rapid deployment of renewable energy and electric power transmission projects” and applied to projects utilizing commercial technologies.⁵² The Section 1705 Program provided \$13.3 billion in loan guarantees for solar energy projects—\$1.3 billion of which went to solar manufactures and \$12 billion to solar generation projects.⁵³ The Section 1703 Program, which remains in place today, has since 2009 secured over \$11 billion in loan guarantees across four major projects.⁵⁴

There are numerous government support measures which fall into the third “catch-all” category. Several of these measures are part of the DOE’s SunShot Initiative, which “aims to dramatically decrease the total costs of solar energy systems by 75 percent by 2020, bringing it down to a goal of \$1 per watt.”⁵⁵ It is interesting to note that, according to the DOE, “reaching this goal will make solar energy cost-competitive with conventional forms of electricity *without subsidies* and enable widespread deployment across the United States.”⁵⁶ While the goal is to wean the solar industry off government support in the long-term, there is no shortage of such support under the Initiative. According to the DOE, the central component is “[funding for] selective research and loan guarantees for high

50. Commercial technologies are those with more than three implementations that have been active for more than five years (i.e., photovoltaic cells, wind turbines, etc.). *Eligibility*, U.S. DEPT OF ENERGY, LOAN PROGRAMS OFFICE, https://lpo.energy.gov/?page_id=31 (last visited Mar. 16, 2014).

51. Tracey, *supra* note 33, at 363.

52. *Id.*

53. THE KEARNY ALLIANCE, *supra* note 26, at 21.

54. Tracey, *supra* note 33, at 363.

55. THE KEARNY ALLIANCE, *supra* note 26, at 22.

56. *SunShot Initiative: About*, U.S. DEPT OF ENERGY, <http://www1.eere.energy.gov/solar/sunshot/about.html> (last updated Aug. 8, 2013) (emphasis added).

risk, high payoff concepts—technologies that promise genuine transformation in the ways we generate, store, and utilize solar energy projects.”⁵⁷ According to the SunShot Initiative budget for FY 2012, targeted projects will fall into three broad categories: (1) solar technology projects that fuel fundamental research and development of innovative photovoltaics (PV)⁵⁸ and concentrating solar power (CSP)⁵⁹ technologies; (2) grid-integration projects; and (3) deployment projects that enable the use of solar by streamlining installations (reducing non-hardware, i.e., “soft” costs).⁶⁰

The Photovoltaic Manufacturing Initiative (PVMI) is one of the programs administered under the SunShot Initiative. The goal of the PVMI is to invest in manufacturing-focused research projects that will “help the United States regain the lead in the global market for solar technologies.”⁶¹ “PVMI funding also establishes manufacturing development facilities that provide infrastructure for demonstrating, testing, optimizing, and manufacturing new technologies with reduced capital requirements.”⁶² A PVMI award of \$110 million was granted to three groups in 2011 (the Bay Area PV Consortium, SVTC Solar, and the U.S. Photovoltaic Manufacturing Consortium) to develop advanced manufacturing techniques that will lower the cost of producing PV panels.⁶³ Another SunShot program is SUNPATH (short for “Scaling Up Nascent PV At Home”), the DOE’s second

57. *Id.*

58. PV systems are comprised of wafers made of silicon or other conductive materials that release electricity when receiving sunlight (i.e., traditional solar panels). *Non-Hydroelectric Renewable Energy: Electricity from Non-Hydroelectric Renewable Energy Sources*, *supra* note 16.

59. CSP systems concentrate the sun’s rays, using mirrors or other reflective devices, in order to heat a liquid to create steam, which is then used to turn a generator and create electricity. *Id.*

60. “Soft costs” – permitting, zoning, connecting to the power grid, etc. – can add thousands of dollars to the total cost of a solar energy system (\$2,500 on average) and remain one of the largest hurdles to affordable solar energy, Pierce, *supra* note 12; *SunShot Initiative: About*, *supra* note 56.

61. THE KEARNY ALLIANCE, *supra* note 26, at 22.

62. *SunShot Initiative: SunShot Photovoltaic Manufacturing Initiative*, U.S. DEPT OF ENERGY, <http://www1.eere.energy.gov/solar/sunshot/pvmi.html> (last updated May 20, 2013).

63. THE KEARNY ALLIANCE, *supra* note 26, at 22.

photovoltaic manufacturing initiative. SUNPATH's goal is to increase domestic manufacturing through helping companies scale up their manufacturing capabilities once at pilot-scale commercial production levels.⁶⁴ According to the DOE, "SUNPATH will help return the United States to the forefront, driving innovation and assuring continued leadership in the 21st century clean energy economy."⁶⁵

Also under the SunShot Initiative are various competitive award programs including the SunShot Incubator Program,⁶⁶ CSP SunShot Research and Development Awards,⁶⁷ and America's Most Affordable Rooftop Solar Competition.⁶⁸ In regard to land grant programs, the Obama Administration formally adopted a plan in October 2012 which offers incentives for solar developers to site projects across 285,000 acres of federal land in the western United States and opens up an additional 19 million acres in the Mojave Desert for solar power plant development.⁶⁹ The plan's incentives include minimal environmental reviews, expedited permitting, and a range of additional financial incentives.⁷⁰ According to Secretary of the Interior Ken Salazar, the plan "provides a road map for landscape-level planning that will lead to faster, smarter utility-scale solar development on public lands."⁷¹

64. *Department of Energy to Invest \$50 Million to Advance Domestic Solar Manufacturing Market, Achieve SunShot Goal*, U.S. DEP'T OF ENERGY (Aug. 2, 2011), <http://energy.gov/articles/department-energy-invest-50-million-advance-domestic-solar-manufacturing-market-achieve>.

65. *Id.*

66. *See SunShot Initiative: Solar Incubator Program*, U.S. DEP'T OF ENERGY, <http://www1.eere.energy.gov/solar/sunshot/incubator.html> (last updated Jan. 24, 2014).

67. *See SunShot Initiative: Concentrating Solar Power SunShot Research and Development Awards*, U.S. DEP'T OF ENERGY, http://www1.eere.energy.gov/solar/sunshot/csp_sunshotrnd.html (last updated July 31, 2013).

68. *See SunShot Initiative: SunShot Prize Race to the Rooftops*, U.S. DEP'T OF ENERGY, <http://www1.eere.energy.gov/solar/sunshot/prize.html> (last updated Aug. 6, 2013).

69. Julie Cart, *Federal Plan Designed to Create Large Solar Energy Plants*, L.A. TIMES (Oct. 13, 2012), <http://www.latimes.com/news/local/la-me-1013-solar-zones-20121013,0,2819109.story>.

70. *Id.*

71. *Id.*

All in all, the above government support measures have yielded positive results for solar energy development in the United States. While solar panel *manufacturers* have struggled⁷² due to a variety of circumstances,⁷³ other indicators suggest that on the whole, the prevalence and use of solar energy in the United States is growing. First, while the total amount of energy produced from solar sources still trails behind the amount produced from other non-hydropower renewable energy sources (namely biomass and wind),⁷⁴ “demand for solar energy in the United States is at an all-time high.”⁷⁵ In the first quarter of 2012, 85 percent more solar panels were installed than in the same quarter in 2011.⁷⁶ It is also expected that total U.S. installations will reach 3.3 gigawatts by the end of 2012, which would make the United States the fourth largest solar market in the world.⁷⁷ In addition to government support programs, a drop in PV module prices⁷⁸ and an increase in the cost of electricity from the grid (and accompanying consumer shifts)⁷⁹ have helped to facilitate this boom.

72. During the first quarter of 2012, the United States produced 160 megawatts of solar panels, as compared to 335 megawatts produced in the first-quarter of 2011. Additionally, several high-profile bankruptcies, including that of Solyndra, Evergreen Solar, and SpectraWatt, have plagued American solar panel manufacturers. Uculia Wang, *The U.S. Solar Market is Booming This Year*, GIGAOM (June 12, 2012), <http://gigaom.com/cleantech/the-u-s-solar-market-is-booming-this-year/>.

73. Part VI of this comment will cover U.S. solar panel manufacturers' countervailing duty case against Chinese solar panel manufacturers. It is alleged that one of the major reasons that U.S. solar manufacturers are struggling is the huge volume of subsidized, low-cost Chinese solar panels imported into the United States.

74. For example, while wind power generates 50,000 megawatt hours per day, it is projected that solar power will only reach a level of 18,000 megawatt hours per day by 2013. *EIA Projects U.S. Non-Hydro Renewable Power Generation Increases, Led by Wind and Biomass*, *supra* note 25; Matthew Loveless, *Solar Generation Has a Bright Future*, U.S. DEP'T OF ENERGY (Sept. 12, 2012), <http://energy.gov/articles/solar-generation-has-bright-future>.

75. Pierce, *supra* note 12.

76. *Id.*

77. *Id.*

78. The price for PV modules dropped 58 percent from 2008 to 2011. Tracey, *supra* note 33, at 352.

79. See Wang, *supra* note 72.

Second, there has been a rapid expansion of utility-scale solar projects in the United States. Currently, “four of the five largest PV farms in the world are under development in the United States at least in part thanks to the [Section] 1705 [LGP].”⁸⁰ The largest of these projects is the Agua Caliente project in Yuma County, Arizona.⁸¹ Agua Caliente received a \$967 million loan guarantee and will have a generating capacity of 290 megawatts—enough to power 56,000 homes annually—once completed.⁸² CSP-based projects have taken off as well. The largest among them is the Ivanpah Solar Generating Complex currently being constructed in California’s Mojave Desert.⁸³ The project received a \$1.6 billion loan guarantee from the DOE and is expected to provide enough energy to support 87,000 homes annually, resulting in a reduction of 574,000 metric tons of carbon dioxide emissions (equivalent to 110,000 cars) each year.⁸⁴ The Ivanpah plant has favorable contracts in place with Southern California Edison (for 1,300 megawatts) and Pacific Gas & Electric (for 1,310 megawatts) which also likely helped it lure in over \$530 million in private capital investments from partners such as VantagePoint Venture Partners, BP Technology Ventures, Chevron Technology Ventures, and Google Ventures.⁸⁵

Third and relatedly, government support measures have been hugely successful in attracting private investment to solar energy projects. While prior to the DOE’s LGP, “solar technology was so unfamiliar that few banks would back projects,” the Program “assuaged investors’ concerns and built up a bigger community of people who understand how to make money from solar deals.”⁸⁶ There was a particularly large influx of private

80. Tracey, *supra* note 33, at 364.

81. Dan Leistikow, *Beyond Solyndra: How the Energy Department’s Loans are Accelerating America’s Transition to a Clean Energy Future*, U.S. DEP’T OF ENERGY (June 21, 2012), <http://energy.gov/articles/beyond-solyndra-how-energy-department-s-loans-are-accelerating-america-s-transition-clean>.

82. *Id.*

83. Pierce, *supra* note 12.

84. Leistikow, *supra* note 81.

85. Michael Kanellos, *Google Invests \$168 Million in BrightSource’s Ivanpah Plant*, GREENTECH MEDIA (Apr. 11, 2011), <http://www.greentechmedia.com/articles/read/google-invests-168-million-in-brightsource-ivanpah-plant>.

86. Leistikow, *supra* note 81.

investments made prior to the expiration of the Section 1603 Treasury Program in September, 2011, with investors such as Berkshire Hathaway, Inc., MetLife, Inc., and John Hancock Life Insurance Co. pouring more than \$500 million into renewable energy projects in 2011.⁸⁷ With the expiration of the Section 1603 Treasury Program, it is unclear the extent to which private investors will continue significantly investing in solar energy projects. Fourth and finally, government support measures have helped contribute to the success of residential solar panel installation companies. Major solar panel installation businesses like SolarCity, Sunrun and Sungevity are thriving even as the other side of the industry – solar module makers – has been squeezed to the breaking point.⁸⁸ These companies are taking advantage of government tax incentives, creative financing options (power purchase agreements, leasing, etc.) for consumers, and the low cost of solar panel, and are doing well as a result.⁸⁹ Residential installation companies have also been successful in luring private investors, with Google, Morgan Stanley, Bank of America, and Merrill Lynch, among others, having made investments in these companies.⁹⁰ The takeaway message from the American experience thus far has been that by providing financial incentives to invest in solar energy development and attracting private sector partners, it is possible to make great strides in increasing the deployment of solar energy across a country.

87. Christopher Martin, *Solar 15 percent Returns Lure in Investments From Google to Buffett*, BLOOMBERG NEWS (Mar. 20, 2012), <http://www.businessweek.com/news/2012-03-19/solar-15-percent-returns-lure-investments-from-google-to-buffett>.

88. Cardwell, *supra* note 47.

89. *Id.*

90. Private investors have been supplying the capital to help cover upfront costs (typically \$30,000+ for a single-family home). Residential solar investments, with returns of between 7-13 percent, are seen as safe because solar installation companies typically only sign up homeowners with good credit. *Id.*

B. *The Chinese Landscape*

According to the United Nations Environment Programme (UNEP), “China’s experience [in renewable energy development] provides an example of policy-led growth . . . that has created jobs, income and revenue streams for nascent low carbon industries.”⁹¹ Spending over 3.8 billion RMB (US\$560 million) in renewable energy development in 2008 and outdoing the United States in annual spending on renewables by 2009,⁹² China has also been subject to allegations of “treating . . . energy technology competition as if it were an arms race.”⁹³ No matter how China’s renewable energy policies are characterized, it is interesting to note that the progression of renewable energy development in China mirrors the experience of the United States in many ways. As to the development of solar energy specifically, solar has historically been and remains one of the smaller sources of renewable energy available in both China and the United States.⁹⁴ Another similarity is that the sources of government support for solar energy development in China remain scattered across various economic plans and statutory instruments. In covering the recent Chinese landscape, the following discussion will be divided between overarching policy goals and initiatives and their specific manifestations (which are less certain).

China’s landmark statute on renewable energy development, the Renewable Energy Law (REL) (2006) represents an attempt to consolidate the otherwise scattered efforts to promote renewable energy in China.⁹⁵ These efforts began in the mid-1980s and included a mix of modest long-term economic planning goals,⁹⁶ the provision of low-interest loans,⁹⁷ and the deployment

91. *Success Stories: Renewable Energy in China*, UNITED NATIONS ENVIRONMENT PROGRAMME, <http://www.unep.org/greeneconomy/SuccessStories/RenewableEnergyinChina/tabid/29865/Default.aspx> (last visited Mar. 16, 2014).

92. Joel B. Eisen, *China’s Renewable Energy Law: A Platform for Green Leadership?*, 35 WM. & MARY ENVTL. L. & POL’Y REV. 1, 2 (2010).

93. *Id.* at 3.

94. *Id.* at 15.

95. *Id.* at 22.

96. “The first national document on renewable energy development was the State Council’s 1994 ‘White Paper on Population, Environment, and Development in the 21st Century,’ which identified a ‘medium- to long-term

of renewable energy sources to remote rural areas.⁹⁸ With the REL, a “principal framework”⁹⁹ was enacted that would serve as “the national mandate to develop renewable energy” (with specific plans and regulations to be developed later by relevant government agencies).¹⁰⁰ Important provisions of the REL include the definition of eligible renewable energy sources (Article 2), the requirement that electricity providers “interconnect with and purchase all the electricity generated by approved renewable energy facilities . . . in their service areas” (Article 14), and the creation of various financial incentives meant to spur renewable energy projects.¹⁰¹ Several of these financial incentives served as new introductions to the Chinese landscape. Under Article 19 of the REL, power pricing arrangements based on systems of fixed government pricing and competitive tendering were introduced.¹⁰² Fixed government pricing “offers renewable energy generators a guaranteed power price” and “stimulate[s] the development of the renewable

guide for the economic and social development of renewable energy.” The government’s “Program of New and Renewable Energy Development – 1996–2010” also considered renewable energy as part of the economic planning process, setting goals for individual renewable technologies to be achieved by 2020. *Id.* at 22–23.

97. “In 1987, the State Council’s Energy Conservation Office established a low interest loan fund that issued loans of about 120–130 million RMB (approximately \$15 million) annually by 1996 and had funded up to eighty percent of seventy-four MW worth of wind power installations by that time.” *Id.* at 22.

98. Between 1996 and 1999, the government’s “Brightness Program” aimed to provide electricity to 23 million people residing in remote areas by deploying small-scale (average capacity of 100 watts per capita) wind and PV technologies, leading to the creation of “10,000 solar home systems, three PV mini-grid village systems, and six PV village systems . . . by the end of 2001” and the installation of 5,500 wind/PV hybrid home systems in Inner Mongolia by 2003. In the early 2000s, China’s National Development and Reform Commission established the China Township Electrification Program to further access to renewable energy in rural areas. The program “aimed to supply power to 1065 townships in twelve provinces with small hydropower, PV, and PV/wind hybrid systems” and resulted in investments of over 4.5 billion RMB (\$700 million). Eisen, *supra* note 92, at 23–24.

99. *Success Stories: Renewable Energy in China*, *supra* note 91.

100. Eisen, *supra* note 92, at 25.

101. *Id.* at 25–26.

102. *Id.* at 29.

energy market by providing a stable long-term incentive for power production.”¹⁰³As to competitive tendering, a government-administered bidding process for contracts of predetermined amounts of electricity generated from renewable sources awards the rights to supply that electricity to its lowest-priced bidders.¹⁰⁴ Under Articles 20-23, cost-sharing arrangements divide “the costs of renewable energy generation and grid connection between utilities and electricity end users.”¹⁰⁵ Specifically, end users of electricity, with the exception of Tibet residents and those in the agriculture sector, pay a small surcharge on their electric bills to cover part of the difference between the price of coal-fired power and power generated from renewable energy sources.¹⁰⁶ Proceeds from the surcharge go to supporting renewable energy projects.¹⁰⁷ Other financial incentives flowing from the REL include tax incentives for wind power equipment manufacturers and the “Golden Sun” Program which provides subsidies to cover 50-70 percent of the costs of qualifying utility-scale solar projects, plus related grid connection and transmission costs. The Program was originally intended to subsidize the development of 500 megawatts of solar capacity, but has been extended beyond its original end date in 2012 to include subsidies for another 1,000 megawatts of solar plants.¹⁰⁸ In December 2009, a set of amendments to the REL was passed which looks to increase central government oversight of renewable energy projects and clarify the mandate requiring electricity providers to purchase renewable energy within their service areas.¹⁰⁹

China’s REL came into being against the backdrop of its 11th Five-Year Plan (2006-2010), which resulted in the spending of

103. *Id.*

104. *Id.*

105. *Id.* at 30.

106. Eisen, *supra* note 92, at 30.

107. *Id.*

108. THE KEARNY ALLIANCE, *supra* note 26, at 50.

109. Electricity providers initially resisted the requirement. Providing a numerical purchase target was thought to be a step toward signaling the government’s seriousness about enforcing the requirement. See Eisen, *supra* note 92, at 31-32.

US\$309 billion on energy efficiency and environmental protection measures and is seen as having been largely beneficial to renewable energy development.¹¹⁰ China's current 12th Five-Year Plan (2011-2015) has even more promise for renewable energy development, with energy-efficient technologies elevated to the level of "strategic emerging industries" and seven industries in the renewable energy sector eligible for US\$300 billion in investments each year.¹¹¹ "While it doesn't outline specific subsidies for China's solar manufacturers, China's 12th Five-Year Plan does very clearly articulate China's goals for the industry."¹¹² The solar-specific Five-Year Plan was announced by the Ministry of Industry and Information Technology in February 2012 and includes goals to reduce the cost of solar power¹¹³ and solar panels¹¹⁴ and increase the profits of solar manufacturers.¹¹⁵ The overarching goal, however, is to reach a minimum installed capacity of 5 gigawatts by 2015 and 20-30 gigawatts by 2020 (again, the U.S. currently has an installed capacity of around 3.3 gigawatts).¹¹⁶

While some of the major pieces of China's government support framework for solar energy development are found in the REL, it is otherwise unknown as to how China intends to achieve its goals for solar as articulated in its 12th Five-Year Plan.¹¹⁷ What can be expected, however, is that China has and will continue to engage at some level in most types of government support measures—from loans, to tax incentives, to R&D support, to local content requirements, and land grants—in furtherance of

110. THE KEARNY ALLIANCE, *supra* note 26, at 23.

111. Ghosh, *supra* note 21.

112. THE KEARNY ALLIANCE, *supra* note 26, at 23.

113. To 0.8 RMB (\$0.13) per kilowatt-hour by 2015 and 0.6 RMB (\$0.10) per kilowatt-hour by 2020. *Id.* at 24.

114. To 7,000 RMB (\$1,100) per kilowatt by 2015 and 5,000 RMB (\$800) per kilowatt by 2020. *Id.*

115. With at least one company reaching 100 billion RMB (\$16 billion) in sales and 3 to 5 companies reaching 50 billion RMB (\$8 billion) in sales by 2015. *Id.*

116. Targets may be as high as 10 gigawatts by 2015 and 50 gigawatts by 2020. *Id.* at 50.

117. *Id.* at 23.

solar energy development.¹¹⁸ As to government-provided credit, one source estimates that the Chinese government has doled out US\$35 billion in credit to solar energy companies since 2010.¹¹⁹ In particular, “China Development Bank Corp., [a state-owned bank] . . . [has] offered \$29 billion in credit to five Chinese PV panel manufacturers.”¹²⁰ While the allocation of credit is not crystal clear, it is thought that LDK Solar has a credit line of US\$8.9 billion, with Suntech Power at US\$7.2 billion, Trina Solar at US\$4.3 billion, and JA Solar at US\$4.4 billion.¹²¹ At this point it is also unclear “how much of their credit lines these or other Chinese manufacturers have actually drawn.”¹²² As to government support for R&D, it is at least clear that several PV manufacturers, including Suntech Power and Trina Solar, have benefited from China’s Pillar R&D Support Scheme, which provides funding for the commercialization of solar technologies.¹²³ Government support measures flowing from Beijing have also been heavily supplemented by equally opaque province-level initiatives. Those provinces, such as Jiangsu, which have been more outwardly aggressive in their solar development policies, seem to have benefited—Jiangsu now produces two-thirds of China’s solar PV equipment.¹²⁴ In sum, the Chinese landscape for solar energy development is highly-planned, with specific long-term goals in place, but doesn’t have many *explicit* government support measures to speak of. That being said, government support for solar energy development in China is also seemingly ubiquitous, flowing from all levels of government and in many different forms.

Determining whether China’s government support measures for solar energy development have been beneficial for solar energy on the whole depends on what indicators are examined. On the one hand, it is clear that Chinese solar panel

118. THE KEARNY ALLIANCE, *supra* note 26, at 25.

119. Tracey, *supra* note 33, at 353.

120. *Id.*

121. THE KEARNY ALLIANCE, *supra* note 26, at 25.

122. *Id.* at 26.

123. *Id.* at 25.

124. *Id.* at 26.

manufacturers, similar to those in the United States, are facing a dreary financial picture, but for different reasons. While global demand for solar panels is on the rise, China's manufacturing capacity has actually advanced even faster, leading to overproduction and the subsequent need to drastically lower product prices in order to sell products.¹²⁵ Several of China's largest solar panel manufacturers are currently losing up to \$1 for every \$3 of sales, with solar panel prices falling by 75 percent since 2008.¹²⁶ To illustrate, LDK Solar, the world's second-largest solar wafer manufacturer, lost US\$185 million in the first quarter of 2012 and has become ever more dependent on government assistance for survival.¹²⁷ LDK owes over 30 billion RMB (US\$4.75 billion) to domestic banks and the city of Xinyu (in Jiangxi province) has had to provide emergency funding while LDK tries to restructure, possibly by selling a stake to a state company. The Jiangxi government has allotted 2 billion RMB to banks to roll over loans and required bank branches not to demand for payback from LDK in the near future.¹²⁸ A precarious situation for Chinese solar panel manufacturers, it would not take much (i.e., lower foreign demand or the imposition of tariffs) for certain companies to close their doors.¹²⁹ That being said, there are also many reasons to believe that Chinese government support measures for solar energy development achieved exactly what they set out to do – dominate the global supply of solar panels. First, China is the largest solar PV manufacturer in the world, producing as much as 45 percent

125. Keith Bradsher, *Strategy of Solar Dominance Now Poses a Threat to China*, N.Y. TIMES, Oct. 4, 2012, at B1, available at <http://www.nytimes.com/2012/10/05/business/global/glut-of-solar-panels-is-a-new-test-for-china.html?pagewanted=all>.

126. *Id.*

127. Simon Montlake, *Chinese Solar Manufacturers Face Blowback As Trade War Escalates*, FORBES (July 25, 2012), <http://www.forbes.com/sites/simonmontlake/2012/07/25/chinese-solar-manufacturers-face-blowback-as-trade-war-escalates/>.

128. *Id.*

129. Suntech Power, based in Wuxi (Jiangsu province), was already forced to temporarily close a quarter of its solar cell capacity, transferring a majority of its 1,500 affected worker to other operations, Bradsher, *supra* note 125.

of global solar PV in 2010.¹³⁰ By comparison, the United States' share for 2010 is a mere 5 percent of global production.¹³¹ China also produces 17 percent of the global supply of silicon (a key component of solar panels), an industry once dominated by the United States.¹³² Second, China is the premier global exporter of solar panels, exporting over 90 percent of its production stock¹³³ and 54 percent of the world's solar panels.¹³⁴ In the United States alone, Chinese solar panel imports grew from US\$21 million in 2005¹³⁵ to over US\$3 billion in 2011.¹³⁶ Third and finally, China's domestic market for solar PV, although not particularly robust, shows signs of growing. China is already the world's largest market for solar hot water¹³⁷ and some analysts expect that China's annual installations of CSPV solar could reach up to 21 percent of the global total by 2013, up from a mere 3 percent in 2010.¹³⁸ All in all it seems that Chinese government support measures have yielded positive outcomes for solar energy development both in China and abroad.

130. THE KEARNY ALLIANCE, *supra* note 26, at 2.

131. *Id.*

132. *Id.* at 24.

133. Keith Bradsher, *Europe to Investigate Chinese Exports of Solar Panels*, N.Y. TIMES, Sept. 5, 2012, at B3, available at <http://www.nytimes.com/2012/09/06/business/global/eu-prepares-to-investigate-chinese-dumping-of-solar-panels.html?pagewanted=all>.

134. Matthew Stepp & Robert D. Atkinson, *Green Mercantilism: Threat to the Clean Energy Economy*, INFO. TECH. AND INNOVATION FOUND., 5 (June 2012), <http://www.itif.org/publications/green-mercantilism-threat-clean-energy-economy>.

135. Alex B. Berezow & Hank Campbell, *Obama's Solar Policy: If You Can't Beat the Chinese, Tax Them*, FORBES (Mar. 28, 2012), <http://www.forbes.com/sites/realspin/2012/03/28/obamas-solar-policy-if-you-cant-beat-the-chinese-tax-them/>.

136. INT'L TRADE ADMIN., COMMERCE PRELIMINARILY FINDS DUMPING OF CRYSTALLINE SILICON PHOTOVOLTAIC CELLS, WHETHER OR NOT ASSEMBLED INTO MODULES FROM THE PEOPLE'S REPUBLIC OF CHINA (2012), <http://ia.ita.doc.gov/download/factsheets/factsheet-prc-solar-cells-ad-prelim20120517.pdf>.

137. *Success Stories: Renewable Energy in China*, *supra* note 91.

138. THE KEARNY ALLIANCE, *supra* note 26, at 49.

IV.

THE GLOBAL SUBSIDIES REGIME

Before delving into the arguments as to why the current global subsidies framework provides insufficient leeway for states such as the United States and China to implement effective and non-trade-distorting support measures for solar energy development, a brief discussion of the framework's key provisions is necessary. The Subsidies and Countervailing Measures Agreement (SCM Agreement) emerged in 1994 at the conclusion of the Uruguay Round of the General Agreement on Tariffs and Trade (GATT) and "amid widespread recognition that heavy government subsidization of strategic industrial sectors, such as iron and steel misallocated resources, caused overcapacity and distorted trade."¹³⁹ The SCM Agreement addressed those problematic forms of government support by providing a definition of "subsidy," outlining categories of permissible and impermissible subsidies, and creating guidelines for multilateral (dispute settlement) and unilateral (countervailing measures) remedies available to allegedly injured states.

The definition of "subsidy" is found in Article 1 of the SCM Agreement. As set forth, the definition is quite expansive, covering both direct and indirect forms of government support, and requiring three basic elements—(1) a financial contribution (2) by a government or any public body within the territory of a member which (3) confers a benefit.¹⁴⁰ Specific forms of financial contribution mentioned in Article 1 include the direct transfer of funds (grants, loans, and equity infusion) and potential direct transfers of funds or liabilities (loan guarantees);¹⁴¹ the forgoing of revenue otherwise due (fiscal incentives such as tax credits);¹⁴² and the provision of goods or services other than general

139. Bernd G. Janzen, *The Cleantech Subsidy Wave: A New Source of Trade Conflicts?*, 39 INT'L LAW NEWS 3 (Summer 2010), available at <http://cdn.akingump.com/images/content/5/0/v4/5086/reprint-Janzen.pdf>.

140. *Subsidies and Countervailing Measures: Overview*, WORLD TRADE ORG., http://www.wto.org/english/tratop_e/scm_e/subs_e.htm (last visited Mar. 18, 2014).

141. Agreement on Subsidies and Countervailing Measures art. 1.1(a)(1)(i), Apr. 15, 1994, 1867 U.N.T.S. 14 [hereinafter SCM Agreement].

142. *Id.* art. 1.1(a)(1)(ii).

infrastructure.¹⁴³ As to the second criterion, in order for a financial contribution to be considered a subsidy, it must flow from a government (national or sub-national) or any public body within the territory of a member.¹⁴⁴ Finally, while the SCM Agreement itself provides no guidance as to benefits,¹⁴⁵ the WTO Appellate Body has ruled that the existence of a benefit “is to be determined by comparison with the market-place (i.e., on the basis of what the recipient could have received in the market).”¹⁴⁶

143. *Id.* art. 1.1(a)(1)(iii).

144. *Subsidies and Countervailing Measures: Overview, supra* note 140.

145. SCM Agreement, *supra* note 141, art. 1.1(b).

146. *Subsidies and Countervailing Measures: Overview, supra* note 140. This standard was employed by the WTO Appellate Body in *Canada – Certain Measures Affecting the Renewable Energy Generation Sector* (DS412) and *Canada – Measures Relating to the Feed-In Tariff Program* (DS426). The disputes, brought by Japan and the European Union, respectively, against Canada, targeted Ontario’s feed-in tariff (FIT) program. Paragraph 1.1. Under the FIT program, generators of electricity produced from certain renewable sources (including wind, solar PV, renewable biomass, biogas, landfill gas, and waterpower) were paid a guaranteed price per kilowatt hour of electricity delivered into Ontario’s electricity system under twenty- or forty-year contracts. Paragraph 1.3. To qualify, certain electricity generation facilities had to comply with minimum required domestic content levels (i.e., local content requirements). Paragraph 1.4. The Appellate Body held that the FIT program constituted government “purchases [of] goods” under Article 1.1(a)(1)(iii) of the SCM Agreement. Paragraph 5.128. As to the determination of a benefit under Article 1.1(b), the Appellate Body noted that the appropriate benchmark was not the wholesale market for electricity generated from all sources of energy (as the panel had stated), but rather the markets for wind- and solar PV-generated electricity, as defined by the Government of Ontario’s choice of energy supply-mix. Paragraph 5.199. While the Appellate Body was clear that its Article 1.1(b) analysis “would involve conducting a comparison with [this] benefit benchmark to determine whether the remuneration obtained by FIT generators conferr[ed] on them an advantage as compared to the remuneration they would otherwise have been able to obtain in the marketplace,” Paragraph 5.225, it determined that the complexity of the issues before it as well as the lack of full exploration of the issues before the panel, prevented it from determining whether a benefit was conferred. Paragraph 5.224. Instead, the Appellate Body invalidated Ontario’s FIT program by upholding the panel’s finding that the program’s local content requirements violated the WTO’s national treatment principle by favoring domestic over imported goods. See *WTO Appellate Body Rules Against Canada in Renewable Energy Case*, INSIDE U.S. TRADE (May 10, 2013), <http://insidetrade.com/Inside-US-Trade/Inside-U.S.-Trade-05/10/2013/wto-appellate-body-rules-against-canada-in-renewable-energy-case/menu-id-710.html>.

Assuming that a government support measure is a “subsidy” within the meaning of Article 1, the next step in the analysis is to determine whether the subsidy is “specific” within the boundaries set forth in Article 2, a necessary requisite in order for the SCM Agreement to apply.¹⁴⁷ The rationale behind having a specificity requirement is that when a subsidy is widely available throughout an economy, it is presumed *not* to cause trade-distorting effects and is therefore not deserving of discipline.¹⁴⁸ The primary categories described in Article 2 are enterprise specificity¹⁴⁹ (targeting of a company or companies for subsidization); industry specificity¹⁵⁰ (targeting a particular sector or sectors for subsidization); and regional specificity¹⁵¹ (targeting producers in specified regions for subsidization).¹⁵² If, despite the appearance of non-specificity under this framework, there are lingering suspicions as to whether a subsidy may in fact be specific, other factors may be considered. These factors include use of a subsidy program by a limited number of certain enterprises, predominant use by certain enterprises, and the manner in which discretion has been exercised by the granting authority in the decision to grant a subsidy.¹⁵³ Non-specificity can be established by a showing that the granting authority or its enabling legislation establishes objective criteria or conditions governing the eligibility for, and the amount of, a subsidy.¹⁵⁴

Not all subsidies that are specific are prohibited. The SCM Agreement “disciplines government subsidy practices through a method of categorization based on the ‘stop/proceed with caution’ . . . symbolism of the common traffic light.”¹⁵⁵ Prohibited (i.e., “red light”) subsidies are covered in Article 3. The two categories

147. *Subsidies and Countervailing Measures: Overview*, *supra* note 140.

148. *Id.*

149. SCM Agreement, *supra* note 141, art. 2.1(a).

150. *Id.*

151. *Id.*

152. *Subsidies and Countervailing Measures: Overview*, *supra* note 140.

153. SCM Agreement, *supra* note 141, art. 2.1(c).

154. *Id.* art. 2.1(b).

155. U.S. DEP'T OF COMMERCE, REPORT TO THE CONGRESS: REVIEW AND OPERATION OF THE WTO SUBSIDIES AGREEMENT (1999), *available at* <http://enforcement.trade.gov/esel/reports/scm0699/scm-0699.htm>.

of prohibited subsidies referenced are those contingent upon export performance (export subsidies)¹⁵⁶ and those contingent upon the use of domestic over imported goods (local content subsidies).¹⁵⁷ These subsidies are “considered to have the most pernicious trade-distorting effects”¹⁵⁸ and are subject to complete withdrawal should the WTO Dispute Settlement Body (DSB) adopt a finding that they are in effect in a member state.¹⁵⁹ A specificity finding is not required in order to take action against prohibited subsidies as they are deemed “specific” by Article 2.3. Most subsidies, however, fall into the actionable (i.e., “yellow light”) category,¹⁶⁰ and maintain the specificity requirement. Actionable subsidies are *not* prohibited, but they may be challenged, either through multilateral dispute settlement proceedings or unilateral countervailing measures. As to the former option, an allegedly injured state must show that it has incurred certain “adverse effects” in order to proceed.¹⁶¹ Article 5 lists three types of adverse effects which are recognized under the Agreement: an injury to the domestic industry of another member; the nullification or impairment of benefits accruing directly or indirectly to other members under GATT 1994; and serious prejudice to the interests of another member.¹⁶² As detailed in Article 6, “serious prejudice” arises when (1) the total subsidization of a product exceeds 5 percent of its value; (2) subsidies cover operating losses sustained by an industry; (3) subsidies cover operating losses sustained by an enterprise (other than one-time measures which are non-recurrent and are given to provide time for the development of long-term solutions and to avoid acute social problems); or (4) the government

156. SCM Agreement, *supra* note 141, art. 3.1(a).

157. *Id.* art. 3.1(b).

158. Janzen, *supra* note 139, at 2.

159. SCM Agreement, *supra* note 141, art. 4.7.

160. Joanna I. Lewis, *Emerging Conflicts in Renewable Energy Policy and International Trade Law*, 14 *Global Env'tl. Politics* (forthcoming Nov. 2014), available at http://ases.conference-services.net/resources/252/2859/pdf/SOLAR_2012_0724_full%20paper.pdf.

161. *Id.*

162. SCM Agreement, *supra* note 141, art. 5(a)-(c).

provides direct forgiveness of debt.¹⁶³ Where a panel or Appellate Body report determines that a subsidy has resulted in adverse effects in a member state, the member state granting that subsidy must take appropriate action to remove the *adverse effects* of the subsidy or withdraw the subsidy completely.¹⁶⁴ In order for an allegedly injured member state to take unilateral action in imposing countervailing measures, however, the state only need determine that it has acquired subsidized imports, that a domestic industry has been injured, and that there is a causal link between the subsidized imports and the alleged injury.¹⁶⁵

Of significance to the current global subsidies regime and solar energy development is that a third, non-actionable (i.e., “green light”) category of subsidies was introduced by the 1994 SCM Agreement but expired after 5 years. Until the year 2000, Article 8 of the SCM Agreement permitted certain narrow classes of subsidies which WTO members desired to insulate from attack.¹⁶⁶ These included assistance for R&D activities conducted by firms, higher education, or research establishments;¹⁶⁷ assistance to disadvantaged regions within the territory of a member state;¹⁶⁸ and assistance to promote adaptation of existing facilities to new environmental requirements imposed by law and/or regulations which imposed greater constraints and financial burdens on firms.¹⁶⁹ Due to a lack of consensus as to whether to extend the Article 8 exemptions into the new millennium, the SCM Agreement became stricter, no longer providing a safe harbor for many types of subsidies.¹⁷⁰

Similar to the now-expired exemptions provided for in Article 8 of the SCM Agreement, Article XX of the GATT “provides the express recognition of other-than-trade values and the possibility

163. *Id.* art. 6.1(a)-(d).

164. *Id.* art. 7.8.

165. *Id.* art. 11.2.

166. Janzen, *supra* note 139, at 2.

167. SCM Agreement, *supra* note 141, art. 8.2(a).

168. *Id.* art. 8.2(b).

169. *Id.* art. 8.2(c).

170. Janzen, *supra* note 139, at 2.

for these values to trump trade under certain circumstances.”¹⁷¹ While Article XX’s applicability to the SCM Agreement is contested, as discussed further below, its function within the GATT itself is significant, allowing member states, “under specific conditions, to give priority to certain societal values and interests over trade liberalization.”¹⁷² The two Article XX exceptions which are of particular importance to solar energy development are those found in paragraph (b) (subsidies necessary to protect human, animal or plant life or health)¹⁷³ and (g) (subsidies relating to the conservation of exhaustible natural resources).¹⁷⁴ If a government support measure falls into either one of these exceptions and satisfies the requirements of the Article’s introductory paragraph (the *chapeau*),¹⁷⁵ it is excluded from discipline under the GATT.

V.

PROBLEM WITH THE FRAMEWORK I: THE EASY ROAD TO SUCCESSFUL SUBSIDIES CHALLENGES AT THE WTO

Major areas of textual vagueness in the Subsidies and Countervailing Measures Agreement (SCM Agreement) make it relatively easy for solar energy development support measures to be challenged¹⁷⁶ through the World Trade Organization’s (WTO)

171. Rubini, *supra* note 4, at 34.

172. *Id.*

173. General Agreement on Tariffs and Trade art. XX(b), Apr. 15, 1994, 1867 U.N.T.S. 187.

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

175. Article XX’s *chapeau* imposes the requirement that government support measures otherwise eligible for exclusion under the Article’s terms do not constitute a means of arbitrary or unjustifiable discrimination between countries where the same conditions prevail. *See generally id.*

176. To date, at least three solar energy programs have been challenged through the WTO’s dispute settlement mechanism. The first such dispute was filed in 2010 by Japan and the European Union against Canada, targeting the local content requirements of Ontario’s feed-in tariff (FIT) program (DS412, DS426). The Appellate Body’s approach to the subsidies question in that dispute can be found in note 146, *supra*. A second case was brought by China against the European Union in 2012, targeting the local content requirements of the E.U.’s and certain E.U. member states’ FIT programs (DS452 is still in the consultations stage). In February 2013, the United States requested consultations with India (DS456) regarding its national solar program and

multilateral dispute settlement mechanism. Specifically, there are no clear standards within the text governing the ideas of “benefit conferred” (Article 1.1(b)) and “revenue otherwise due” (Article 1.1(a)(1)(ii)) within the category of actionable (i.e., “yellow light”) subsidies. This lack of clarity leaves a wide range of non-trade-distorting government support measures aimed at boosting solar energy development, including R&D support and tax incentives, subject to easy challenge from other states. While a state might try to assert an Article 2.1(b) non-specificity defense in response, the lack of clarity as to the relative import of the defense vis-à-vis the rest of the Article makes it a weak retort at best. Additionally, despite several arguments which have been advanced suggesting otherwise, the Article XX General Exceptions provision of the General Agreement on Tariffs and Trade (GATT), which would itself remedy the aforementioned textual vagueness problems if applicable to the SCM Agreement, likely *does not* apply to the SCM Agreement (a WTO panel has never ruled specifically on this question).¹⁷⁷ This means that government support measures which fit into either the paragraph (b) or (g) exceptions and comply with the standards set forth in Article XX’s *chapeau* are nonetheless subject to discipline under the SCM Agreement. This situation leaves states with insufficient policy space to implement reasonable support measures for solar energy development.¹⁷⁸

The first component of the SCM Agreement’s textual vagueness problem is the “benefits conferred” language found in Article 1.1(b). As noted earlier, the text’s lack of elaboration on this idea has given rise to a WTO Appellate Body provided standard for determining whether a benefit has been accrued by

alleged forced localization requirements. See David J. Levine & Pamela D. Walther, Wave of Trade Disputes Complicates Global Market for Renewable Energy Firms, Particularly Solar Sector, BLOOMBERG LAW (Feb. 19, 2013), <http://about.bloomberglaw.com/practitioner-contributions/wave-of-trade-disputes-complicates-global-market-for-renewable-energy-firms-particularly-solar-sector/>.

177. See generally Daniel Peat, *The Wrong Rules for the Right Energy: The WTO SCM Agreement and Subsidies for Renewable Energy*, 24 ENVTL. LAW AND MGMT. 3 (Feb. 2, 2012), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1998240.

178. See generally Rubini, *supra* note 4.

an enterprise or industry.¹⁷⁹ This standard compares the alleged benefit against what could have been attained on the market.¹⁸⁰ This presents two distinct problems as to the solar energy industry.¹⁸¹ First, because the entire energy market, including fossil fuels, is typically taken into account when determining whether to provide government support to a nation's solar energy industry, it is hard for governments to work out what forms of intervention will be considered as giving a "benefit" over and above some hypothetical baseline devoid of any price distortion.¹⁸² This is because the energy market is and always has been "rife with government intervention, in forms of pecuniary and non-pecuniary . . . support for both renewable and non-renewable¹⁸³ energy producers."¹⁸⁴ While in DS412 and DS426 the Appellate Body limited the Article 1.1(b) benefit analysis to individual renewable energy sector markets (i.e., wind and solar PV) and rejected the panel's approach of looking to the wholesale market for electricity generated from all sources of energy,¹⁸⁵ this does not change the fact that governments will still likely look to the wholesale market for electricity from all sources when determining the extent to which subsidies should be granted to the solar energy industry. Second, and relatedly, Article 1 mentions nothing about *corrective* measures implemented to offset market failures.¹⁸⁶ Considering the dual market failures (lack of internalization of negative externalities associated with fossil fuel use and lack of internalization of positive externalities associated with renewable energy use) which affect the viability of solar energy development and the

179. *Subsidies and Countervailing Measures: Overview*, *supra* note 140.

180. *Id.*

181. *See* Peat, *supra* note 177.

182. *Id.* at 12.

183. The major difference between government support measures aimed at fossil fuel producers and those targeting producers of renewable energy (and related technologies) is that the former have gone largely unchallenged due to their pervasiveness in almost every oil-producing state. *See* Rubini, *supra* note 4, at 32-33.

184. Peat, *supra* note 177, at 11.

185. *See generally supra* note 146 and accompanying text.

186. Janzen, *supra* note 139, at 12.

need for state intervention in the renewable energy sector, as discussed above, this omission hits hard at state attempts to move away from reliance on fossil fuels by making them subject to claims of “benefit” conferral to renewable energy enterprises.¹⁸⁷ In sum, the text’s silence as to a “benefit conferred” standard (and our reliance on the WTO Appellate Body version) and its omission as to corrective measures, leaves states in a situation where subsidies that produce a net benefit through positive environmental externalities, with few if any trade-distorting effects, can be easily challenged as illegal.¹⁸⁸ The precarious situation for R&D support in particular has been exposed through challenges in other sectors,¹⁸⁹ and there is no reason to believe that such measures will be immune from challenge in the context of solar energy development (despite their lack of trade-distorting effects).¹⁹⁰

187. *Id.*

188. *Id.*

189. For example, on June 27, 2005, the European Communities requested consultations with the United States concerning prohibited and actionable subsidies provided to U.S. producers of large civil aircraft, namely Boeing (United States – Measures Affecting Trade in Large Civil Aircraft – Second Complaint). Included among the allegations was over \$10 billion in NASA and Department of Defense (DOD) R&D subsidies, accounting for more than half of the total value of subsidies alleged to have been provided. The federal research programs allegedly included direct payments as well as free access to facilities, equipment, and employees. The WTO Panel report (March 31, 2011) found that certain funding received by Boeing under both NASA aeronautics and DOD R&D programs were “specific” subsidies within the meaning of Articles 1 and 2 of the SCM Agreement. Building upon this finding, the Appellate Body report (March 12, 2012) found that, through various payments and access to facilities, equipment, and employees under NASA procurement contracts and DOD assistance instruments, a benefit had been conferred on Boeing within the meaning of Article 1.1(b). The Appellate Body also concluded that NASA aeronautics R&D subsidies caused serious prejudice to the interests of the European Communities within the meaning of Articles 5(c) and 6.3(b). *Dispute Settlement: Dispute DS353 (United States – Measures Affecting Trade in Large Civil Aircraft – Second Complaint)*, WORLD TRADE ORG. (Oct. 12, 2012), available at http://www.wto.org/english/tratop_e/dispu_e/cases_e/ds437_e.htm; *Background Fact Sheet: WTO Disputes EU/US Large Civil Aircraft*, EUROPEAN COMM’N (Oct., 11 2012), http://trade.ec.europa.eu/doclib/docs/2010/september/tradoc_146486.pdf.

190. In creating an overly simplistic dichotomy between “good” and “bad” forms of government support, “good” measures, such as R&D support, spur innovation, with few if any trade distorting effects while “bad” measures, such

The second component of the SCM Agreement's textual vagueness problem is the "revenue otherwise due" language found in Article 1.1(a)(1)(ii). As with the "benefits conferred" language, a lack of detail within the text as to any standard for this idea has resulted in reliance on WTO Appellate Body tests which have proved to be less than clarifying.¹⁹¹ At the most basic level, determining what is "otherwise due" requires engaging in a counterfactual analysis that rests on "whether [a] measure . . . is a derogation from the otherwise applicable benchmark [tax rule]."¹⁹² Once the benchmark is identified, the tax measure must be compared against it; "[i]t is the convergence with or divergence from [the] baseline that will [indicate] whether there is a financial contribution."¹⁹³ This analysis¹⁹⁴ involves looking to the objectives of the relevant benchmark and determining whether a tax incentive is "designed and applied in such a way that it is fully in line with and implements, without exceeding, [those] objectives."¹⁹⁵ The complexity and somewhat subjective

as export-contingent subsidies, are purely mercantilist in nature. While "good" government support measures result in a "race to the top" in innovation, "bad" government support measures result in a "race to the bottom" in aggressive mercantilist policies, Stepp & Atkinson, *supra* note 134, at 3.

191. It has been suggested that there are no less than four different tests to approach the "revenue otherwise due" language. Rubini, *supra* note 4, at 11.

192. *Id.*

193. *Id.*

194. Sample analysis: The Federal Highway Bill (2005) introduced a fuel tax credit to promote the use of ethanol and other biofuels in vehicles. Companies received a 50 cent tax credit for every gallon of gasoline or diesel they used if blended with an alternative fuel. In 2007, the scope of the tax credit was expanded to include non-mobile uses of biomass-based liquid fuels. In 2008, the IRS concluded that "black liquor," a carbon-based byproduct of the wood pulping process which has been used for decades to power pulp mills, was eligible for the Highway Bill tax credit. While the Highway Bill alternative fuel tax credit, as part of a general scheme to promote biofuels, would likely not have constituted a subsidy, its application to "black liquor" almost certainly did. This conclusion can be reached by juxtaposing the objective of the general tax rule (i.e., the Highway Bill tax credit) – to incentivize the use of alternative fuels – with the result of the specific tax measure (i.e., the application to "black liquor") – to create a perverse incentive to continue using a carbon-based fuel. Because the result of the specific tax measure was at odds with the objective of the general tax rule, it can be said that the government forewent revenue otherwise due. *Id.* at 17.

195. *Id.* at 12.

nature of this analysis means that the subsidy status of renewable energy tax incentives is inherently uncertain.¹⁹⁶ The lack of clear guidance from the text of the SCM Agreement leaves states in a precarious situation as to their ability to implement tax incentives aimed at boosting solar energy development.¹⁹⁷

While a state might try to assert an Article 2.1(b) non-specificity defense in response to a subsidies challenge, the broad categorical (i.e., enterprise, industry, and regional) breakdown established in Article 2 makes it exceedingly difficult to succeed on this defense. Specifically, while a state may claim adherence to self-imposed principles of neutrality and non-discrimination in its subsidization selection criteria, “from a legal perspective . . . [a] subsidy may still be found to be specific under Article 2.1(c) if it can be shown that, *in fact*, [it] mainly benefits certain enterprise[s] or industries.”¹⁹⁸ A finding of *de facto* specificity could undermine a state’s efforts to design and apply objective criteria for subsidization, even *across* enterprises and industries, making the specificity test very easy to fulfill in the case of subsidies in support of solar energy.¹⁹⁹ In particular, the breadth of a support measure—whether it targets only certain technology-based industries (such as solar) or is available across the renewable energy sector (solar, wind, biofuels, etc.) and is ostensibly less “specific”—remains largely irrelevant due to the fact that the sector itself is still “a small [i.e., “specific”] . . . player [within] the energy market [at large].”²⁰⁰ Therefore, while

196. *Id.* at 19.

197. For example, in response to a U.S. tax credit that offered domestic producers one dollar per gallon of biodiesel produced, or blended with petroleum, the European Union took unilateral countervailing action, imposing a five-year tariff on U.S. biodiesel in 2009. European biodiesel producers allegedly suffered material injury because of a surge of low-priced U.S. imports, valued at \$1 billion annually. Jonathan Stearns & Rachel Graham, *EU Hits U.S. Biodiesel Makers With Five-Year Tariffs*, BLOOMBERG (July 7, 2009), <http://www.bloomberg.com/apps/news?pid=newsarchive&sid=aMEeSlftJdR0>; *EU Imposes Anti-Dumping Duties on US Biodiesel*, INT’L CENTRE FOR TRADE AND SUSTAINABLE DEV. (Mar. 2009), <http://ictsd.org/i/news/bridges/44145/>.

198. Rubini, *supra* note 4, at 27 (emphasis added).

199. *Id.*

200. *Id.*

an Article 2.1(b) defense remains available, the Article's tendency toward granting more weight to *de facto* specificity over any stated objective subsidization selection criteria²⁰¹ means that the defense is a weak one at best in the context of solar energy support measures. Here, textual silence about the relative import of the Article 2.1(b) non-specificity defense limits its role to that of a very small exception to an otherwise weighty rule.

Turning to the inapplicability of the GATT Article XX General Exceptions provision to the SCM Agreement, it is important to understand that if Article XX did apply to the SCM Agreement, government support measures for solar energy development would likely be insulated from discipline via paragraph (b) (the human, animal, and plant health exception) or (g) (the natural resource depletion exception). These exceptions have been found to apply across a wide variety of (non-subsidy) measures, from those aimed at reducing the consumption of cigarettes, to those reducing health risks posed by asbestos, to those protecting various marine life populations.²⁰² Most crucially in the *US – Gasoline* (DS2) case, in which Venezuela and Brazil took issue with U.S. measures²⁰³ to regulate the composition and emission effects of gasoline in order to reduce air pollution, the WTO Appellate Body found that the measures were primarily aimed at the policy goal of conservation of clean air resources, falling within the scope of paragraph (g).²⁰⁴ While solar energy support

201. *Id.*

202. *WTO Rules and Environmental Policies: GATT Exemptions*, WORLD TRADE ORG., http://www.wto.org/english/tratop_e/envir_e/envt_rules_exceptions_e.htm (last visited Mar. 18, 2014).

203. “Following a 1990 amendment to the Clean Air Act, the U.S. Environmental Protection Agency (EPA) promulgated the Gasoline Rule on the composition and emissions effects of gasoline, in order to reduce air pollution in the US. From . . . January 1995 . . . the Gasoline Rule permitted only gasoline of a specified cleanliness . . . to be sold to consumers in the most polluted areas of the [United States]. In the rest of the country, only gasoline no dirtier than that sold in the base year of 1990 . . . could be sold. The Gasoline Rule applied to all US refiners, blenders and importers of gasoline.” *Venezuela, Brazil versus US: gasoline*, WORLD TRADE ORG., http://www.wto.org/english/tratop_e/envir_e/edis07_e.htm (last visited Mar. 18, 2014).

204. *WTO Rules and Environmental Policies: GATT Exemptions*, *supra* note 202.

measures provided in pursuance of a general program aimed against the effects of climate change would most likely fall within the scope of paragraph (b) were Article XX to be applicable, the decision clarifies the ability of states to take action against serious environmental challenges within the parameters of the GATT.²⁰⁵ This conclusion makes Article XX's inapplicability to the SCM Agreement all the more unfortunate but no less of a reality.

Several of the primary arguments supporting the proposition that GATT Article XX *does* apply to the SCM Agreement are found within a recent *amicus curiae* brief submitted to the WTO panel presiding over the *Canada – Certain Measures Affecting the Renewable Energy Generation Sector* (DS412) case.²⁰⁶ The case arose in response to Japan's request for consultations with Canada regarding Ontario's feed-in tariff (FIT) program²⁰⁷ and over concerns that it favored the use of domestic over imported goods by making the subsidy contingent upon the use of equipment for renewable energy generation facilities produced in Ontario over such equipment imported from elsewhere.²⁰⁸ While Canada did not itself assert an Article XX defense,²⁰⁹ the amici curiae nonetheless argued that Article XX should apply to the alleged Article 3 local content subsidies, advancing, *inter alia*, seven key points. First, it is argued that a WTO Appellate Body has applied Article XX to another obligation beyond the GATT before, specifically to China's Accession Protocol,²¹⁰ suggesting

205. The recognition of WTO member states' autonomy to determine their own environmental objectives under the GATT was reaffirmed by the Appellate Body report in *Brazil – Retreaded Tyres* in 2008. *Id.*

206. International Institute for Sustainable Development et al. *amicus curiae* submission, *supra* note 22, at 5.

207. "A feed-in tariff typically guarantees generators of renewable electricity a long-term purchase price for each kilowatt-hour they produce and 'feed into' the grid, providing a powerful incentive for installing such systems." THE KEARNY ALLIANCE, *supra* note 26, at 50.

208. *Dispute Settlement: Dispute DS412 (Canada – Certain Measures Affecting the Renewable Energy Sector)*, WORLD TRADE ORG. (July 19, 2012), http://www.wto.org/english/tratop_e/dispu_e/cases_e/ds412_e.htm.

209. International Institute for Sustainable Development et al. *amicus curiae* submission, *supra* note 22, at 5.

210. In *China – Periodicals*, a WTO Appellate Body found that China could invoke Article XX(a) of the GATT to justify provisions found to be inconsistent

that the provision's application is not restricted to the document in which it is found. Second, it is argued that the SCM Agreement and the GATT *collectively* create the WTO regime for subsidies and that the former, as *lex specialis*, expands upon the basic framework provided by the latter as *lex generalis*; one document, it is contended, cannot be understood without the other.²¹¹ Third, and relatedly, it is argued that both agreements were adopted under the 1994 Marrakesh Agreement and that they are integral to a single treaty creating the framework for the WTO.²¹² Fourth, attention is drawn to the fact that the SCM Agreement mentions the GATT²¹³ and that fifth, while the Agreement does not explicitly mention Article XX, omissions are not dispositive in determining whether one agreement is applicable to another.²¹⁴ Sixth, the idea is advanced that while the Article 8 exceptions of the SCM Agreement have expired, those "narrow exceptions in the SCM could not have been intended as a specific development of the more general public welfare exceptions offered in Article XX of [the] GATT."²¹⁵ The

with China's trading rights commitments under its Accession Protocol, *Dispute Settlement: Dispute DS363 (China – Measures Affecting Trading Rights and Distribution Services for Certain Publications and Audiovisual Entertainment Products)*, WORLD TRADE ORG. (Oct. 12, 2012), http://www.wto.org/english/tratop_e/dispu_e/cases_e/ds363_e.htm; International Institute for Sustainable Development et al. *amicus curiae* submission, *supra* note 22, at 8.

211. According to the brief, it is "of primary importance" that Article 1 of the SCM Agreement provides a definition of "subsidy," a detail not provided for in the GATT despite the fact that it is arguably needed to fully understand the disciplines contained therein. *Id.* at 7.

212. *Id.* at 10.

213. Article 32.1 of the SCM Agreement states that "no specific action against a subsidy of another Member can be taken except in accordance with the provisions of the GATT . . . as interpreted by this Agreement." *Id.* at 8.

214. The WTO Appellate Body decision in *Canada – Autos*, stated that "omissions in different contexts may have different meanings, and [an] omission, in and of itself, is not necessarily dispositive." *Id.* at 9.

215. According to the *amicus curiae*, the Article 8(c) environmental exception was intended to cover specific circumstances (i.e., where governments might want to defray the costs of new environmental regulations on existing facilities) whereas the Article XX(b) and (g) exceptions are meant to cover all measures "necessary to protect human, animal or plant life or health" and "relating to the conservation of exhaustible natural resources," a significantly broader scope. *Id.* at 12.

amici curiae argue that therefore, the broad paragraph (b) and (g) exceptions apply to the SCM Agreement with equal force as the Article 8 exceptions and remain in effect despite Article 8's expiration.²¹⁶ Seventh, and finally, it is argued that to find that Article XX does not apply to the SCM Agreement would lead to absurd policy results, specifically that more trade-restrictive measures covered under the GATT (i.e., quotas) could be justified via the exceptions, while subsidies, which are less trade restrictive but covered by the SCM Agreement, could not be justified.²¹⁷

While several of the arguments advanced in support of Article XX's application to the SCM Agreement seem intuitively correct, three arguments made in opposition to this supposition are fatal to its validity. The first argument looks to the meaning of "this agreement" found within the *chapeau* of Article XX.²¹⁸ This language has been present in the GATT since 1947, prior to the Uruguay Round which resulted in the adoption of both the GATT and the SCM Agreement,²¹⁹ suggesting that Article XX exceptions apply to those policies deemed illegal under GATT (i.e., "this agreement") rules but not those covered by other later-developed WTO agreements.²²⁰ Second, while a lack of explicit reference to Article XX in the SCM Agreement may not be dispositive, it is certainly suspect. This is the case for three reasons. First, other WTO agreements such as the Sanitary and Phytosanitary Measures (SPS Agreement) specifically define the applicability of Article XX.²²¹ Those that do not, such as China's

216. International Institute for Sustainable Development et al. *amicus curiae* submission, *supra* note 22, at 12.

217. *Id.* at 18.

218. "Subject to the requirement that such measures are not applied in a manner which would constitute a means of arbitrary or unjustifiable discrimination between countries where the same conditions prevail, or a disguised restriction on international trade, nothing in this Agreement shall be construed to prevent the adoption or enforcement by any contracting party of measures." General Agreement on Tariffs and Trade, *supra* note 173, art. XX.

219. International Institute for Sustainable Development et al., *amicus curiae* submission, *supra* note 22, at 13.

220. Peat, *supra* note 177, at 17.

221. Marie Wilke, *U.S. v. China: Renewable Energy Competition Hits the WTO*, INT'L CENTRE FOR TRADE AND SUSTAINABLE DEV. (Apr. 2011), <http://>

Accession Protocol, at least make reference to the broad “WTO Agreement” when looking to invoke component agreements such as the GATT.²²² The SCM Agreement takes neither approach, making it exceedingly difficult to see how the GATT could apply to the Agreement beyond those specific provisions invoked. Second, where needed, the SCM Agreement does invoke exceptions contained in other agreements, specifically, those found in the Agreement on Agriculture.²²³ The third and final fatal argument hinges on the expiration of the SCM Agreement’s Article 8 exceptions. Considering that several of the Article 8 exceptions (including R&D support and environmental protection measures) covered similar non-trade objectives as those found in Article XX, it is difficult to imagine that Article 8 was intended as anything other than the specific and exclusive list of exceptions to be applied in the context of subsidies.²²⁴ If the broad Article XX exceptions were understood to apply to the SCM agreement, there simply would have been no need for an additional list of more narrowly-drawn exceptions.²²⁵ The expiration of the Article 8 exceptions due to lack of consensus as to their desirability suggests that WTO member states are at best ambivalent about the application of exceptions to the subsidies framework in the new millennium. To suggest that the expiration of the specific and exclusive list of exceptions created for the subsidies regime entitles the GATT Article XX list to replace it runs counter to the idea of why WTO members created a separate list in the first place and why they allowed it to expire.²²⁶ To now apply Article XX to the SCM Agreement would be counter to the intentions displayed repeatedly by WTO member states.

Having explored the major areas of textual vagueness present in the SCM Agreement and established the likely inapplicability

ictsd.org/i/news/bioresreview/103556/.

222. See Rubini, *supra* note 4, at 36.

223. Article 3.1 of the SCM Agreement states that certain subsidies are prohibited “except as provided in the Agreement on Agriculture.” Wilke, *supra* note 221.

224. *Id.*

225. Peat, *supra* note 177, at 17.

226. See *id.*

of Article XX of the GATT, the inadequacy of the policy space available to states in implementing measures in support of solar energy development is now clear. States simply do not have sufficient leeway to enact these measures without the prospect of an easy defeat before a WTO multilateral dispute settlement body. As discussed in Part VI, the unworkable standard in place governing countervailing duty investigations also reduces the policy space available to states in implementing reasonable support measures for solar energy development.

VI.

PROBLEM WITH THE FRAMEWORK II: THE EASY ROAD TO APPLYING COUNTERVAILING MEASURES

The solar trade war between the United States and China is a case study in furtherance of the idea that the Subsidies and Countervailing Measures Agreement (SCM Agreement) provides inadequate protection for legitimate government support measures for solar energy development. Whereas the textual vagueness problem addressed above allows reasonable government support measures for solar energy development to be easily challenged through the World Trade Organization's (WTO) multilateral dispute settlement mechanism, the problem present in the context of the solar trade war is the unworkable standard in place for imposing countervailing duties on subsidized imported goods. In essence, because it is essentially impossible to engage in counterfactual analysis as to the effects of an import being subsidized on an allegedly injured industry, countervailing duty investigations are prone to relying on the presence of subsidized imports and injury to the domestic industry in applying countervailing duties. This reliance creates a bent toward finding for the domestic industry, to the detriment of solar technology exporters. This reality means that states face further impediments as to their ability to implement reasonable support measures for solar energy development without rebuke. Specifically, a state may effectively lose its ability to export solar panel and component part technologies (in the face of high countervailing duties imposed by an importing state) as a consequence of implementing necessary and non-trade-distorting

support measures which nurture the development of its solar industry.

Article 11.2 of the SCM Agreement governs the standards and procedures to which states must adhere when engaging in a countervailing measures investigation. In order for the relevant state authorities to initiate an investigation, a member or members of an allegedly injured domestic industry must provide evidence as to the existence of (a) subsidized imports, (b) injury to the industry, and (c) a causal link between the subsidized imports and the alleged injury (i.e., the injury is caused by subsidized imports through the effects of their subsidies).²²⁷ Under paragraph (iv) of the Article, evidence as to the third evidentiary area (the causal link) includes (1) information on the evolution of the volume of the allegedly subsidized imports and (2) the effect of the imports on prices of the like product in the domestic market and consequent impacts on the domestic industry (as demonstrated by various factors and indices).²²⁸ Other basic information which must be provided in an application includes the identity of the applicant²²⁹ and a description of the volume and value of the domestic production of the like product by the applicant, a complete description of the allegedly subsidized product (including the names of the country or countries of origin, the identity of each known exporter or foreign producer, and a list of persons known to be importing the product in question), and evidence with regard to the existence, amount, and nature of the subsidy in question.²³⁰

227. SCM Agreement, *supra* note 141, art. 11.2.

228. Factors and indices include those articulated in Article 15.4, including actual and potential decline in output, sales, market share, profits, productivity, return on investments, or utilization of capacity and actual and potential negative effects on cash flow, inventories, employment, wages, growth, and ability to raise capital or investments. *Id.* art. 11.2(iv).

229. Under Article 11.4, an application to initiate a countervailing measures investigation must be made "by or on behalf of" the domestic industry. The Article stipulates that those domestic producers who support the petition must account for at least 25 percent of the total production of the domestic like product and 50 percent of the production of the domestic like product produced by that portion of the industry expressing support for or opposition to the application. *Id.* art. 11.4.

230. *Id.* art. 11.2(i)-(iii).

In the United States, the SCM Agreement's standards for countervailing measures investigations are enshrined in the Tariff Act of 1930, as amended, which also governs related antidumping investigations.²³¹ The imposition of duties is authorized by the Act in Section 701 (countervailing duties)²³² and Section 731 (antidumping duties)²³³ which detail the standards for the quasi-judicial inquiries²³⁴ engaged in by the U.S. Department of Commerce (Department of Commerce) and U.S. International Trade Commission (ITC) leading up to the point of potentially imposing tariffs.²³⁵ The process begins with a

231. Gary Clyde Hufbauer & Jared C. Woollacott, *Trade Disputes Between China and the United States: Growing Pains so Far, Worse Ahead?* 20 (Peterson Institute for International Economics Working Paper No. 10-17, 2010), available at <http://www.iie.com/publications/wp/wp10-17.pdf>.

232. 19 U.S.C. §1671.

233. 19 U.S.C. §1673.

234. It should be noted that the decision to impose countervailing and antidumping duties is made by civil servants in a quasi-judicial process that is "heavily insulated by law from political interference." Keith Bradsher & Diane Cardwell, *U.S. Slaps High Tariffs on Chinese Solar Panels*, N.Y. TIMES (May 17, 2012), <http://www.nytimes.com/2012/05/18/business/energy-environment/us-slaps-tariffs-on-chinese-solar-panels.html>.

235. In order to fully understand the investigative process at play here, it is important to master the interplay between the Department of Commerce and ITC and also the various standards employed by these governmental bodies. When a complaint is filed with the Department of Commerce, it has 20 days to decide whether to initiate an investigation. At the same time, the ITC holds a hearing to determine whether there is a *reasonable* indication that the domestic industry is suffering from the imports in question or is under threat from them (i.e., a low threshold inquiry), a determination which should be reached within 45 days. The Department of Commerce will then reach its preliminary determinations (40 days after the preliminary ITC decision for countervailing duties; 115 days after the preliminary ITC decision for antidumping duties), looking to whether there is a reasonable basis to believe that the subject imported merchandise is being sold or is likely to be sold at lower-than-fair value or whether a counteravailable subsidy is being provided with respect to the subject merchandise. Seventy-five days after this determination, the Department of Commerce is to issue a final ruling on the same questions. Contingent upon an *affirmative* final ruling by the Department of Commerce, the ITC is to issue a final determination (120 days after the Department of Commerce's initial or 45 days after its final determination, whichever is later) as to whether an industry in the United States is materially injured or is threatened with material injury, or the establishment of an industry in the United States is materially retarded, due to imports of the subject merchandise. Both the Department of Commerce and ITC must make affirmative final

petition being filed by a group of domestic firms²³⁶ that have allegedly been injured by subsidized and/or dumped (sold at “less than fair value”)²³⁷ imports into the United States.²³⁸ An applicant may file one or both a countervailing duty and antidumping petition and one or both petitions may involve multiple countries.²³⁹ In terms of the division of labor between the Department of Commerce and ITC, the former examines “trade and production data to determine whether export sales are made at ‘less than fair value’ in a dumping case . . . or whether they are subsidized in a countervailing duty case”; the latter determines “whether the exports sales in question cause or threaten material injury to the domestic industry.”²⁴⁰ If the Department of Commerce and ITC both make affirmative final determinations, the Department of Commerce can issue tariff orders; if either the Department of Commerce or the ITC make a negative final determination, no tariff orders will be issued.²⁴¹

The solar panel trade war between the United States and China provides a clear example of the ease of imposing countervailing duties on solar panel imports in a WTO member

determinations in order for tariffs to be ordered. *See Anti-Dumping and Countervailing Duty Handbook*, in U.S. INT’L TRADE COMM’N (Dec. 2008), available at www.usitc.gov/trade_remedy/documents/handbook.pdf; COMMERCE PRELIMINARILY FINDS DUMPING OF CRYSTALLINE SILICON PHOTOVOLTAIC CELLS, WHETHER OR NOT ASSEMBLED INTO MODULES FROM THE PEOPLE’S REPUBLIC OF CHINA, *supra* note 136.

236. Pursuant to the SCM Agreement, U.S. law requires that the petition be filed on behalf of the allegedly injured industry. Those domestic producers who support the petition must account for at least 25 percent of the total production of the domestic like product and 50 percent of the production of the domestic like product produced by that portion of the industry expressing support for or opposition to the petition. *Anti-Dumping and Countervailing Duty Handbook*, *supra* note 235.

237. Dumping refers to the practice of selling goods at less than home market price or cost of production. THE KEARNY ALLIANCE, *supra* note 26, at 3.

238. Hufbauer & Woollacott, *supra* note 231, at 20.

239. *Anti-Dumping and Countervailing Duty Handbook*, *supra* note 235.

240. Hufbauer & Woollacott, *supra* note 231, at 20.

241. COMMERCE PRELIMINARILY FINDS DUMPING OF IMPORTS OF UTILITY SCALE WIND TOWERS FROM THE PEOPLE’S REPUBLIC OF CHINA AND THE SOCIALIST REPUBLIC OF VIETNAM, U.S. DEP’T OF COMMERCE, INT’L TRADE ADMIN. (2012), <http://ia.ita.doc.gov/download/factsheets/factsheet-china-vietnam-uswt-ad-prelim-20120727.pdf>.

state. The narrative begins with the October 19, 2011 petitions filed by the founding members²⁴² of the Coalition for American Solar Manufacturing (CASM), a U.S. solar industry group with over 200 members.²⁴³ The countervailing duty petition alleged that China illegally subsidized its solar industry by “providing cash grants; discounted polysilicon and aluminum necessary for production of solar panels; heavily discounted land, power and water; multi-billion dollar preferential loans and directed credit; tax exemptions, incentives and rebates; export grants and insurance; and by holding its currency under value.”²⁴⁴ The sister antidumping petition alleged that Chinese solar panel manufacturers dumped their products on the U.S. market at margins of 49.88 percent to 249.96 percent below the cost of production.²⁴⁵ On December 5, 2011, the ITC announced its preliminary affirmative injury findings in both the countervailing and antidumping duty investigations.²⁴⁶ On January 27, 2012, the Department of Commerce issued a preliminary “critical circumstances” determination,²⁴⁷ which signaled that tariffs would be applied retroactively to those imports arriving up to 90 days before the initial tariffs determination.²⁴⁸ On March 20, 2012, the Department of Commerce made two important announcements. First, in clarifying the scope of the investigations, the Department of Commerce announced that imported products were covered so

242. Solar World, MX Solar US, Helios Solar Works, and four anonymous enterprises. THE KEARNY ALLIANCE, *supra* note 26, at 3.

243. Timothy C. Brightbill, *Tim Brightbill Comments while Commerce Deliberates on China Solar Case*, WILEY REIN LLP (Aug. 13, 2012), <http://www.wileyrein.com/newsroom.cfm?sp=inthenews&id=1172>.

244. THE KEARNY ALLIANCE, *supra* note 26, at 3.

245. *Id.*

246. *Id.*

247. A “critical circumstances” finding allows for the retroactive application of tariffs in the event of a surge of imports in the time period leading up to the initial determination to impose countervailing and/or antidumping duties. The idea is that a surge of imports facing no duties “undermines the prospective remedies going forward,” *ITC Finds Injury in China Solar Case, But Denies ‘Critical Circumstances,’* INSIDE U.S. TRADE (Nov. 8, 2012), <http://insidetrade.com/Inside-US-Trade/Inside-U.S.-Trade-11/09/2012/itc-finds-injury-in-china-solar-case-but-denies-critical-circumstances/menu-id-172.html>.

248. THE KEARNY ALLIANCE, *supra* note 26, at 4.

long as they contained Chinese solar cells (i.e., solar modules/panels produced in a third country containing Chinese solar cells) but that solar modules/panels produced in China from solar cells made in another country were not subject to the investigations.²⁴⁹ This announcement caused some discontent among CASM's members who felt that the limited scope of the investigations would allow Chinese manufacturers to evade tariffs through relocating the manufacturing of cells to a third country.²⁵⁰ Second, the Department of Commerce announced its affirmative preliminary determination in the countervailing duty investigation, imposing a countervailing duty of 2.90 percent, 4.73 percent, and 3.61 percent on Suntech Power, Trina Solar, and all other Chinese producers, respectively.²⁵¹ On May 17, 2012, the Department of Commerce announced preliminary

249. COMMERCE PRELIMINARILY FINDS DUMPING OF CRYSTALLINE SILICON PHOTOVOLTAIC CELLS, WHETHER OR NOT ASSEMBLED INTO MODULES FROM THE PEOPLE'S REPUBLIC OF CHINA, *supra* note 136.

250. Whether to broaden the scope of the investigations to cover Chinese solar panels containing cells produced in a third country was a major point of contention throughout. The typical manufacturing process for solar panel production involves 4 stages – polysilicon, wafer, cell, and module. What was purported was that by not applying tariffs to Chinese modules with cells produced in a third country, China would maintain upstream manufacturing processes (polysilicon and wafers) and outsource downstream (cell or cell and module) manufacturing processes to countries like Taiwan. The logic was that “if Chinese manufacturers’ cost of production is 18-30 percent lower than U.S. manufacturers’, cells made in Taiwan are still 10-22 percent cheaper than cells made in the U.S. And, Taiwan is close enough to China to warrant keeping the rest of the solar supply chain – which is one of China’s huge advantages – in China.” As stated in a September 27, 2012 letter by eight members of Congress to the Department of Commerce, this loophole “would appear to undermine the intent of the petition that was filed by the U.S. industry, and invite circumvention of the antidumping and countervailing duty orders.” THE KEARNY ALLIANCE, *supra* note 26, at 54; *Letter from Congress to Secretary Rebecca Blank*, INSIDE U.S. TRADE (Sept. 27, 2012), http://insidetrade.com/iwfile.html?file=sep2012%2Fwto2012_2054a.pdf.

251. The Department of Commerce focused its investigation on Suntech Power and Trina Solar “because the two companies are among the top solar cell and panel producers in the world and deemed representative of the Chinese solar manufacturing sector.” The third tariff, applied to all other Chinese producers, was a weighted average of Suntech Power and Trina Solar’s tariffs. THE KEARNY ALLIANCE, *supra* note 26, at 1; Ucilia Wang, *U.S. Sets (low) Initial Tariffs on Chinese Solar Panels*, GIGAOM (Mar. 20, 2012), <http://gigaom.com/cleantech/u-s-sets-low-initial-tariffs-on-chinese-solar-panels/>.

antidumping duties on Chinese manufacturers of crystalline silicon photovoltaic (CSPV) cells. These tariffs were much higher than the countervailing duties initially imposed, with Suntech Power and Trina Solar at 31.22 percent and 31.14 percent, respectively, a list of 59 other manufacturers (including LDK Solar, Canadian Solar, and Jiawei Solar China) at 31.18 percent, and all other Chinese producers at 249.96 percent,²⁵² making this one of the “biggest [antidumping decisions] in American history.”²⁵³ The Department of Commerce issued its final rulings on both the countervailing duty and antidumping investigations and also reaffirmed its “critical circumstances” determination and the scope of the investigations on October 10, 2012.²⁵⁴ As to the former investigation, Suntech Power and Trina Solar received countervailing duties of 14.78 percent and 15.97 percent, respectively (a large increase from the preliminary countervailing duties imposed),²⁵⁵ while all other Chinese producers received a duty of 15.24 percent.²⁵⁶ As to the latter investigation, Suntech Power and Trina Solar received

252. THE KEARNY ALLIANCE, *supra* note 26, at 4.

253. Keith Bradsher & Diane Cardwell, *U.S. Slaps High Tariffs on Chinese Solar Panels*, N.Y. TIMES, May 17, 2012, at B1, available at <http://www.nytimes.com/2012/05/18/business/energy-environment/us-slaps-tariffs-on-chinese-solar-panels.html>.

254. *Commerce Increases CVD Rates In Solar Case But Keeps Narrow Scope*, INSIDE U.S. TRADE (Oct. 12, 2012), <http://insidetrade.com/Inside-US-Trade/Inside-U.S.-Trade-10/12/2012/commerce-increases-cvd-rates-in-solar-case-but-keeps-narrow-scope/menu-id-172.html>.

255. “When asked why the final [countervailing duty] rates increased so dramatically, a Commerce official . . . said that the department issued additional questionnaires to the Chinese government and the Chinese companies under investigation after releasing its preliminary . . . rates last March. That process led Commerce to revise its findings when reaching a final determination One specific reason that the CVD rates increased so much . . . is that Commerce found the Chinese government to be uncooperative with its efforts to investigate preferential loans provided to companies in the solar sector. As a result, Commerce opted to apply ‘adverse facts’ to this portion of the [countervailing duty] investigation.” *Id.*

256. *Commerce Finds Dumping and Subsidization of Crystalline Silicon Photovoltaic Cells, Whether or Not Assembled into Modules from the People’s Republic of China*, U.S. DEP’T OF COMMERCE, INT’L TRADE ADMIN. 1 (October 10, 2012), available at http://ia.ita.doc.gov/download/factsheets/factsheet_prc-solar-cells-ad-cvd-finals-20121010.pdf.

antidumping duties of 31.73 percent and 18.32 percent, respectively, while the list of 59 other manufacturers and all other Chinese producers received antidumping duties of 25.96 percent and 249.96 percent, respectively.²⁵⁷ The saga finally reached its conclusion on November 7, 2012, with the ITC unanimously finding that U.S. industry is injured by subsidized and dumped imports of CSPV cells and modules from China.²⁵⁸ Interestingly, however, the ITC declined to adopt a “critical circumstances” finding, meaning that tariffs will not be applied retroactively to imports that entered the country (up to 90 days) prior to the Department of Commerce’s preliminary determinations.²⁵⁹

What this episode illustrates is the ease with which one state may go about imposing massive countervailing duties (here, 14.78 percent-15.97 percent)²⁶⁰ on solar panel and component part technology imports from another state. Two problems help to contribute to this reality. As to the first problem, in investigating the causal link between subsidized imports and injury to a domestic industry (pursuant to Article 11.2 of the SCM Agreement), it is very difficult to analyze the industry effects of an import being subsidized in a vacuum, separately from whatever other forces affect the viability of the industry.

257. *Id.*

258. *ITC Finds Injury in China Solar Case, But Denies ‘Critical Circumstances,’ supra* note 247.

259. “U.S. Customs and Border Protection [had] already been collecting preliminary duties via cash deposit or bond requirements, including on imports that . . . entered [the country] 90 days prior to the publication of the preliminary findings in both investigations in the Federal Register. Due to ITC’s rejection on critical circumstances, the money that was collected for imports that entered [the country] 90 days prior to the relevant publications will now be refunded.” *Id.*

260. This means that for every \$100 imported into the United States, Chinese solar panel manufacturers will be liable to pay an additional \$14.78-\$15.97. The Department of Commerce estimates that in 2011 the United States imported \$3,117,369,000 worth of goods covered by the countervailing duty/antidumping investigations, meaning that, at the low end of the tariff spectrum, Chinese producers would have been liable for \$460,747,130+ in countervailing duties alone (i.e., not including the higher antidumping duties) had tariffs been imposed in that year. Looking ahead, this will lead to serious price increases and effective market exclusion for those manufacturers that cannot avoid the tariff through relocation, etc. *See Wang, supra* note 251.

For example, while those on the side of U.S. solar panel manufacturers can cite factory shutdowns, bankruptcies, and work layoffs in support of their claims of material injury resulting from Chinese solar panel imports,²⁶¹ it is also undeniable that “there are economic, political and regulatory forces in the United States that are driving down the cost of solar,” independent of foreign imports.²⁶² These include competition from other energy sources such as natural gas and the various government support policies which make it more affordable to invest in renewable energy development.²⁶³ It is also clear that certain government programs that reward investment in renewable energy may, not surprisingly, lead to spikes in imports of competitively priced renewable energy technology.²⁶⁴ A surge in imports would have *some* impact on domestic producers of the like product regardless of the extent to which those imports were subsidized by the exporting country. Because line-drawing in the realm of economic effects is a difficult endeavor, however, a countervailing duty investigation is prone to relying more heavily on the existence of subsidized imports and injury to a domestic industry than on the causal nexus between the two phenomena (which requires counterfactual analysis, i.e., the domestic industry would not be injured if imports were not subsidized). An investigation’s *de facto* bent toward the former two criteria means that the road to obtaining countervailing duties remains essentially unobstructed for an allegedly injured industry, so long as the industry can muster evidence as to the presence of subsidized imports and its own financial woes. The second problem relates to the unbridled discretion of the government agencies which carry out

261. Doug Palmer, *U.S. Solar Panel Manufacturers Remain Optimistic As Court Nears Decision On Lawsuit*, HUFFINGTON POST (Oct. 3, 2012), http://www.huffingtonpost.com/2012/10/03/solarworld-solar-panels_n_1934522.html.

262. Christina Williams, *Trina Solar Disputes SolarWorld’s Claims on Imports*, SUSTAINABLE BUS. OREGON (Jan. 26, 2012), <http://sustainablebusinessoregon.com/articles/2012/01/trina-solar-disputes-solarworlds.html>.

263. Brian Wingfield, *SolarWorld Says Unfair China Policies Rate Import Penalties*, BLOOMBERG (Oct. 3, 2012), <http://www.bloomberg.com/news/2012-10-03/solarworld-says-china-s-unfair-subsidies-warrant-import-penalty.html>.

264. See Williams, *supra* note 262.

countervailing duty investigations. To illustrate, while the Department of Commerce initially imposed countervailing duties of between 2.90 percent and 4.73 percent, it more than tripled the amount of these tariffs in its final determination, in large part because the Chinese government was uncooperative with investigative efforts regarding preferential loans.²⁶⁵ While this adjustment is not necessarily against the standards of the SCM Agreement,²⁶⁶ it highlights the significant power that is wielded by investigative agencies and the potential for large swings in their findings, leading to questions of fairness and transparency, especially in politically-charged circumstances (which may pressure agencies to apply countervailing duties to imports which otherwise are not deserving of them).²⁶⁷

Additionally, there are two negative implications resulting from the fact that countervailing duties can be so easily applied in the case of solar panel and component part technology imports. The first negative implication is that, in situations such as the one at hand, where the importing and exporting states have both promulgated similar non-trade-distorting government support measures for solar energy development, the imposition of a countervailing duty by the importing state undermines the foundations of the global subsidies regime. It does so by demonstrating ostensible compliance with the regime's rules in adopting what would otherwise be considered purely mercantilist policy.²⁶⁸ Hypothetically, for example, if the United States and China both provided R&D support to solar panel manufactures, and in its countervailing duty investigation against Chinese solar panel imports the ITC found that such support was leading to the material injury of U.S. firms,

265. See *supra* note 255 and accompanying text.

266. Article 12.7 of the SCM Agreement states that "in cases in which any interested Member or interested party refuses access to, or otherwise does not provide, necessary information within a reasonable period or significantly impedes the investigation, preliminary and final determinations, affirmative or negative, may be made on the basis of the facts available." SCM Agreement, *supra* note 141, art. 12.7.

267. Resulting from the high-profile bankruptcies of Energy Conversion Devices, SpectraWatt, Evergreen Solar, and Solyndra. Wang, *supra* note 72.

268. Mercantilist policies discriminate between foreign and domestic firms within a country. Ghosh, *supra* note 21.

influencing the ITC to impose countervailing duties, this would lead to the conclusion that the United States, in adopting the countervailing measures, was behaving in a legitimate fashion; an equally inescapable conclusion, however, is that the United States promulgated a mercantilist policy. In essence, because of the design of the SCM Agreement, an industry can effectively petition its home state to adopt mercantilist measures which discriminate between foreign and domestic firms, in pursuit of its own interests and in ostensible harmony with the rules of the global subsidies regime. Where trade-distorting measures (i.e., export subsidies, local content requirements, and certain grants, loans, etc.) are in effect in an exporting state, it is clear that countervailing duties are a legitimate way to level the playing field. What is undermining, however, is the use of the global subsidies regime as a façade for enacting mercantilist policies in response to minimally or non-trade-distorting measures in another state.

The second negative implication is that the practice of imposing countervailing duties in situations where they are not merited encourages tit-for-tat behavior among states. The basic idea here is that when an exporting state feels that it has been wronged by an importing state's application of countervailing duties, the exporting state is more likely to take retaliatory action against related or other exports from the importing state, in addition to trying to get the duties removed. The outcome of widespread tit-for-tat behavior is clearly a poor one for the global expansion of the solar industry, leaving high tariff barriers in place across the primary players in solar energy development. In the U.S.-China solar panel dispute, China has already taken two distinct courses of action in furtherance of a tit-for-tat agenda. The first course of action has been pursuing internal investigations against U.S. government support measures for renewable energy development. In November 2011, the Ministry of Commerce initiated an investigation on behalf of Chinese industry associations, looking into six renewable energy projects in five U.S. states,²⁶⁹ concluding in August 2012 that the

269. The projects under investigation included a solar power venture in Massachusetts, a wind power venture in Ohio, and unidentified renewable

subsidies connected to those projects violated WTO rules (specifically, Article 3 of the SCM Agreement)²⁷⁰ and served as non-tariff barriers to Chinese exports to the United States.²⁷¹ In July 2012, the Chinese government also launched an investigation into whether U.S. polysilicon (the main ingredient in solar panels) manufacturers were selling goods at below the cost of production in China.²⁷² As of July 2013, the Ministry of Commerce imposed tariffs that could exceed 50 percent on imported solar-grade polysilicon from the United States.²⁷³ The second course of action has been pursuing recourse through the WTO. On May 25, 2012, just a week after the Department of Commerce imposed initial antidumping duties on Chinese solar panel imports, China took issue with the scope and conduct of the U.S. investigations and also the Department of Commerce's handling of China as a non-market economy, before the WTO.²⁷⁴ Here, China is seeking a WTO declaration invalidating the imposition of countervailing and antidumping duties on its solar imports into the United States, which if obtained, would escalate

energy projects in Washington, New Jersey, and California, *World Trade News*, WORLD TRADE ORG. (Aug. 20, 2012), www.wtocommerce.org/tw/SmartKMS/fileviewer?id=127548.

270. *MOFCOM Announcement on Final Conclusions on Trade Barrier Investigation of American Partial Support Policies and Subsidy Measures on Renewable Energy Industry*, MINISTRY OF COMMERCE OF THE PEOPLE'S REPUBLIC OF CHINA (Aug. 22, 2012), <http://english.mofcom.gov.cn/aarticle/newsrelease/significantnews/201208/20120808297289.html>.

271. *World Trade News*, *supra* note 269.

272. Diane Cardwell, *U.S. Raises Tariffs on Chinese Wind-Turbine Makers*, N.Y. TIMES, July 27, 2012, at B4, available at http://www.nytimes.com/2012/07/28/business/energy-environment/us-raises-tariffs-on-chinese-wind-turbine-makers.html?_r=0.

273. "[China's] decision to tax United States companies heavily . . . is being widely seen as retaliation for the American trade case, originally brought in 2011." Diane Cardwell, *China's Feud with West on Solar Leads to Tax*, N.Y. TIMES, July 18, 2013, at B1, available at http://www.nytimes.com/2013/07/19/business/energy-environment/chinas-feud-with-west-on-solar-leads-to-tax.html?_r=0.

274. China challenged the "rebuttable presumption" allegedly established and applied by the Department of Commerce that majority government ownership is sufficient to treat an enterprise as a "public body." *Dispute Settlement: Dispute DS437 (United States – Countervailing Duty Measures on Certain Products from China)*, WORLD TRADE ORG. (Oct. 12, 2012), http://www.wto.org/english/tratop_e/dispu_e/cases_e/ds437_e.htm.

this burgeoning trade war to a new level.

VII.

AN ENVIRONMENTAL GOODS AND SERVICES CARVE-OUT

The most desirable option available to remedy the shortcomings of the Subsidies and Countervailing Measures Agreement (SCM Agreement) is to create a comprehensive environmental goods and services agreement (EGSA) which covers both tariff and non-tariff barriers to trade and exempts explicitly-defined government support measures for renewable energy development from coverage under the SCM Agreement. This approach avoids the textual complications of the Subsidies and Countervailing Measures Agreement (SCM Agreement) and the General Agreement on Tariffs and Trade (GATT) by opening up policy space through a new instrument with a specific and targeted focus. It also signifies the importance and urgency of reaching consensus on environmental goods and services questions, as is suggested by the Doha Round mandate which governs the current and ongoing global trade talks (calls for “the reduction, or as appropriate, elimination of tariff and non-tariff barriers to environmental goods and services”).²⁷⁵ With the passing of a region-wide environmental goods agreement for Asia-Pacific Economic Cooperation (APEC) members in September 2012 (Annex C of the Vladivostok Declaration), it appears to be only a matter of time before WTO members take another look at this approach and give serious thought to adopting a global, multilateral EGSA.²⁷⁶ While several political hurdles stand before the adoption of a global EGSA, WTO members should nonetheless engage in a serious effort to expand upon APEC’s progress by concluding a *binding* EGSA which also incorporates solutions to non-tariff barrier questions (most

275. Janzen, *supra* note 139, at 3; World Trade Organization, Ministerial Declaration of 14 November 2001, WT/MIN(01)/DEC/1 746 (2002), available at http://www.wto.org/english/thewto_e/minist_e/min01_e/mindecl_e.htm#tradeenv ironment.

276. See Lamy *Focused on Delivering Package of Outcomes by Next Ministerial*, INSIDE U.S. TRADE (Oct. 4, 2012), <http://insidetrade.com/Inside-US-Trade/Inside-U.S.-Trade-10/05/2012/lamy-focused-on-delivering-package-of-outcomes-by-next-ministerial/menu-id-710.html>.

importantly, those relating to subsidies). Concluding a global EGSA would be a landmark accomplishment for the WTO and ensure that its member states have sufficient flexibility to promote solar energy development through non-trade-distorting measures.

While sectoral-based trade liberalization compacts are nothing new,²⁷⁷ the APEC environmental goods agreement is significant because of the lack of progress in promulgating a global agreement within the realm of environmental goods and services. For example, while the United States and European Union submitted a joint proposal at the WTO in 2007 calling for the elimination of trade barriers facing goods and services directly related to mitigating climate change,²⁷⁸ this was shot down because of a host of concerns emanating from developing states (including lack of transparency in the process of selecting goods eligible for tariff reductions and the exclusion of biofuels).²⁷⁹ At its core, the APEC agreement is a *non-binding*

277. For example, the Information Technology Agreement (ITA), promulgated in 1996, introduced a technology-specific free trade pact that gradually eliminated all tariffs on eight categories of information and communication technology products. Stepp & Atkinson, *supra* note 134, at 21.

278. The proposal advanced a two-tier approach to trade liberalization in environmental goods and services. The first tier was designated for goods and services “directly linked to addressing climate change” as well as “other relevant goods that enjoy[ed] consensus on the basis of their clear environmental benefit.” The first tier included some 43 goods identified by the World Bank as “climate-friendly,” including solar collectors and system controllers, wind-turbine parts and components, stoves, grates and cookers, and hydrogen fuel cells. As to services, the first tier removed obstacles to foreign competition for “environmental services” (i.e., air pollution and climate control testing and analysis) and “energy-related services” (i.e., energy performance-oriented engineering and maintenance services), among others. The second tier was reserved for a broad list of environmental goods and services including a list of over 150 goods and climate-related services in construction, architecture, engineering, and integrated engineering, among others. *EU, US Call for Eliminating Trade Barriers to Climate-Friendly Goods and Services*, INT’L CENTRE FOR TRADE AND SUSTAINABLE DEV. (Dec. 18, 2007), <http://ictsd.org/i/news/biores/9151/>.

279. Developing states had three primary areas of concern. First, developing states questioned how goods eligible for tariff reductions had been selected, taking issue with a perceived lack of transparency. Second, several states expressed concern that many products slated for tariff reductions under the banner of “environmental goods and services” were of export interest to

compact to reduce tariffs to below 5 percent on a list of 54 “green” goods by the end of 2015.²⁸⁰ Key goods covered by the agreement are renewable and clean energy technologies (including solar panels and gas and wind turbines), wastewater treatment technologies (including filters and ultraviolet (UV) disinfection equipment), air pollution control technologies (including soot removers and catalytic converters), solid and hazardous waste treatment technologies (including waste incinerators and crushing and sorting machinery), and environmental monitoring and assessment equipment (including air and water quality monitors).²⁸¹ It is estimated that APEC regional trade in these products totaled \$185 billion in 2010 and that the agreement will lead to even more trade by reducing tariffs as high as 20 percent (on solid and hazardous waste treatment technologies; environmental monitoring and assessment equipment) and even 35 percent (on renewable and clean energy technologies)²⁸² among APEC members.

In October 2012, WTO Director-General Pascal Lamy cited the APEC agreement, suggesting that “WTO members should ‘build’ on it” through Doha Round negotiations.²⁸³ While multilateralizing the APEC agreement and building upon it faces certain political hurdles, especially from developing countries,²⁸⁴ WTO member states should nonetheless engage in a

developed but not developing countries. Third, and relatedly, Brazil and other large biofuel-producing states took significant issue with the fact that biofuels and biofuel manufacturing equipment were excluded from the list. *Id.*

280. *APEC Countries Unveil List of ‘Green’ Goods, Pledge Tariff Cuts by 2015*, INSIDE U.S. TRADE (Sept. 13, 2012), <http://insidetrade.com/Inside-US-Trade/Inside-U.S.-Trade-09/14/2012/apec-countries-unveil-list-of-green-goods-pledge-tariff-cuts-by-2015/menu-id-710.html>.

281. *APEC List of Environmental Goods: Promoting Exports, Creating Jobs, and Advancing Green Growth and Sustainable Development*, U.S. TRADE REPRESENTATIVE (September 2012), <http://www.ustr.gov/about-us/press-office/fact-sheets/2012/september/apec-environmental-goods>.

282. *Id.*

283. *Lamy Focused on Delivering Package of Outcomes by Next Ministerial*, *supra* note 276.

284. The process of multilateralizing the APEC agreement is likely to face opposition from developing states such as India that have opposed a broad agreement on environmental goods and services in the Doha Round. These states may use their votes on an EGSA as leverage in order to obtain

serious effort to conclude a comprehensive EGSA. This agreement should be *binding* in order to reflect the seriousness and urgency of combating climate change and to concretize states' commitments to addressing the issues of tariffs and non-tariff barriers in the context of vital environmental goods and services. The agreement should expand upon APEC's work by covering non-tariff barriers, specifically subsidies, in recognition of the importance of government measures such as R&D support, tax incentives, and other non-trade-distorting policies in promoting renewable energy development. Furthermore, in defining which government support measures are permissible, the EGSA should explicitly exempt these from coverage under the SCM Agreement, making them non-actionable (multilaterally or unilaterally; akin to the former Article 8 exemptions).²⁸⁵ While the WTO has considered EGSA's before,²⁸⁶ APEC's model serves as a good starting point from which to reengage the idea of a global EGSA and in the face of the clearest imperatives for more aggressive state-sponsored initiatives to combat climate change.

In moving forward with the idea of building on the APEC agreement, several obstacles need to be taken into account. While not insurmountable, these obstacles constitute the baseline limitations of a future comprehensive EGSA and must be grappled with in charting a course for negotiations. Most of these obstacles are related to tariff barriers to trade but will also likely affect discussions on non-tariff barriers. The first and most significant obstacle is timing. Considering that discussions on multilateralizing the APEC agreement cannot proceed with any degree of seriousness until APEC members complete the implementation phase of the agreement,²⁸⁷ and that the deadline

concessions in other areas of the Doha talks and refuse to agree to anything before those concessions are delivered. *WTO Members Face Hurdles To 'Multilateralizing' APEC Green Goods Deal*, INSIDE U.S. TRADE (Nov. 2, 2012), <http://insidetrade.com/Inside-US-Trade/Inside-U.S.-Trade-11/02/2012/wto-members-face-hurdles-to-multilateralizing-apec-green-goods-deal/menu-id-172.html>.

285. See Janzen, *supra* note 139, at 3-4.

286. See Peat, *supra* note 177, at 17.

287. One of the most important parts of the implementation phase consists of states choosing which specific products within the 54 umbrella categories of

for implementation is 2015, there is little chance for thorough discussion on this topic in the next year.²⁸⁸ In light of the modest progress of the WTO in concluding a basic trade facilitation (i.e., customs) agreement at the Bali Ministerial in December 2013,²⁸⁹ it is likely that a more contentious agreement such as an EGSA would demand considerable pre-planning and a lengthy negotiations process, despite support from significant global trade players.²⁹⁰

The second obstacle is the nature of the APEC agreement. APEC members concluded a non-binding political agreement and transitioning this deal into a binding multilateral arrangement could meet staunch objection from states such as China which are at most cautiously optimistic about the APEC EGSA in the first place.²⁹¹

The third obstacle is the polarization of interests between developed and developing states, a consistent problem in environmental and trade negotiations. Developing states such as India “have opposed a broad commitment on environmental goods and services in the context of the Doha round.”²⁹² For example, while developed states have pressed for broader definitions of “environmental goods” and “environmental services,” developing countries have sought to narrow the

goods will be eligible for tariff reductions. *WTO Members Face Hurdles To ‘Multilateralizing’ APEC Green Goods Deal*, *supra* note 284.

288. Several trade experts have noted that APEC countries do not appear to be rushing to complete the technical work of the agreement. *Id.*

289. *See Doha Delivers*, THE ECONOMIST (Dec. 9, 2013), <http://www.economist.com/blogs/freexchange/2013/12/world-trade-organisation>.

290. According to President Barack Obama’s Climate Action Plan, “the U.S. will work with trading partners to launch negotiations at the World Trade Organization towards global free trade in environmental goods, including clean energy technologies such as solar, wind, hydro and geothermal. The U.S. will build on the consensus it recently forged among the 21 Asia-Pacific Economic Cooperation (APEC) economies in this area.” EXEC. OFFICE OF THE PRESIDENT, THE PRESIDENT’S CLIMATE ACTION PLAN 19 (2013), http://insidetrade.com/iwfile.html?file=jun2013%2Fwto2013_1996a.pdf.

291. *WTO Members Face Hurdles To ‘Multilateralizing’ APEC Green Goods Deal*, INSIDE U.S. TRADE (Nov. 12, 2012), <http://insidetrade.com/Inside-US-Trade/Inside-U.S.-Trade-11/02/2012/wto-members-face-hurdles-to-multi-lateralizing-apec-green-goods-deal/menu-id-710.html> (last visited Mar. 30, 2014).

292. *Id.*

classifications due to concerns about products with multiple end-uses being diverted to non-environmental purposes.²⁹³ It is also possible that developing states will use their positions on environmental goods and services to seek concessions in other areas of the Doha talks, which will slow down the negotiation process further.²⁹⁴

Taking these limitations into account, the benefits which would result from successfully concluding a comprehensive EGSA still merit serious contemplation as to how to build on the accomplishments of the APEC agreement. As an interim step, it might be possible to pressure WTO member states into making political commitments to reduce tariffs on the 54 environmental goods to 5 percent by 2015 in order to match the APEC agreement. Because both developed and developing states have found it necessary to employ government support measures for renewable energy development, there is at least the prospect that this discussion will be less controversial than that on tariff barriers. Additionally, as the discussion on non-tariff barriers will be limited to the context of climate change and environmental protection, there should be less controversy than would be the case if serious thought was given to reinstating the much broader Article 8 of the SCM Agreement. Finally, considering the controversies which typically arise over the process of selecting goods and services eligible for inclusion in EGSA's, the negotiators of the comprehensive EGSA should consider the possibility of delegating this decision-making process to a specialized, non-trade body such as the Executive Committee²⁹⁵ of the Technology Mechanism²⁹⁶ of the United

293. From the perspective of developing states, it would be an unfair advantage to developed states to allow such divertible products to enter into developing markets at a lower tariff rate than would otherwise be the case. *Environmental Tariffs and the WTO*, WASHINGTON TRADE DAILY, <http://www.washingtontradedaily.com/>.

294. *WTO Members Face Hurdles To 'Multilateralizing' APEC Green Goods Deal*, *supra* note 284.

295. The Executive Committee of the Technology Mechanism is composed of 20 high level expert members representing and elected by various regional blocs. Functions of the Executive Committee include to provide an overview of technological needs and analysis of policy and technical issues related to the development and transfer of technologies for mitigation and adaptation

Nations Framework Convention on Climate Change (UNFCCC), which “could serve as a [science-based] platform for identifying types of cleantech funding that, according to the UN membership, should be protected from challenge.”²⁹⁷ All in all, there are ways to limit the impacts of the obstacles standing before the realization of a comprehensive EGSA. These obstacles should not sour expectations as to what can be achieved through the course of negotiations and are noted for the purpose of guiding future discussions.

VIII.

CONCLUSION

There are several important takeaway messages contained in this comment. The first two are related to the two premises discussed briefly in Part II—that solar energy can play an important part in a state’s climate change mitigation measures, and that having a robust solar presence requires supporting solar manufacturers or consumers of solar technologies or those providing electricity from solar energy resources. While private investors have shown increasingly more interest in solar energy projects, this interest has in large part been spurred by financial incentives in place by government and there is no reason to believe that solar energy will continue growing without that assistance. A third and related takeaway is that, beyond any

measures, to promote and facilitate collaboration on the development and transfer of technologies for mitigation and adaptation between governments, and to recommend actions to address the barriers to technology development and transfer in order to enable enhanced action on mitigation and adaptation. *Technology Executive Committee*, UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE, http://unfccc.int/ttclear/pages/tec_home.html (last visited Feb. 23, 2014).

296. Article 11 of the UNFCCC Copenhagen Accord (December 2009) calls for the establishment of a Technology Mechanism to accelerate technological development and transfer in support of coordinated adaptation and mitigation measures in response to climate change. The Technology Mechanism was officially established at the 16th session of the Conference of the Parties in Cancun (November-December 2010) and consists of both an Executive Committee and Climate Technology Center and Network component. Janzen, *supra* note 139, at 3.

297. *Id.*

theoretical ideas about subsidies for solar, *experience* shows that a pronounced commitment to solar energy development leads to the growing availability and use of solar energy. The experiences of the United States and China provide demonstrative examples. While China still has a long way to go in expanding its own domestic market for solar energy, it is growing, and China has made a significant contribution to solar energy at the global level through its manufacturing prowess and ability to provide low-cost solar panels. A fourth takeaway message is that the Subsidies and Countervailing Measures Agreement provides inadequate protection for states' necessary and non-trade-distorting support measures for solar. States should not have to worry about international trade consequences when providing R&D support or tax incentives for solar energy development but this is the case under the current regime. Accordingly, a global environmental goods and services agreement is desperately needed as a clarification endeavor for states to determine what government support measures for renewable energy development are permissible.

We are no longer in an era where the tacit agreement among states is that public support for energy be allowed provided that only the most overt protectionist tendencies be kept at bay.²⁹⁸ States are playing by a different set of rules as to renewable energy development and frivolous subsidies challenges are a threat so long as they remain potentially viable under the Subsidies and Countervailing Measures Agreement. WTO members should look long and hard at what the Asia-Pacific Economic Cooperation has accomplished in its environmental goods agreement and promulgate a global environmental goods and services agreement that creates carve-outs for renewable energy subsidies. This would be a landmark achievement for the WTO and is a necessary step in the global fight against climate change.

298. Rubini, *supra* note 4, at 32.