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ARTICLE

The WTO Agreements and the Regulation of Energy Markets: Is There a Good FiT?

RAVI SOOPRAMANIEN*

I. INTRODUCTION

A FiT regulation is a form of price regulation, in which government entities pay energy producers (generators) a fixed or premium rate for electricity, determined up front on the basis of costs and profit expectations, for a fixed period, usually of between 15-25 years.¹ FiT regulations obviate the need for a power purchase agreement (PPA) with qualifying generators.² Such generators are typically paid the published FiT rates irrespective of how much energy they can actually generate.³ RPS and EA regulations, in contrast, are both forms of quantity regulation. In a RPS regulation, private (retail) buyers are required to purchase a specified amount (a percentage) of electricity from renewable

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1. Toby Couture et al., *A Policymaker's Guide to Feed-in Tariff Policy Design* 72 (NREL Technical Report NREL/TP-6A2-44849, 2010), <http://www.nrel.gov/docs/fy10osti/44849.pdf> [<https://perma.cc/G8E6-U3ZK>].

2. *Id.*

3. These prices sometimes allow some flexibility for the government purchaser to vary the price over time. See JOEL B. EISEN ET AL., *ENERGY, ECONOMICS AND THE ENVIRONMENT: CASES AND MATERIAL* 751-53 (4th ed. 2015).

energy (RE) sources.⁴ Compliance with a RPS regulation is monitored through the exchange of Renewable Energy Credits (RECs), which measure the generation and environmental attributes of the RE source.⁵ RECs are usually tradable.⁶ A RPS regulation may compel a retail buyer to negotiate a PPA with a qualifying generator.⁷ However, such retailer may choose to comply by purchasing RECs, or paying penalties instead for non-compliance.⁸ An EA regulation is something of a hybrid, used by developing countries where the government is the dominant purchaser of electricity.⁹ To generate more value for money than possible under a FiT regulation, the government in question invites competitive solicitations from qualifying generators seeking to provide electricity generation, under a PPA, on the basis of capacity for a fixed duration.¹⁰

Before discussing these regulations further, it is useful to recall that the energy narrative is one inextricably linked with the development of public international law over the past century. The creation of the continental shelf regime, which kick-started the development of the law of the sea, was driven by offshore exploitation of oil and gas reserves.¹¹ Expropriation, one of the earliest customary international law norms to emerge under the Statute of the International Court of Justice,¹² developed largely

4. C.G. Dong, *Feed-In Tariff vs. Renewable Portfolio Standard: An Empirical Test of Their Relative Effectiveness in Promoting Wind Capacity Development*, 42 ENERGY POL'Y 476 (2012).

5. KARLYNN CORY ET. AL., NAT'L RENEWABLE ENERGY LAB., FEED-IN TARIFF POLICY: DESIGN, IMPLEMENTATION, AND RPS POLICY INTERACTIONS 8-12 (2009), <http://www.nrel.gov/docs/fy09osti/45549.pdf> [<https://perma.cc/E8JT-F4CR>].

6. See *What Are Renewable Energy Certificates (RECs)?*, BONNEVILLE ENVTL FOUND., <http://www.b-e-f.org/learn/what-are-renewable-energy-certificates> [<https://perma.cc/U5LV-FR62>].

7. See EISEN, *supra* note 3, at 758-65.

8. *Id.*

9. LUIZ T. A. MAURER & LUIZ A. BARROSO, ELECTRICITY AUCTIONS: AN OVERVIEW OF EFFICIENT PRACTICES 77-90 (2011), <https://openknowledge.worldbank.org/bitstream/handle/10986/2346/638750PUB0Exto00Box0361531B0PUBLIC0.pdf?sequence=1> [<https://perma.cc/G3UJ-F74Z>].

10. *Id.*

11. Thomas Cottier, *Renewable Energy and WTO Law: More Policy Space or Enhanced Disciplines?*, 5 RENEWABLE ENERGY L. & POL'Y REV. 40, 41 (2014).

12. Statute of the International Court of Justice, art. 38(1), June 26, 1945, 59 Stat. 1031, T.S. No. 993.

in the context of disciplining the nationalizations of energy infrastructure, and stabilizing energy-related concessions granted to foreign investors. The United Nations Framework Convention on Climate Change (UNFCCC), and its various accords and protocols, have all sought to curb states' use of fossil fuel based energy sources.¹³ In the absence of a dedicated multilateral energy organization, a global patchwork of energy regulation has been split between the Organization of the Petroleum Exporting Countries (OPEC), the Energy Charter (ECT), the International Atomic Energy Agency (IAEA), and the WTO.¹⁴ This paper focuses on the role of the WTO in global energy regulation. The WTO, through its various Agreements, sets binding disciplines on the cross-border trade in goods and services among WTO Member countries. With 164 Members in its ranks, and Iran and Algeria as the only two non-Members of note,¹⁵ it can be said that the WTO, directly or indirectly, influences the modalities of global trade in goods and services.

RE disputes are growing steadily in the WTO. In order to understand how WTO jurisprudence affects the problem, it is useful to classify cases in two waves that followed a period marked by what some scholars characterize loosely as the RE armistice.¹⁶ The first wave, prompted by low-cost Asian RE equipment, featured challenges to, or alleged reprisals against trade remedy measures imposed by the United States on, Indian and Chinese solar and wind RE electricity generating equipment.¹⁷ The second

13. See Cottier, *supra* note 11.

14. The International Energy Agency linked with the Organisation for Economic Co-operation and Development (OECD) also bears mentioning. In recent years, it has grown into the world's default research forum on energy matters. See INT'L ENERGY AGENCY, <https://www.iea.org> [<https://perma.cc/HW2D-ZFAT>].

15. *Members and Observers*, WORLD TRADE ORG. (July 26, 2016), https://www.wto.org/english/thewto_e/whatis_e/tif_e/org6_e.htm [<https://perma.cc/V7Y2-GUNV>].

16. Luca Rubini, *Ain't Wastin' Time No More: Subsidies for Renewable Energy, The SCM Agreement, Policy Space, and Law Reform*, 15(2) J. INT'L ECON. L. 525, 555-58 (2012).

17. Appellate Body Report, *United States—Countervailing Duty Measures on Certain Products from China*, WTO Doc. WT/DS437/AB/R (adopted Jan. 16, 2015), https://www.wto.org/english/tratop_e/dispu_e/437abr_e.pdf [<https://perma.cc/MU9G-L9BB>]; Appellate Body Report, *United States—Countervailing and Anti-Dumping Measures on Certain Products from China*, WTO Doc. WT/DS449/AB/R

wave of disputes has, more or less, flipped the script, as Asian states in turn are challenging local content rules and feed-in-tariffs maintained by developed states.¹⁸

This paper focuses on this second wave of WTO RE disputes. It will assess whether or to what extent policy instruments requiring increased use of RE in national electricity grids, notably FiT, RPS and EA regulations, are consistent with WTO legal obligations. Part II of this paper will discuss energy markets, and the issues that are presented through incorporation of RE into national grids. Part III will shift focus to the WTO. It will introduce the WTO and relevant WTO law, with a particular emphasis on the Appellate Body's conclusion in its *Canada – RE/FiT* report. Part IV will assess whether or to what extent WTO Member States can enact FiT, RPS and EA regulations without fear of possible WTO litigation. Part V will conclude with recommendations.

(adopted July 22, 2014), https://www.wto.org/english/tratop_e/dispu_e/449abr_e.pdf [<https://perma.cc/9ZDQ-T8PP>]; Appellate Body Report, *China–Countervailing and Anti-Dumping Duties on Grain Oriented Flat-Rolled Electrical Steel from the United States*, ¶ 6251, WTO Doc. WT/DS414/AB/R (adopted Oct. 18, 2012), https://www.wto.org/english/tratop_e/dispu_e/414abr_e.pdf [<https://perma.cc/Z5WW-TSLP>]; *Dispute Settlement: Dispute DS419, China–Measures Concerning Wind Power Equipment*, WORLD TRADE ORG., https://www.wto.org/english/tratop_e/dispu_e/cases_e/ds419_e.htm [<https://perma.cc/8ANB-D5VX>] (in consultation on December 22, 2010; amicably settled).

18. Appellate Body Reports, *Canada–Certain Measures Affecting the Renewable Energy Generation Sector, Canada – Measures Relating to the Feed-in Tariff Program*, ¶ 7, WTO Doc. WT/DS412/AB/R, WT/DS426/AB/R, (adopted May 24, 2013), https://www.wto.org/english/tratop_e/dispu_e/412_426abr_a_e.pdf [<https://perma.cc/Q4GV-L7XY>] [hereinafter Appellate Body Report, *Canada – Renewables/FiT*]; *Dispute Settlement: Dispute DS452, European Union and Certain Member States—Certain Measures Affecting the Renewable Energy Generation Sector*, WORLD TRADE ORG., https://www.wto.org/english/tratop_e/dispu_e/cases_e/ds452_e.htm [<https://perma.cc/6KG2-VTED>] (in consultation on November 5, 2012; panel request pending). Bucking the trend, the United States successfully challenged India's use of local content requirements in its solar industry. See Panel Report, *India–Certain Measures Relating to Solar Cells and Solar Modules*, WTO Doc. WT/DS456/R (Feb. 24, 2016), https://www.wto.org/english/tratop_e/dispu_e/456r_e.pdf [<https://perma.cc/N9GB-JPUH>]. India reportedly threatened to request consultations in relation to analogous United States practice. See Tom Miles, *India Questions U.S. Green Energy Incentives at WTO*, REUTERS, (Apr. 17, 2013, 4:53 PM), <http://www.reuters.com/article/ahh-india-usa-trade-idUSL5N0D44K120130417> [<https://perma.cc/H4BE-6CXU>].

II. THE ENERGY MARKET

A. Electricity

Electricity production is organized around four features that make electricity a unique commodity.¹⁹ All energy grids must accommodate these features in order to function properly. First, electricity cannot be practically stored.²⁰ It must be generated, as it is needed.²¹ Managing electricity output to handle changes in demand (load), accordingly, present logistical challenges. The result is that the wholesale price of electricity can vary considerably in the course of a day. Second, electricity takes the path of least resistance.²² This means that there is no defined path for electricity delivery: customers cannot choose the electricity that they want. Indeed, every kilowatt-hour (kWh) of electricity consumed by a customer is physically identical.²³ It bears mentioning, in this regard, that customers, inasmuch as they purchase so-called “green” energy tariffs, are not purchasing the direct distribution of RE-generated electricity into their homes. Rather, they are usually paying for their energy supplier to invest

19. SALLY HUNT, MAKING COMPETITION WORK IN ELECTRICITY 30-32 (2002).

20. *Id.* at 30.

21. Pumped hydro is sometimes referred to as a form of electricity storage. *Id.* at 30 n.11. However, what is “stored” is not electricity, but water, which is saved for use in peak hours. *Id.* This water is propelled through a turbine-generator to create electricity. *Id.* The past few years has seen innovations in storage – not least of which Tesla Motor’s 6.4 kWh Powerwall units. See Seth Weintraub, *Tesla Begins Alerting 1st General US Powerwall Customers, Installations Starting in June*, ELEKTREK (Apr. 8, 2016), <http://electrek.co/2016/04/08/tesla-begins-alerting-1st-general-us-powerwall-customers-installations-starting-in-june> [<https://perma.cc/4ATL-2ZF8>]. However, such innovations have yet to reach scale – Tesla reportedly scrapped plans to introduce a more powerful 10 kWh unit, as “the economics didn’t work”, and is rolling out the Powerwall on a limited basis in June 2014 to owners of Tesla vehicles. *Id.* The 6.4 kWh unit is scheduled to retail for \$3000 a pop, once it is released. *Id.*

22. See HUNT, *supra* note 19, at 30-31.

23. William Hogan, *Overview of the Electricity System in the Province of Ontario* (December 11, 2011), at 2, submitted as Exhibit CDA-2 in Panel Reports, *Canada – Certain Measures Affecting the Renewable Energy Generation Sector / Canada – Measures Relating to the Feed-in Tariff Program*, WTO Docs. WT/DS412/R, WT/DS426/R (adopted 24 May 2013, as modified by Appellate Body Reports WT/DS412/AB/R and WT/DS426/AB/R), https://www.wto.org/english/tratop_e/dispu_e/412_426abr_e.pdf [<https://perma.cc/CH84-JH92>] [hereinafter Panel Report, *Canada – Renewables/FiT*].

in producing more RE energy, or carbon offsets. Third, the grid is interconnected: the introduction of transmission lines in one part of the grid can impact flows elsewhere, and may even destroy capacity on a grid.²⁴ The interconnected nature of the grid makes it particularly vulnerable to external events, such as the sudden loss of output at a generation plant or a dramatic (and instantaneous) change in consumer consumption.²⁵ Fourth, electricity travels at the speed of light.²⁶ If the precise supply of electricity fails to meet demand at any given moment, the frequency falls and, if many loads fail, this can lead to a blackout.²⁷ The grid, accordingly, must be managed by a single system operator capable of calling on generators to raise or lower supply to meet changes in loads in a matter of seconds.²⁸

B. Electricity Markets

Since its commercialization in the late 19th century, electricity was vertically integrated, and operated either by the state, or by private operators as public utilities, a form of regulated monopoly.²⁹ Electricity markets proved resilient to competitive regulation because, broadly speaking, regulators simply could not fathom of any other way the industry could function: in addition to the importance of having one system operator, all three traditional functions of the industry, namely generation, transmission and distribution, contained elements of a natural monopoly.³⁰ At the time, conventional wisdom dictated that there were potentially infinite economies of scale to generation. This turned out to be false: scale economies from generation are all captured at some point.³¹ Even so, logistical and regulatory advantages remained to siting generators next to each other.³² It remains the case,

24. See HUNT, *supra* note 19, at 31-32.

25. *Id.* at 32.

26. *Id.*

27. *Id.*

28. *Id.*

29. See HUNT, *supra* note 19, at 24-26.

30. *Id.* at 37-38.

31. Nuclear reactors for instance cap out at 1 GW, whereas coal and gas plants typically cap out at 650 MW. *Id.* at 26-27.

32. See EISEN, *supra* note 3, at 60-70.

furthermore, that there are economies of scale in transmission and distribution, reinforced by the visual and siting impracticalities of constructing competing transmission and distribution cables.

In the United States, electricity was managed, for the most part, by investor-owned utilities (IOUs). These were granted monopoly franchises to provide electricity to specified geographical areas. To proscribe utilities' abilities to extract monopoly rents, regulators in the United States set rates based on the cost of service (rate-basing). These rates, which formed the basis of countless litigation over the past two centuries, covered utilities' fixed and variable costs, plus utilities' cost of capital, including a reasonable rate of return for its investors.³³ Many countries emulated important elements of the United States' regulated monopoly model.³⁴

Outside the United States, for reasons of geography and the importance of providing residents universal access to power, states generally opted for a more centralized model, where the state monopolized the electricity market. The United Kingdom had centralized the provision of electricity services from the outset.³⁵ This model was effectively exported to its colonies abroad. Under

33. Rate-basing was summarized as follows by the DC Circuit Court in *Jersey Cent. Power & Light Co. v FERC*: "[t]he utility business represents a compact of sorts; a monopoly on service in a particular geographical area is granted to the utility in exchange for a regime of intensive regulation, including price regulation quite alien to the free market. . . . Each party to the compact gets something in the bargain. . . . utility investors are provided a level of stability in earnings and value less likely to be attained in the unregulated or moderately regulated sector in turn, ratepayers are afforded universal, non-discriminatory service and protection from monopolistic profits through political control over an economic enterprise. Whether this regime is wise or not is, needless to say, not before us." *Jersey Cent. Power & Light Co. v FERC*, 810 F.2d 1168, 1189 (D.C. Cir. 1987) (Starr, J., concurring). For a critical account of how operators could conspire to game the system at the expense of ratepayers, see ALFRED E. KAHN, *THE ECONOMICS OF REGULATION: PRINCIPLES AND INSTITUTIONS* 20-57 (1988).

34. Hong Kong is one of the few that did. See *THE POLITICAL ECONOMY OF POWER SECTOR REFORM: THE EXPERIENCE OF FIVE MAJOR DEVELOPING COUNTRIES* 2 (David Victor & Thomas Heller eds., 2009).

35. This should be put into perspective, however. Up until a few years ago, China was essentially adding capacity of 80-90 GW of electricity – roughly equivalent to the United Kingdom grid. See Mayur Sontakke, *Must-Know: China's Additions to its Power Generation Capacity*, MARKET REALIST (Oct. 1, 2014, 12:19 PM), <http://marketrealist.com/2014/10/must-know-chinas-additions-power-generation-capacity> [<https://perma.cc/V8BM-ERX5>].

Margaret Thatcher, however, the United Kingdom led the charge in transitioning to a market-based approach.³⁶ It did so by unbundling generation into various competitive generators, and splitting distribution between 12 companies, each serving a specified geographical area.³⁷ Generators and distributors were required to trade power through contract, or submit bids through a common pool.³⁸ The United Kingdom experiment saw rates fall drastically, prompting a global shift towards more market-based solutions to national electricity markets.³⁹ The United Kingdom experiment also had profound implications for Commonwealth nations such as Canada, which had followed elements of the United States model into the 20th Century before developing large vertically integrated state-controlled entities akin to those in the United Kingdom (pre-deregulatory) model.⁴⁰

The United Kingdom experiment inspired states throughout the world to experiment with competition in electricity markets.⁴¹ Even the United States embraced competition, empowering the Federal Energy Regulatory Commission (FERC) to allow market-based rates in certain instances.⁴² FERC Orders 888 and 889, in turn, dramatically altered United States electricity markets. Order 888 mandated the unbundling of electricity and the separation of marketing functions for these newly-disaggregated services; required utilities to provide open access to their energy tariffs; and

36. See EARL REITAN, *THE THATCHER REVOLUTION: MARGARET THATCHER, JOHN MAJOR, TONY BLAIR, AND THE TRANSFORMATION OF MODERN BRITAIN, 1979 – 2001*, at 79-80 (2002).

37. *Id.*

38. ENERGY INFO. ADMIN., U.S. DEP'T OF ENERGY, *ELECTRICITY REFORM ABROAD AND U.S. INVESTMENT* 16 (1997), http://www.abraceel.com.br/_anexos/electricity_reforms_abroad.pdf [<https://perma.cc/7CNV-AFV7>].

39. See VICTOR & HELLER, *supra* note 34, at 5.

40. INTERNATIONAL COMPARISONS OF ELECTRICITY REGULATION 377-81 (Richard J. Gilbert & Edward P. Kahn eds., 1996).

41. For developing countries, these experiments have largely been unsuccessful. See VICTOR & HELLER, *supra* note 34, at 254-306.

42. Section 205 of the Federal Power Act, 16 U.S.C. § 824(d), authorizes FERC to set market-based rates to power marketers that can demonstrate a lack of market power. Federal Power Act, 16 U.S.C. § 824(d) (2012). It is noted in the literature that the United States is constrained from following the United Kingdom model owing notably to the fact that the United States grid was developed largely by private industry. See HUNT, *supra* note 19, at 264. The United Kingdom faced fewer conflicts of interests in transitioning to a competitive market owing to its prior ownership of the English grid. *Id.*

allowed existing utilities who had incurred sunk costs relying on older regulations to recover their stranded costs.⁴³ Order 889 proscribed utilities from sharing market information in any way that would prevent access to this information by potential competitors, and required all such information to be posted on the Open Access Same-Time Information System (OASIS).⁴⁴

Outside of the United Kingdom and the United States, the push towards what the literature refers to as the “standard textbook model of reform”⁴⁵ has, empirically, failed to yield many success stories to date.⁴⁶ Instead of pure competition, the equilibrium reached in some major emerging economies that transitioned to competitive markets has been likened to a “dual market” system, in which solvent investor-owned and insolvent state-owned utilities coexist, buoyed by a mix of *laissez faire* accountancy rules, subsidies, soft loans and other forms of “special payment and financing arrangements.”⁴⁷ There is, accordingly, extensive government intervention in even those electricity markets that have ostensibly transitioned to competition. This is because of the various public interest needs to be met in the provision of electricity.⁴⁸ One such public interest need faced by modern electricity concerns the challenge of incorporating an increased supply of RE-generated energy as a response to climate change. A given grid’s electricity supply mix is determined by a range of factors, the most important of which being capital costs, access to fuel and fuel costs, population density, transmission access to population centers, geography, climate, grid reliability, and, increasingly, policy decisions about acceptable environmental impacts.⁴⁹ A given supply mix in today’s national grids reflects two

43. Promoting Wholesale Competition Through Open Access Non-Discriminatory Transmission Services by Public Utilities; Recovery of Stranded Costs by Public Utilities and Transmitting Utilities, 61 Fed. Reg. 21,540 (May 10, 1996) (to be codified at 18 C.F.R. § 35 and 18 C.F.R. § 385).

44. Open Access Same-Time Information System (Formerly Real-Time Information Networks) and Standards of Conduct, 61 Fed. Reg. 21,737 (May 10, 1996) (to be codified at 18 C.F.R. § 37).

45. See VICTOR & HELLER, *supra* note 34, at 21.

46. *Id.* at 18 (discussing Chile’s transition to a competitive system).

47. *Id.* at 289.

48. *Id.* at 173 (discussing the Indian market, and the importance of universal access).

49. See Hogan, *supra* note 23, at 3.

sets of trade-offs, between providing electricity at a low cost, and maintaining grid reliability; and balancing fossil fuel generation with RE technologies.⁵⁰ It follows that not all generators are the same. They can be split into base, intermediate, peak, and RE services.⁵¹

Taking Ontario as an example, base load generators, mainly nuclear and hydro plants,⁵² operate between 50-80% of the time in a given year.⁵³ Such plants, which can also include coal-fired thermal generators, have high capital costs, and low fuel costs.⁵⁴ They take a while to power up, but once activated they can operate at constant levels. The output of base load generators cannot be changed rapidly to accommodate sudden changes in load.⁵⁵ Intermediate load generators supply electricity when demand is above minimum levels, but has not yet reached peak.⁵⁶ These plants, which include gas-fired steam-cycle, combustion turbine and combined cycle generators, operate anywhere between 15-50% of the time in a given year.⁵⁷ Such plants have capital costs comparatively lower than base load generators, but variable (mostly fuel) costs follow the price of natural gas, and tend – until recently – to be high.⁵⁸ Peak load generators, notably single cycle gas-fired turbines, internal combustion engine and pumped hydro

50. *Id.*

51. *Id.*

52. Falling gas prices are increasingly allowing for gas-fired plants to serve as base load generators. JOSEPH CULLEN & ERIN MANSUR, INFERRING CARBON ABATEMENT COSTS IN ELECTRICITY MARKETS: A REVEALED PREFERENCE APPROACH USING THE SHALE REVOLUTION 5 (2016), https://www.dartmouth.edu/~mansur/papers/cullen_mansur_gasprices.pdf [<https://perma.cc/9SEH-W67E>]. They are not hampered by the slow start-up times mentioned above in relation to coal and nuclear plants. *Id.*

53. See Hogan, *supra* note 23.

54. *Id.* at 3-4. For hydro generators, all direct costs are capital costs, as they produce electricity from the energy of flowing water. *Id.* at 4. Variable costs for coal-fired plants include the cost of fuel (coal). *Id.*

55. *Id.*

56. *Id.* at 5.

57. *Id.*

58. See, Myra Saefong, *Natural-gas prices aren't done falling yet*, MARKETWATCH (Oct. 27, 2015), <http://www.marketwatch.com/story/natural-gas-prices-arent-done-falling-yet-2015-10-27> [<https://perma.cc/JJE2-ZYSD>]; Robert Scott, *Natural Gas Prices Are Falling Significantly, but Why?*, MARKETREALIST (Nov. 3, 2016), <http://marketrealist.com/2016/11/natural-gas-prices-plunging/> [<https://perma.cc/M8ZZ-NSLV>].

plants, provide electricity when demand is at its highest.⁵⁹ Such plants, which can be powered up quickly, may operate for only a few hours in a given year.⁶⁰ They typically have lower capital costs than base and intermediate load plants, and comparatively higher fuel costs.⁶¹

RE generators are something of an outlier on the grid: they generally fall outside the first trade-off listed above, between providing cheap electricity and maintaining grid reliability, and rather implicate the second trade-off, between fossil fuel reliance and greenhouse gas emission reductions. RE generator costs are, mainly, capital costs: marginal costs, excluding operations and maintenance costs, are practically zero.⁶² The flip side, however, is that they produce electricity on an intermittent basis: during times of high insolation or wind activity.⁶³ With the exception of biogas,⁶⁴ grid operators cannot call upon (dispatch) RE-generated electricity at will.⁶⁵ Due to this intermittency, and owing to high construction costs and limitations in the present state of RE technology, RE generators have been unable to produce power at the same economies of scale as the other generators discussed above. Accordingly, RE-generated electricity is both less effective and, in the absence of regulation, more costly relative to these other generators.

The competitive electricity market differs from a conventional commodities market, where buyers and sellers can interact and haggle over price and quantity with each other. Because of the nature of electricity, any market transactions conducted more than 24 hours ahead of generation is deemed long-term planning.

59. See Hogan, *supra* note 23, at 6.

60. *Id.*

61. *Id.*

62. *Id.* Marginal cost dips to the negative, if RE generators benefit from production subsidies. See FRANK HUNTOWSKI ET AL., NORTHBRIDGE GRP., NEGATIVE ELECTRICITY PRICES AND THE PRODUCTION TAX CREDIT (2002), http://www.nbggroup.com/publications/Negative_Electricity_Prices_and_the_Production_Tax_Credit.pdf [<https://perma.cc/PE32-9UWH>].

63. See Hogan, *supra* note 23, at 6-7.

64. Biogas, composed of methane, can be made from burning waste or biomass to produce methane, the primary ingredient in natural gas. *Id.* at 7. Biogas can be used in most gas-fired plants, once the methane is sufficiently purified. *Id.*

65. *Id.* at 3-7.

Within this 24-hour window, transactions in the spot market for wholesale electricity are bid-based, and conducted both a day ahead, and in real-time chunks of time intervals (of 5 minutes, in Ontario⁶⁶).⁶⁷ In the day-ahead market, buyers submit offers, and generators submit bids based on their short-run marginal-costs⁶⁸ for specified quantities of electricity supplied, based on the projected demand assumptions. Broadly speaking, these bids are accepted in “merit order,” from least to most expensive.⁶⁹ In the real-time market, bids are accepted in merit order, with the price of the last (and highest) competitive supply offer accepted setting the market-clearing price across the board for a given time interval.⁷⁰

The wholesale market, in most instances, fails to provide adequate revenue to sustain existing generators or incentivize new market entrants. This leads to a so-called “missing money” problem.⁷¹ Further, at the risk of oversimplifying, electricity in the wholesale market is procured in a manner that effectively “locks in” the conventional structure of the electricity market, with the grid operator dispatching low-cost base load plants when demand is low, the more expensive intermediate plants when demand rises, and the high-cost peaker plants when demand peaks.⁷² Under a FiT or EA regulation, RE-generated electricity is “must take” – the spot market absorbs this energy first, before dispatching electricity

66. *Id.* at 37-38.

67. *Id.* at 15. For a more detailed explanation see *Market Processes and Products*, CAL. INDEP. SYS. OPERATORS, <https://www.caiso.com/market/Pages/MarketProcesses.aspx> [<https://perma.cc/Q39S-74ZM>]. There is also a minute-ahead market, which focuses mainly on the ancillary services on a second to second basis. *Id.* As pricing is not usually implicated on this market, this paper does not discuss it in any more detail.

68. William W. Hogan, A Competitive Electricity Market Model 17 (Oct. 9, 1993) (draft prepared for Harv. Elec. Pol’y Grp.), <https://www.hks.harvard.edu/fs/whogan/transvis.pdf> [<https://perma.cc/UZE6-8D5W>].

69. *Id.* at 17.

70. *Id.*

71. INDEP. ELEC. SYS. OPERATOR (IESO), 2009 ONTARIO MARKET OUTLOOK 9, <http://www.ieso.ca/Documents/marketReports/OMO-Report-2009.pdf> [<https://perma.cc/7667-W3FF>].

72. *Id.* That peak load plants remain switched off until being dispatched, at higher rates, keeps costs down and allows them to recoup on these costs upon dispatch. *Id.*

from conventional generators.⁷³ The consequent drop in required load drives wholesale prices down – as the last competitive supply offer accepted, which sets the market clearing price, will be lower than the price set in the absence of the “must take” RE energy. Precisely how RE-generated electricity would fare in wholesale markets in the absence of regulation is subject to some debate.⁷⁴

C. FiT, RPS and EA regulations

Regulators worldwide have formulated a panoply of policy and regulatory solutions to the “missing money” problem described above, which in the absence of regulation would form a barrier to entry for electricity generators in general. These solutions typically take the form of tax incentives and payment subsidies.⁷⁵ Tax incentives will normally take the form of a production tax, remitted on the basis of every kWh of RE electricity generated, and an investment tax credit, remitted on the basis of qualifying facility installation costs. Payment subsidies will normally be incorporated directly into the terms of PPAs of the type discussed in the introduction. To increase local buy-in for the resulting government expenditure,⁷⁶ emerging markets in particular have tended to combine these subsidies with industrial policy measures, notably

73. As described in *Current Energy Markets Discourage Renewable Energy*, CLEANTECHNICA (Oct. 2, 2015), <https://cleantechnica.com/2015/10/02/current-energy-markets-discourage-renewable-energy> [<https://perma.cc/MG76-XWVM>]. Due to low to zero marginal costs, RE electricity generated in compliance with RPS regulation obligations is also, in practice, must take for economic reasons. *Id.*

74. As I will explore in more detail below, the Appellate Body bought the argument that wind- and solar-generated electricity would not have existed in Ontario, but for government intervention. In other markets, it bears mentioning that RE-generated energy is competitive enough to bid in markets. As some of these RE generators operate with virtually no marginal costs, further, they are able to bid negative energy prices. In some markets in the United States, this has resulted in conventional energy generators being driven out of the market, although the ability for wind producers to charge negative prices is itself largely a function of United States production tax credits. See FRANK HUNTOWSKI ET AL., NEGATIVE ELECTRICITY PRICES AND THE PRODUCTION TAX CREDIT 6-9 (2012), https://www.hks.harvard.edu/hepg/Papers/2012/Negative_Electricity_Prices_and_the_Production_Tax_Credit_0912.pdf [<https://perma.cc/34E6-QD9L>].

75. See, e.g., Michael Hogan, *Follow the Missing Money: Ensuring Reliability at Least Cost to Consumers in the Transition to a Low-carbon Power System*, — ELECTR. J. __, 1-7 (2016).

76. Literally!

local content requirements (known in WTO terminology as import-substitution measures), which require generators to source a percentage of labor and capital costs locally.⁷⁷ To transition away from fossil fuel generators and promote the use of RE in national grids, various governments have combined these incentives and subsidies with FiT, RPS and EA regulations.⁷⁸

As discussed in the introduction, FiT, RPS and EA regulations are similar tools with different “entry” points to boost RE energy sales. A FiT regulation is a form of price regulation.⁷⁹ RPS and EA regulations, in contrast, are forms of quantity regulation.⁸⁰ RE generators prefer a FiT regulation, as these regulations guarantee them a fixed flow of revenue.⁸¹ This is particularly important, where such generators are seeking to incur debt obligations. EA regulations are a second-best solution. Governments will tend to prefer FiT or EA regulations where they want to ensure a diverse RE supply mix: the concern being that compliance with RPS regulations, in particular, will push retailers towards the lowest-cost RE electricity. Anecdotal evidence suggests that governments may find FiT regulations comparatively more stable, given the tendency of successful generators in RE auctions to bid too low, sometimes leading to a default at the facility construction stage.⁸² RPS regulations are the least preferred by RE industry, in light of the uncertainties of allowing market forces to determine the reasonable price of power under a RPS regulation.⁸³ As a result,

77. See Virginia Hildreth, *Renewable Energy Subsidies and the GATT*, 14 CHI. J. INT'L L. 702, 705-09 (2014); Rafael Leal-Arcas & Andrew Filis, *Renewable Energy Disputes in the World Trade Organization*, 13 OIL, GAS & ENERGY L.J. 1, 45 (2015), https://www.academia.edu/11551752/Renewable_energy_disputes_in_the_World_Trade_Organization [<https://perma.cc/N8GS-F3PR>].

78. WILSON RICKERSON ET AL., UNEP, FEED-IN TARIFFS AS A POLICY INSTRUMENT FOR PROMOTING RENEWABLE ENERGIES AND GREEN ECONOMIES IN DEVELOPING COUNTRIES 10-15 (2012), http://www.unep.org/pdf/UNEP_FIT_Report_2012F.pdf [<https://perma.cc/D9QL-WBQT>].

79. See MAURER & BARROSO, *supra* note 9, at 78.

80. *Id.* at 79-80.

81. *Id.* at 133.

82. *Id.* at 131.

83. Which normally leads to investors requiring higher REC prices to compensate for the risk. Derya Elyilmaz & Frances Holmans, Uncertainty in Renewable Energy Policy: How do Renewable Energy Credit markets and Production Tax Credits Affect Decisions to Invest in Renewable Energy?, Paper presented at the Agricultural & Applied Economics Associations 2013 AAEEA &

the required return on equity for these competitive solicitations is typically higher than in jurisdictions employing FiT or EA regulations.⁸⁴ In terms of effectiveness, recent empirical studies suggest that FiT regulations generate more RE cumulative capacity than RPS regulations.⁸⁵ There are fewer studies comparing EA regulations with FiT or RPS regulations. One such study found that FiT regulations have generated more value for money in Europe than auctions for wind-generated electricity, after taking account of differences in wind resource.⁸⁶ These results should however be taken with a grain of salt as, in any given jurisdiction, FiT, RPS and EA regulations are offered alongside a range of other incentives, notably tax incentives and payment subsidies.⁸⁷ Whether or to what extent a FiT outperforms an RPS, or underperforms an EA regulation should be assessed against the complete suite of incentives.

As I will discuss in the following section, these three regulations may present some tricky questions of WTO-consistency. While RPS and EA regulations have not featured in either case law or trade law debates thus far, the argument can be made that the purchase obligations in a FiT, RPS and EA regulation all operate, in effect, as import-substitution measures.⁸⁸ Such requirements, as I will discuss in the next section, are particularly problematic from a WTO law standpoint.

CAES Joint Annual Meeting (Aug. 4-6, 2013), at 10-11, <http://ageconsearch.umn.edu/bitstream/150018/2/AAEA%20submissions.pdf> [<https://perma.cc/TBU6-KGK6>].

84. DAVID DE JAGER & MAX RATHMANN, POLICY INSTRUMENT DESIGN TO REDUCE FINANCING COSTS IN RENEWABLE ENERGY TECHNOLOGY PROJECTS ANNEXES (2008). Although the authors do not address EAs, presumably, the IRR would be comparatively lower with EA prices.

85. See Dong, *supra* note 4, at 483.

86. Lucy Butler & Karsten Nekkuhoff, *Comparison of Feed-in Tariff, Quota and Auction Mechanisms to Support Wind Power Development* 33 RENEWABLE ENERGY 1854, 1864-65 (2008).

87. Indeed, the tax incentives and payment subsidies, *ceteris paribus*, will be more valuable in encouraging the entry of RE generators in the short term.

88. See Rubini, *supra* note 16, at 553-54.

III. WTO LAW

A. The WTO Secretariat

The WTO is, essentially, organized around three pillars: negotiations, monitoring and dispute settlement. Negotiations under the first pillar are held under the auspices of the Trade Negotiations Committee (TNC), mandated to negotiate deeper market access commitments and binding rules. Monitoring under the second pillar is carried out under the Trade Policy Review Mechanism (TPRM). Dispute settlement under the third pillar is formally governed by the Membership acting jointly as the Dispute Settlement Body (DSB).⁸⁹ There is something of a fluidity to the three pillars: Members negotiate new market access commitments. These and pre-existing commitments are regularly monitored and, where required, enforced by WTO dispute settlement. This structure has been reversed lately, with Members seeking to push new market access commitments through the backdoor of the third pillar.⁹⁰

WTO disputes are governed by the Understanding on rules and procedures governing the settlement of disputes (DSU) annexed to the WTO Agreements.⁹¹ WTO disputes are inter-state disputes, which are formally initiated at the request of a Member (the complainant Member) in respect of any trade-related measure adopted or maintained by another Member (the respondent Member).⁹² These Members must first attempt to reach a negotiated settlement, failing which the complainant Member may request the establishment of a dispute panel, normally composed

89. See William J. Davey, *The WTO and Rules-Based Dispute Settlement: Historical Evolution, Operational Success, and Future Challenges*, 17 J. INT'L ECON. L. 679, 693 (2014). For a more detailed breakdown of the Secretariats' work within these three pillars, see *WTO Secretariats*, WORLD TRADE ORG. https://www.wto.org/english/thewto_e/secre_e/div_e.htm [<https://perma.cc/7V9C-2JLM>].

90. This is because the WTO has grown too large for its own good, with 164 Members unable to decide on new trade disciplines. Note that the second pillar operates constantly in the background – through regular committee meetings convened by the Secretariat. As such, I do not discuss it any further in this paper.

91. See Understanding on Rules and Procedures Governing the Settlement of Disputes, Apr. 15, 1994, Marrakesh Agreement Establishing the World Trade Organization, Annex 2, 1869 U.N.T.S. 401 [hereinafter DSU].

92. See *Id.* at arts. 1, 2, 3.

of three trade diplomats.⁹³ The panel's final report can be appealed to the seven-judge Appellate Body on issues of law or legal interpretation.⁹⁴ A division composed of three Appellate Body judges will review a given panel report.⁹⁵ Nowadays, most panel reports are appealed. Dispute settlement proceedings are subject to strict time frames, of six months for completion of panel reports and 60 days for completion of Appellate Body reports.⁹⁶ Once the findings and conclusions in these reports are formally adopted by the DSB,⁹⁷ the latter may recommend that the respondent Member bring its measures into conformity within a reasonable period of time.⁹⁸ Upon expiration of this period of time, the complaining Member can, in principle,⁹⁹ seek to retaliate through countermeasures by securing permission – from the DSB – to suspend “concessions or other obligations under the covered agreements.”¹⁰⁰ Such retaliation, which is prospective in nature,

93. *Id.* art. 8.5.

94. *Id.* art. 17.6. Currently, the Appellate Body's composition is six judges, following the United States' veto of Jennifer Hillman's reappointment. See Ravi Kanth, *Is the US Settling Scores with the WTO Appellate Body?*, LIVE MINT (May 24, 2016), <http://www.livemint.com/Opinion/mXEaSBm8h0dSomhueE8ePK/Is-the-US-settling-scores-with-the-WTO-appellate-body.html> [<https://perma.cc/HJA8-D9MP>]. This number may drop to five for some time, following the United States' recent threat to block the reappointment of Seung Wha Chang. *Id.*

95. DSU, *supra* note 91, art. 17.

96. *Id.* arts. 12.8, 17.5.

97. A plenary meeting of the WTO's membership, essentially wearing a different hat.

98. DSU, *supra* note 91, arts. 22.1, 22.2.

99. Where the parties disagree on the level of retaliation proposed by the winning Member (which always occurs), the Members will refer the matter to WTO arbitration, pursuant to DSU Art. 22.6. *Id.* art. 22.6. Such proceedings should last no more than 60 days. However, in a typical case, the losing respondent Member will make cosmetic amendments to the offending measure(s) and argue that it has, in fact, complied with the DSB's recommendations. Where the complainant Member disagrees, fresh panel and Appellate Body proceedings, if appealed, must follow pursuant to DSU art. 21.5. *Id.* art. 21.5. The 21.5 proceedings should ideally be disposed of before 22.6 proceedings are initiated – typically by way of so-called “sequencing” agreements owing to some unfortunate ambiguity in the DSU on this matter. *Id.* arts. 21.5 & 22.6.

100. *Id.* art. 22.2.

may be fixed to a level “equivalent” to the level of economic harm caused by the offending measure(s).¹⁰¹

B. WTO Law

The WTO General Agreement on Tariffs and Trade (GATT) and the Agreements on Trade-Related Investment Measures (TRIMS) and Subsidies and Countervailing Measures (SCMs) all discipline subsidies.¹⁰² Collectively, they draw a distinction between production subsidies, which are presumed to be WTO-compliant, and import-substitution subsidies,¹⁰³ which are treated as something akin to *per se* violations of WTO law. Below, I address the definition of a subsidy in WTO law, the legal basis for disciplining production and import-substitution subsidies, the role of markets in subsidies disputes, and how these three issues all arose in *Canada – RE/FiT*.

1. Definition of a Subsidy

WTO law defines a subsidy as: (1) any form of financial contribution¹⁰⁴ by a government or private body, where the latter is ‘entrusted’ or ‘directed’ by government, whether in the form of (i) a direct transfer of funds, (ii) a decision to forego revenue that is otherwise due, (iii) the provision of goods and services other than

101. *Id.* art. 22.4. Such retaliation may target goods other than those subject to the dispute, and may implicate the suspension of obligations in other WTO Agreements. *Id.* art. 22.3(b)-(c).

102. *See* General Agreement on Tariffs and Trade, Apr. 15, 1994, Marrakesh Agreement Establishing the World Trade Organization, Annex 1A, 1869 U.N.T.S. 401 [hereinafter GATT]; Agreement on Trade-Related Investment Measures, Apr. 15, 1994, Agreement Establishing the World Trade Organization, Annex 1A [hereinafter TRIMS]; Agreement on Subsidies and Countervailing Measures, Apr. 15, 1994, Marrakesh Agreement Establishing the World Trade Organization, Annex 2, 1869 U.N.T.S. 401 [hereinafter SCMs].

103. Both of which are included in my use of the term “payment subsidies” in the previous Part of this paper.

104. SCMs, *supra* note 102, art. 1.1. The SCMs lists the following forms of “financial contribution:” direct transfers of funds (e.g. grants, loans and equity infusions); potential direct transfers of funds (e.g. loan guarantees); government revenue that is otherwise due is foregone or not collected (e.g., tax credits); provision of goods or services other than general infrastructure; and purchase of goods. *Id.*

general infrastructure,¹⁰⁵ or (iv) an income or price support scheme¹⁰⁶; (2) which confers a “benefit” to the recipient, with reference to applicable market benchmarks;¹⁰⁷ provided (3) the subsidy is “specific,” in that it is limited to a sufficiently narrow category of enterprises.¹⁰⁸

2. Production Subsidies

The GATT codifies the core principle of national treatment, which is incorporated, with some variation, in other WTO Agreements.¹⁰⁹ National treatment prohibits WTO Members from treating imported products less favorably than “like” products.¹¹⁰ This prohibition applies to any measure adversely affecting imported products in law or in fact.¹¹¹ In determining whether a measure adversely affects ‘like’ imported products, a WTO panel will typically assess the extent to which the measure at issue has modified the “conditions of competition” in favor of the ‘like’ domestic product.¹¹² In this context, likeness, is determined with

105. *Id.* art. 1.1(a)(1).

106. *Id.* art. 1.1(a)(2).

107. *Id.* art. 1.1(b).

108. *See id.* art. 2.

109. GATT, *supra* note 102, art. III.

110. *Id.* The GATT draws a distinction between “like” products and “directly competitive and substitutable” products. This distinction does not appear in other WTO Agreements. *Id.* art. III:b(2); *See also* General Agreement on Trade In Services, art. XVII Apr. 15, 1994, Marrakesh Agreement Establishing the World Trade Organization, Annex 1B, 1869 U.N.T.S. 401 [hereinafter GATS]. The GATS draws a distinction between like services and like service suppliers. More fundamentally, for purposes of WTO dispute settlement, the GATT’s coverage is far more extensive than the GATS, owing to an “agreement to disagree” in Uruguay Round negotiations that resulted in the positive listing of GATS commitments relative to the negative listing of GATT commitments. Where disputes involve hybrid goods, this distinction becomes practically immaterial. *Id.*

111. Though the terms “de jure” and “de facto” do not appear in the text of art. III, panels have read these into the provision since the days of the GATT 1947. For an exhaustive account of this jurisprudence, and alternative approaches to de facto discrimination under the GATT, see Lothar Ehring, *De Facto Discrimination in World Trade Law National and Most-Favoured-Nation Treatment—or Equal Treatment?*, 36 J. WORLD TRADE 921, 921–977 (2002).

112. Competition is explicitly mentioned in the Ad Note to GATT Art. III(2) as relevant whenever the impact of a measure is assessed against “directly competitive and substitutable” imported product. General Agreement on Tariffs and Trade art. III(2), Oct. 30, 1947, 61 Stat. A-11, 55 U.N.T.S. 194 [hereinafter

respect to the following four criteria: (a) product end-uses; (b) consumer tastes and preferences; (c) physical characteristics; and (d) tariff classifications.¹¹³ The TRIMS Agreement, at Article 2, clarifies the application of GATT Article III in the domain of trade-related investment measures.¹¹⁴

There are two important limitations to national treatment. First, national treatment does not apply to government procurement, defined as “laws, regulations or requirements governing the procurement by governmental agencies of products purchased for governmental purposes and not with a view to commercial resale.”¹¹⁵ Second, national treatment does not apply to production subsidies. The relevant provision of the GATT contemplates that nothing in its terms seeks to “prevent the payment of subsidies exclusively to domestic producers.”¹¹⁶

Under the SCMs, such subsidies can be challenged, whether unilaterally through countervailing duties or multilaterally through WTO dispute settlement, insofar as they cause “adverse effects” to a Member State, whether by causing injury to the

GATT 1947]. It has been extended to the Art. III(4) cases by the Appellate Body. See Appellate Body Report, *Korea – Measures Affecting Imports of Fresh, Chilled and Frozen Beef*, ¶ 20, WTO Doc. WT/DS161/AB/R, WT/DS169/AB/R (adopted Jan. 10, 2001); See also GATS, *supra* note 64, art. XVII(3).

113. Appellate Body Report, *Japan – Taxes on Alcoholic Beverages*, ¶ 20, 97, WTO Doc. WT/DS8/AB/R, WT/DS10/AB/R, WT/DS11/AB/R (adopted Nov. 1, 1996). Under the GATS, likeness is primarily determined with reference to the nature and characteristics of the service transactions. See Panel Report, *European Communities – Regime for the Importation, Sale and Distribution of Bananas, Complaint by Ecuador*, WTO Doc. WT/DS27/R/ECU (adopted Sept. 25, 1997) (as modified by Appellate Body Report WT/DS27/AB/R, DSR 1997:III, ¶ 7.322).

114. Art. 2.1 of the TRIMS Agreement reads: “Without prejudice to other rights and obligations under GATT 1994, no Member shall apply any TRIM that is inconsistent with the provisions of Article III or Article XI of GATT 1994.” TRIMS, *supra* note 102, art. 2.1.

115. GATT, *supra* note 102, art. III:8(a). National-like treatment obligations apply depending on whether or not the Member State concerned is (i) a signatory to the plurilateral WTO Government Procurement Agreement, and (ii) listed the relevant government entity. GPA, Art. III. While all the disputing parties in *Canada – Renewables/FiT* were GPA signatories, Canada had undertaken no commitments in relation to the Ontario Power Authority. Canada’s annexes can be accessed at *Appendices and Annexes to the GPA*, WORLD TRADE ORG., https://www.wto.org/english/tratop_e/gproc_e/appendices_e.htm#cane [<https://perma.cc/VV5M-56EB>].

116. GATT, *supra* note 102, art. III:8(b).

Member's domestic industry, displacing or impeding the Member's export penetration in third markets, including the world market, or otherwise nullifying or impairing the Member's legitimate market access expectations, where the improved market access presumed to flow from a bound tariff reduction is undercut by subsidization.¹¹⁷ It bears mentioning, in this context, that the GATT "general exceptions" clause,¹¹⁸ which allows respondent Members to justify otherwise WTO-inconsistent measures on grounds necessary for or relating to environmental protection, cannot be raised in the context of the SCMs.¹¹⁹

3. Import-Substitution Subsidies

The SCMs specifies two forms of subsidies, export and import-substitution subsidies, that are prohibited, irrespective of a showing of adverse effects.¹²⁰ Dispute settlement provisions are shortened for disputes involving these alleged subsidies.¹²¹ Should a WTO panel conclude that the challenged measure is indeed a prohibited subsidy, the panel must request that "the subsidizing Member withdraw the subsidy without delay."¹²² Further, specificity, the third definitional element of a subsidy, is presumed for these prohibited subsidies. Import-substitution subsidies effectively cover local content requirements, defined as: "subsidies contingent, whether solely or as one of several other conditions, upon the use of domestic over imported goods."¹²³ It is important to note that a subsidy is deemed an import-substitution subsidy inasmuch as it influences the recipient's purchasing decisions.¹²⁴ Accordingly, and perhaps confusingly, such subsidies can (and

117. SCMs, *supra* note 102, art. 5.

118. *See* GATT, *supra* note 102.

119. *But see* Hildreth, *supra* note 77, at 720-22.

120. SCMs, *supra* note 102, art. 3.

121. *Id.* art. 4.

122. *Id.* art. 4.7.

123. *Id.* art. 3.1(b). Art. 3.1(a) addresses "subsidies contingent, in law or in fact, whether solely or as one of several other conditions, upon export performance, including those illustrated in Annex I." *Id.* art. 3.1(a).

124. Alan O. Sykes, *The Economics of WTO Rules on Subsidies and Countervailing Measures* 19 (Univ. Chi. John M. Olin Law & Econ., Working Paper No. 186, 2003), http://chicagounbound.uchicago.edu/cgi/viewcontent.cgi?article=1515&context=law_and_economics [<https://perma.cc/2ZUQ-BWJ2>].

often are) conferred to producers.¹²⁵ The genesis of these two prohibited subsidies is unclear. Further, the original GATT treaty expressed a permissive attitude towards import-substitution subsidies in particular. Be that as it may, in WTO parlance import-substitution subsidies, in recalibrating domestic purchasers away from imports and towards domestic purchases, are deemed to have a sufficiently “deleterious effect” on international trade.¹²⁶

Juxtaposing the treatment, under WTO law, of production subsidies with import-substitution subsidies reveals a striking paradoxical feature of international trade regulation: as one leading trade authority frames the issue, “a per unit subsidy to all domestic buyers of a good can be completely equivalent in its effects to an equal per unit subsidy to all domestic sellers – net output of domestic producers, net imports, and the net price to buyers will be exactly the same under competitive conditions.”¹²⁷ Illogical as it may seem, this distinction played out fully in *Canada – RE/FiT*.

4. Market Definition

As a practical matter, governments tend to avoid publishing information on the size and scope of subsidy programs. This presents a challenge for complainants seeking to approximate the amount of a subsidy. Such approximation can be useful, where complainants wish to seek permission from the DSB to initiate adequate countermeasures.¹²⁸ In addition to being limited to the level of economic harm caused by the offending subsidy at issue, such countermeasures, importantly, also cannot exceed the amount of the subsidy.¹²⁹ The SCM's directs complainants to calculate the benefit conferred by subsidies relative to market benchmarks.¹³⁰ The Appellate Body has previously cautioned, in

125. They do not, for this reason, transform into “production subsidies.”

126. RAJ BHALA, *DICTIONARY OF INTERNATIONAL TRADE LAW* 201 (3d ed. 2015).

127. See Sykes, *supra* note 124, at 19.

128. In one decision, a WTO arbitrator authorized a complainant Member to retaliate against the respondent Member, the United States, to the tune of the value of the subsidy in its entirety. See Decision by the Arbitrator, *United States – Tax Treatment for “Foreign Sales Corporations”*, ¶ 6.10, WTO Doc. WT/DS108/ARB (Aug. 30, 2002).

129. DSU, *supra* note 91, art. 22.4.

130. SCM's, *supra* note 102, art. 14.

respect of such calculations, that “[a] ‘benefit’ does not exist in the abstract.”¹³¹ Rather, it must be measured against verifiable market benchmarks. Such market benchmarks must reflect *undistorted* competition, if they are to give a true picture of the quantity of the subsidy.¹³² Given the discussion of the role of governments in shaping electricity markets above, this proved to be challenging in *Canada – RE/FiT*.

Accordingly, the SCMs directs that government provision of capital is measured against the metric of the usual investment practices of private investors.¹³³ Similarly, government loans and loan guarantees are measured against the amount that the recipients would pay to obtain a comparable loan or loan guarantee in commercial markets.¹³⁴ Last, the provision of goods or services, and the purchase of goods, by government, are measured in relation to market conditions for the goods or services in question in the country of provision or purchase.¹³⁵ Such market conditions include, notably, price, quality, availability, marketability, transportation, in addition to any other material conditions of sale.¹³⁶

The calculation of a benefit must ordinarily involve a comparison of prices of the subsidized good against the prices of ‘like’ unsubsidized good in the same market.¹³⁷ Where the home market is competitively distorted, due for instance to the heavy hand of government in shaping market conditions, the situation is trickier. The Appellate Body has previously allowed complainants to use third-country prices for like goods, with necessary

131. Appellate Body Report, *Canada – Measures Affecting the Export of Civilian Aircraft*, ¶ 154, WTO Doc. WT/DS70/AB/R (adopted Aug 20, 1999).

132. Appellate Body Report, *Japan – Countervailing Duties on Dynamic Random Access Memories from Korea*, ¶ 172, WT/DS336/AB/R (adopted Dec. 17, 2007).

133. SCMs, *supra* note 102, art. 14(a).

134. *Id.* art. 14(b)-(c).

135. *Id.* art. 14(d).

136. *Id.*

137. Appellate Body Report, *United States – Countervailing Duty Measures on Certain Products from China*, ¶ 2.181, WTO Doc. WT/DS437/AB/R (adopted Jan. 16, 2015).

adjustments,¹³⁸ or, where the product in question is a commodity good, the world price of the good.¹³⁹ In *Canada – RE/FiT*, neither the home benchmarks nor permitted alternatives proved appropriate to calculate the benefit provided by electricity.

5. Canada – RE/FiT

Ontario deregulated electricity prices in 2003.¹⁴⁰ That same year, the Ontario government announced targets of incorporating 1350 MW of RE generation into grid by 2007, up to 2700 MW by 2010.¹⁴¹ To facilitate this task, the government passed legislation creating the Ontario Power Authority (OPA), tasked with procuring electricity generation in the newly deregulated market.¹⁴² Ontario enacted two series of laws to incentivize RE increased generation, the Renewable Energy Supply (RES) initiatives, which it later replaced with the Renewable Energy Standard Offer Program (RESOP).¹⁴³ The RES was solicited, in essence, as an energy price auction. Some utility-scale solar providers successfully bid for 20-year PPAs with the OPA.¹⁴⁴ To incentivize smaller-scale generators to enter the market, the RESOP took the form of a standard offer, of C\$0.11/kWh (non-solar); C\$0.42/kWh (solar).¹⁴⁵ Response to the RESOP was tepid, particularly from solar PV generators.¹⁴⁶ Accordingly, the

138. Appellate Body Report, *United States – Final Countervailing Duty Determination with Respect to Certain Softwood Lumber from Canada*, ¶ 89, WTO Doc. WT/DS257/AB/R (adopted Feb. 17, 2004).

139. Appellate Body Report, *Canada – Measures Affecting the Importation of Milk and the Exportation of Dairy Products – Second Recourse to Article 21.5 of the DSU by New Zealand and the United States*, WTO Doc. WT/DS103/AB/RW2, WT/DS113/AB/RW2 (adopted Dec. 20, 2002).

140. See Hogan, *supra* note 23, at 28. For a detailed account (though one that attributes deregulation as having begun in May 2002), see Michael Trebilcock & Roy Hrab, *Electricity Restructuring In Ontario*, 26 ENERGY J. 123 (2005).

141. See Hogan, *supra* note 23, at 31.

142. *Id.* at 31.

143. *Id.* at 31-34.

144. *Id.* at 31-32.

145. *Id.* at 33.

146. JULIE MACARTHUR, EMPOWERING ELECTRICITY: CO-OPERATIVES, SUSTAINABILITY, AND POWER SECTOR REFORM IN CANADA 107-108 (2016), <https://www.researchgate.net/publication/303876616> [<https://perma.cc/5CZL-JNMM>]

government legislated the Green Energy and Green Economy Act of 2009, which directed the OPA to design a FiT regulation.¹⁴⁷

Pricing under the FiT regulation was increased significantly from RESOP pricing. RE generators stood to receive payments in a range from C\$10.3 cents/kWh to C\$80.2 cents/kWh: wind projects received either C\$13.5 cents/kWh (for onshore) or C\$19.0 cents/kWh (for offshore), with some (20%) escalation for inflation, whereas solar projects received between C\$44.3 cents/kWh to C\$80.2 cents/kWh (depending on size and technology), with no escalation.¹⁴⁸ In exchange for these prices, generators were required to satisfy so-called “Minimum Required Domestic Content Levels” (MRDCL) requirements, requiring them to source labor and capital costs, notably electricity generation equipment, from the Ontario market.¹⁴⁹ The MRDCL for the development and construction of wind facilities was 25% from 2009 to 2011, up to 50% from 2012.¹⁵⁰ For solar, the MRDCL was 50% from 2009 to 2010, up to 60% from 2011.¹⁵¹ For distributive solar under Ontario’s so-called “microFiT” regulation, the MRDCL was 40% from 2009 to 2010, up to 60% from 2011.¹⁵²

Japan and the European Union, suppliers of RE electricity generation equipment, called foul and challenged two aspects of Ontario’s FiT regulation before a WTO panel: the conditioning of eligibility for the FiT and microFiT regulations on the MRDCLs, which the complainants characterized as import-substitution measures; and the remuneration offered to qualifying RE generators under the FiT and microFiT pricing schedules, which the complainants mischaracterized as import-substitution

147. See Hogan, *supra* note 23, ¶¶ 30-34.

148. See *id.* ¶¶ 24-25. One important point to note is that these costs are passed onto customers, by way of a “Global Adjustment” reflected in customer bills, in Ontario’s case. *Id.*

149. Appellate Body Report, *Canada – Renewables/FiT*, *supra* note 18, ¶ 1.4. tbl.1. Distributive solar sold back to the grid by customers is tracked using so-called “net metering,” a billing mechanism that credits distributive solar system owners for the electricity they add to the grid. See *Net Metering*, SOLAR ENERGY INDUS. ASS’N, <http://www.seia.org/policy/distributed-solar/net-metering> [https://perma.cc/6U7C-V7HP].

150. Appellate Body Report, *Canada – Renewables/FiT*, *supra* note 18, ¶ 1.4. tbl.1.

151. *Id.*

152. *Id.*

measures.¹⁵³ The complainants, essentially, sought to link the FiT and microFiT pricing to the purchases of the electricity generation equipment to establish a relationship between the MRDCLs and FiT/microFiT pricing, although it was clear that the latter functioned closer to production subsidies. Be that as it may, the complainants contended that these MRDCLs violated the GATT and TRIMS national treatment obligations.¹⁵⁴ Canada, citing the government procurement exemption, argued that it was not bound by the relevant national treatment obligations.¹⁵⁵

On FiT and microFiT pricing, the complainants contended that FiT and microFiT payments exceeded the wholesale (spot market) rates charged by the grid operator.¹⁵⁶ The complainants contended that these spot market rates were appropriate benchmarks, for purposes of assessing the “benefit” conferred by the measures.¹⁵⁷ Canada denied that either program met the definitional elements of the WTO subsidy test, having regard to the proper benchmarks, which, in Canada’s view, were the rates for both wind and solar electricity established through an arm’s-length transaction between private entities in Ontario.¹⁵⁸ Canada also seemed to suggest that such rates were reflected in its FiT and microFiT pricing, insofar as RE generators would have sought to negotiate these rates in the absence of either program.¹⁵⁹

The Appellate Body upheld the panel’s determination that the FiT and microFiT regulations fell outside the scope of the government procurement exception, and thus violated the national treatment obligations, albeit on very different terms.¹⁶⁰ The panel had found that the exception was unavailable to Canada, having

153. *Id.* ¶ 5.6. To clarify, the complainants sought to argue that the FiT and microFiT regulations, by virtue of their link to MRDCLs, were import-substitution measures, as distinct from “actionable” subsidies. Presumably, they did so owing to the quicker compliance period required of a respondent Member when it is found to have conferred prohibited subsidies.

154. Panel Report, *Canada – Renewables/FiT*, *supra* note 23, ¶¶ 7.72, 7.79-7.80.

155. *Id.* ¶ 7.86(ff).

156. *Id.* ¶¶ 7.30, 7.251, 7.255.

157. *Id.* ¶¶ 7.253, 7.256.

158. *Id.* ¶ 7.259.

159. *Id.* ¶ 7.263.

160. Appellate Body Report, *Canada – Renewables/FiT*, *supra* note 18, ¶ 5.128.

regard to the fact that the electricity purchased by OPA was being procured “with a view to commercial resale” by reason of the profit made by the government on resale of electricity to customers, and because such sales were being made in competition with private operators.¹⁶¹ Accordingly, the panel found that the MRDCLs violated the relevant national treatment provisions.¹⁶² An important intermediate finding made by the panel, in this regard, concerned the link between the electricity generating equipment to which the MRDCLs applied, and the electricity which the government was actually procuring.¹⁶³ The panel considered, on this point, that there was a sufficiently “close relationship” between these two goods.¹⁶⁴

The Appellate Body disagreed with the panel’s analysis, focusing instead on the language in the GATT on the government procurement exception addressing the “products purchased.”¹⁶⁵ For the Appellate Body, this reference had to be understood in relation to GATT Article III’s ‘like’ product analysis.¹⁶⁶ Accordingly, for the derogation to apply, “the product of foreign origin [electricity generating equipment] must be in a competitive relationship with the product purchased,” electricity.¹⁶⁷ In the absence of such a competitive relationship the MRDCLs could not qualify for the exception.¹⁶⁸

Turning to the FiT and microFiT regulations, the Appellate Body upheld the panel’s finding that these constituted financial contributions in the form of “government purchases of goods,”¹⁶⁹

161. Panel Report, *Canada – Renewables/FiT*, *supra* note 23, ¶¶ 7.149–7.167.

162. *Id.*

163. *Id.* ¶ 7.127.

164. *Id.* Arwel Davies argues that the “sufficiently close” language was not a condition, but rather represented obiter dictum for the panel. *See* Arwel Davies, *The GATT Article III:8(a) Procurement Derogation and Canada – Renewable Energy*, 18 J. INT’L ECON. L. 543, 545 (2015). To support this contention, she points to language at paragraph 7.127 suggesting that the contractual relationship between the MRDCLs and electricity procurement governed on this issue. *Id.*

165. Appellate Body Report, *Canada – Renewables/FiT*, *supra* note 18, ¶ 5.63.

166. *Id.*

167. *Id.* ¶ 5.74.

168. *Id.* ¶ 5.79.

169. *Id.* ¶ 5.128.

namely electricity, but reversed the panel's findings that the complainants had failed to meet the burden of proof in relation to their claim that the FiT and microFiT regulations were prohibited subsidies.¹⁷⁰ Despite this finding, the Appellate Body would declare itself unable to positively resolve the claim ("complete its analysis," in WTO jargon), as the panel had not meaningfully analyzed relevant evidence on the record.¹⁷¹ The panel, while accepting that both programs involved "government purchases of goods" for purposes of the first definitional element of a subsidy outlined in the previous subsection, had split 2:1 on the issue of the proper benchmark for the second definitional element, concerning "benefit."¹⁷² It is instructive to contrast the three approaches taken in the *Canada – RE/FiT* proceedings, as they are all plausible.

The panel majority considered that the wholesale rates were an inappropriate benchmark, as the significant degree of government intervention in the market rendered these rates an unreliable proxy for competitive counterfactual rates.¹⁷³ In so doing, the majority noted that the use of counterfactual wholesale rates would in any event drive RE-generated electricity out of the market.¹⁷⁴ The majority considered that an appropriate benchmark would take into account the particular government policies regarding Ontario's electricity market, including notably: (i) the elimination of coal-fired generators by 2014; (ii) the resultant need for replacement capacity; and (iii) the need for such replacement capacity to come from RE sources.¹⁷⁵ Against these caveats, the majority considered that an appropriate benchmark could be satisfied by

comparing the terms and conditions of the challenged FIT and microFIT Contracts with the terms and conditions that would be offered by commercial distributors of electricity acting under a government-imposed obligation to acquire electricity from generators operating solar PV and wind power plants of a

170. *Id.* ¶ 5.219.

171. Appellate Body Report, *Canada – Renewables/FiT*, *supra* note 18, ¶ 5.219.

172. *Id.*

173. Panel Report, *Canada – Renewables/FiT*, *supra* note 23, ¶ 7.320.

174. *Id.*

175. *Id.*

comparable scale to those functioning under the FIT Programme.¹⁷⁶

The dissent, while agreeing that Ontario's wholesale rates were too distorted to serve as market benchmarks, disagreed with the majority's view that counterfactual wholesale rates were inappropriate.¹⁷⁷ For the dissent, the government's policies were irrelevant to the question of whether the FIT and microFIT participants were receiving remuneration in excess of market value.¹⁷⁸ Reviewing the record, however, the dissent agreed with the majority that there was insufficient evidence to conduct a proper benefit analysis.¹⁷⁹

The Appellate Body considered that the panel majority's market benchmark was overbroad, inasmuch as it considered a single market for electricity in Ontario without enquiring into the source of the electricity, and conclusory, insofar as the panel's analysis ultimately ended, rather than beginning, with identification of what, in the panel's view, was the correct benchmark.¹⁸⁰ In the Appellate Body's view, the panel failed to properly consider supply-side factors, notably differences in cost structures, operating costs and dispatch characteristics.¹⁸¹ For the Appellate Body, the record demonstrated that, while conventional electricity generation could exert price constraints on wind and solar power, these RE sources could not do the reverse.¹⁸² The Appellate Body considered that these supply side distinctions were

176. *Id.* at ¶ 7.322.

177. *Id.*; see Part IX.

178. *Id.* ¶ 9.3-9.10. At ¶ 9.14, the dissent considered that an appropriate benchmark would "(i) represent prices established in competitive wholesale electricity markets – that is, wholesale electricity markets that are not significantly distorted by government intervention such as that in Ontario; and (ii) must be adjusted to reflect the "prevailing market conditions" for electricity in Ontario."

179. *Id.* ¶ 9.16

180. The Appellate Body did not meaningfully address the dissenting opinion, probably with good reason – as it seemed based on a misunderstanding of the role of governments in electricity markets.

181. Appellate Body Report, *Canada – Renewables/FiT*, *supra* note 18, ¶ 5.171 (citing Appellate Body Report, *European Communities and Certain Member States – Measures Affecting Trade in Large Civil Aircraft*, 7 ¶ 1121, WTO Doc. WT/DS316/AB/R (adopted June 1, 2011)).

182. *Id.* ¶ 5.174.

such that the markets for wind- and solar-generated electricity could only exist because of government regulation.¹⁸³ In this sense, the Ontario government had created a new market for RE-generated energy. The Appellate Body rounded off its criticism of the panel by pointing to the latter's failure to consider that, while customers at the retail level did not differentiate between different electricity generated from conventional versus renewable sources, the government clearly did for a host of policy reasons.¹⁸⁴ According to the Appellate Body:

the benefit comparison under Article 1.1(b) should not be conducted within the competitive wholesale electricity market as a whole, but within competitive markets for wind- and solar PV-generated electricity, which are created by the government definition of the energy supply-mix. . . [such] comparison . . . should be with the terms and conditions that would be available under market-based conditions for each of these technologies, taking the supply-mix as a given.¹⁸⁵

Having defined what it viewed as the correct benchmark, the Appellate Body confirmed the panel's assessment that Ontario benchmarks were unreliable, on account of market-distortive government interference.¹⁸⁶ Underlining that a government's creation of a market is itself not a bar to the use of market benchmarks, the Appellate Body considered that use of out-of-country benchmarks or constructed benchmarks, adjusted to reflect the conditions of the market, would be permissible under the circumstances.¹⁸⁷ The Appellate Body did so likely knowing full well how difficult it would be for the complainants to construct a sufficiently robust counterfactual electricity market.¹⁸⁸

In the absence of any remand authority under WTO dispute rules, the Appellate Body tries to "complete its analysis" by resolving those claims that a panel has incorrectly disposed of. The

183. *Id.* ¶ 5.175.

184. *Id.* ¶ 5.176.

185. *Id.* ¶ 5.190.

186. *Id.*

187. Appellate Body Report, *Canada – Renewables/FiT*, *supra* note 18, at ¶ 5.185 (citing Appellate Body Report, *US – Lumber IV*, *supra* note 138, ¶ 103).

188. *Id.* ¶ 5.190. The complainants, furthermore, had submitted some constructed benchmark data to the panel, which the latter had dismissed.

Appellate Body does so in recognition that WTO litigation is expensive, and time consuming. In this case, the Appellate Body attempted to complete the panel's analysis, relying on data the European Union had submitted on wind- and solar-specific pricing for Quebec's FiT to the panel, in addition to price data for an early precursor to Ontario's FiT regulation, the Regulated Price Plan, which had preceded Ontario's deregulation of electricity prices in 2003.¹⁸⁹ Problematically, these benchmarks all related to blended electricity markets.¹⁹⁰ As the Appellate Body could not bifurcate this data between conventional and RE-generated electricity, the Appellate Body determined that it was unable to apply this data to its benchmark.¹⁹¹

C. Assessment

The Appellate Body's findings, buried beneath layers of trade jargon, are of some significance – both in terms of their impact on future procurement and subsidization practices in the WTO, and in terms of the broader implications for production and import-subsidization subsidies in energy markets and beyond. I will unpack these themes.

On the one hand, to get at the MRDCL import-substitution measures that Canada attempted to cabin under the government procurement exception, the Appellate Body unflinchingly stripped away at some 70 years worth of Member State practice to narrow the scope of this exemption through use of the GATT “like product” analysis.¹⁹² To illustrate the implications of the Appellate Body's interpretation, I will use the example of a public authority's procurement of a highway pursuant to the United States Buy

189. *Id.* ¶ 5.192 (citing the relevant portion of the Panel Report).

190. *Id.* ¶ 5.180. Surprisingly, the European Union did not put forward a strong argument for using German prices as a benchmark. The record suggests that the European Union alluded to German prices only in response to a question posed by the panel. *Id.* Although one can only speculate as to the European Union's motivations for doing so, it may be that it felt that German prices as they were higher than desired.

191. *Id.* ¶ 5.246.

192. *Id.* ¶ 6.1(b)(I). The United States' Buy America Act of 1933, for instance, is one of many national laws directing public authorities to give preference to locally produced goods for public infrastructure spending. Buy American Act, 41 U.S.C. § 8301 (2012).

America Act.¹⁹³ Under the Appellate Body's interpretation of the procurement exception, such authority, if procuring [locally produced] steel to build a highway, may now be found to violate national treatment obligations owed to foreign steel, notwithstanding the lack of any "commercial resale" element. This is because there is no competitive relationship to speak of between the foreign steel being discriminated against, and the highway.¹⁹⁴ Conceivably, the United States could tender thousands of individual procurements for the infrastructure project to work around this limitation. Even then, a crafty complainant Member in a dispute request would have little difficulty arguing that the United States was attempting to circumvent this newfound limitation to the government procurement exception.

On the other hand, to cut the FiT and microFiT production subsidies some slack, the Appellate Body's findings on "benefit" would seem to allow a Member State to subsidize uncompetitive segments of a given market in a manner that alters the given supply mix of goods in that market to the point that it has effectively created a new market in the subsidized goods. Provided the Member State does not pay in excess of the rate of return to local producers, the measure may not provide any "benefit" to the recipients. I will illustrate the implications of the Appellate Body's interpretation by using the example of ethanol. Assuming that ethanol is more efficiently produced from sugar cane than corn, we could fathom of a situation where a Member State seeks to ensure a given level of corn-based ethanol in its ethanol supply mix – for policy reasons we can further assume are valid. Were the Member State to provide subsidies sufficient to effectively bifurcate the market, a complainant Member would have to show that the payments made to the corn producers exceeded their costs of production and a reasonable rate of return. The relevant market, in such an exercise, would be the market for *corn*-based ethanol.¹⁹⁵

193. 41 U.S.C. § 8301.

194. See Davies, *supra* note 164, at 550. Davies suggests that a possible refinement is that the exception remains applicable to physical inputs of the good being procured, inasmuch as the electricity generating equipment was not a physical input to electricity. However, she find this argument to be tenuous, given that it elevates form over substance. *Id.*

195. Rajib Pal, *Has the Appellate Body's Decision in Canada – Renewable Energy/Canada – Feed-in Tariff Program Opened the Door for Production*

Taking a step back, it is unclear that there were any principled differences between the MRDCLs and FiT and microFiT regulations. While the MRDCLs explicitly mandated the purchase of local content, in the form of electricity generating equipment, the FiT and microFiT regulations, in directing OPA to buy RE-generated electricity [necessarily] nearby the grid, likewise afforded preferential access to locally sourced electricity.¹⁹⁶ Although they implicate different products, the former operated as a local content requirement in form; while the latter did so in substance. Viewed in this light, the Appellate Body's vastly different conclusions seem somewhat anomalous. It bears mentioning, in this regard, that the complainants sought to highlight the inconsistency apparent in the panel's finding that the MRDCLs had conferred an "advantage" to Canadian industry within the wording of the TRIMS,¹⁹⁷ vis-à-vis the panel's failure to find that the FiT and microFiT regulations afforded Canadian industry any "benefit."¹⁹⁸ The Appellate Body, resorting to the Oxford English Dictionary (which it does when seeking to justify an otherwise counterintuitive conclusion), found the scope of "advantage" to be larger than, and encompassing, "benefit."¹⁹⁹

IV. POLICY IMPLICATIONS FOR FIT, RPS AND EA REGULATIONS

Trade scholars speculate that the Appellate Body's findings on market benchmarks were laden with policy considerations. Various accounts of the Appellate Body's purported motivations are offered in the literature.²⁰⁰ The most convincing, in my view,

Subsidies? 17 J. INT'L ECON. L. 125, 135-36 (2014). Pal uses the more farcical example of subsidies to a Member's local pineapple industry to drive the point home.

196. See Rubini, *supra* note 16, at 553.

197. TRIMS, *supra* note 102, at annex 1, ¶ 1(a).

198. Appellate Body Report, *Canada – Renewables/FiT*, *supra* note 18, ¶ 5.205.

199. *Id.* ¶ 5.207 (citing Appellate Body Report, *Canada – Measures Affecting the Export of Civilian Aircraft*, ¶ 1377, WTO Doc. WT/DS70/AB/R (adopted Aug. 20 1999)).

200. Some, like Luca Rubini speculate that the Appellate Body, like the panel majority before it, erred in conflating the question of the *existence* of a subsidy with the question of the *justification* for the subsidy. See Luca Rubini, 'The Good, The Bad, and The Ugly.' *Lessons on Methodology in Legal Analysis*

suggests that the Appellate Body, while possibly being mindful of the broader policy implications of exposing Member Countries' energy markets to challenges, came to an unsurprising conclusion, given the partisan nature of dispute settlement proceedings: disputing parties tend to concern themselves more with submitting benchmarks that, in widening or narrowing net subsidization, best

from the Recent WTO Litigation on Renewable Energy Subsidies, 48(5) J. WORLD TRADE 895, 917 (2014). This criticism may well be true. However, it overlooks that the SCMs itself draws no meaningful distinction between the existence and justification of a subsidy: insofar as a subsidy is found to exist, it matters not that a subsidy is "good" in the sense of correcting a market externality, which RE subsidies arguably do, and subsidies that are "bad" in the sense of propping up failing industries in a manner that distorts world market prices. United States and European agricultural subsidies being a prime example of such subsidies. For a brief (but clear) discussion of some of the treaty-based alternatives WTO Members could have pursued to allow for more "policy space" in the clean energy context, see ROBERT HOWSE, SECURING POLICY SPACE FOR CLEAN ENERGY UNDER THE SCM AGREEMENT: ALTERNATIVE APPROACHES (2013), <http://e15initiative.org/wp-content/uploads/2015/09/E15-CETs-Howse-Final.pdf> [<https://perma.cc/8Q5W-GXRV>]. Howse proposes converting import-substitution subsidies for clean energy from prohibited to actionable. Once an alleged program is shown to satisfy the definitional elements of a subsidy, it is countervailable provided it causes some form of adverse effects on a complainant. Seen in this light, and against the backdrop of the utter collapse of the WTO's negotiations pillar following the failed Doha Development Round of trade negotiations, it is perhaps inevitable that panels would attempt to tilt the scales of justice one way or another in a "hard case" such as this one. *Id.* at 4. Others, like Elizabeth Whitsitt, suggest that the Appellate Body was mindful of possible tensions with investment law, inasmuch as WTO-mandated changes to the FiT and microFiT regulations may have resulted in Canada shafting foreign investors. See Elizabeth Whitsitt, *A Modest Victory at the WTO for Ontario's FiT Program*, 20 U.C. DAVIS J. INT'L L. & POL'Y 75, 99-101 (2013). Whitsitt highlights the Mesa Power litigation as an example of less dramatic changes to Ontario's FiT programs that resulted in arbitral proceedings over alleged arbitrary allocation of preferences under the FiT following some legislative amendments thereto. See *Mesa Power Grp., LLC v. Gov't of Can.*, PCA Case No. 2012-17 (PCA Case Repository Mar. 24, 2016) <http://www.italaw.com/sites/default/files/case-documents/italaw7240.pdf> [<https://perma.cc/Q87T-U28X>]. It bears mentioning that Mesa lost this dispute, on a 2:1 split. *Id.* Whitsitt's argument may also well be true. However, it is difficult to know for sure: certainly, nothing on the record indicates that the panel or Appellate Body were concerned over the non-WTO law knock-on effects of their reports. The international legal order has unquestionably grown fragmented over the last three or so decades, and while it would be good of the Appellate Body to take an integrationist approach to dispute settlement, the "spaghetti bowl" of investment law treaties, numbering in excess of 3000 globally, makes this a daunting task. UNCTAD, WORLD INVESTMENT REPORT 2015 - REFORMING INTERNATIONAL INVESTMENT GOVERNANCE 115-116 (2015), http://unctad.org/en/PublicationsLibrary/wir2015_en.pdf [<https://perma.cc/J9R3-S27W>].

support their arguments, and less with constructing an objectively “fair” benchmark.²⁰¹ In this vein, it is certainly true that WTO panels are constrained by the evidence on the record. If the right counterfactual does not exist, a panel can do little other than find that the complainants have failed to make their case.

A. Market Definition Matters

Whatever the reason, it bears mentioning that the Appellate Body has never explicitly reversed itself or openly modified its prior reasoning on a legal question in its more than 20 years of existence.²⁰² Having said this, while the Appellate Body’s *motivations* do not matter, it is nevertheless critically important to unpack precisely what the Appellate Body *held* in *Canada – RE/FiT*. A broad and purposive interpretation of the *Canada – RE/FiT* report might lead one to assess that the Appellate Body green-lighted production subsidies, provided these can be separated from any accompanying local content requirements. Such requirements, by operation of GATT and TRIMS national treatment clauses, can be found WTO-inconsistent by a panel even where a complainant might now struggle to establish a subsidization claim.

A narrower interpretation would focus on the contours of the Appellate Body’s benchmark analysis. Market analyses are not novel to WTO litigation – as WTO disputes continue to grow in size and complexity, parties have increasingly litigated fact-intensive questions of competitive market counterfactuals.²⁰³ Further, no two markets are the same: what the Appellate Body held in relation to the duopolistic world market for large civil aircrafts in

201. Raj Bhala et al., *WTO Case Review 2013*, 31 ARIZ. J. INT’L & COMP. L. 475, 508-10 (2014).

202. For an account of more subtle changes to the Appellate Body’s methodology see Frieder Roessler, *Changes in the Jurisprudence of the WTO Appellate Body During the Past Twenty Years* (Robert Schuman Ctr. for Advanced Studies Resear, Paper No. RSCAS 2015/72, 2015), http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2673466 [<https://perma.cc/6UHJ-JD75>].

203. Appellate Body Report, *United States – Measures Affecting Trade in Large Civil Aircraft (Second Complaint)*, WTO Doc. WT/DS353/AB/R (adopted Mar. 23, 2012); see generally Appellate Body Reports, *European Communities and Certain Member States – Measures Affecting Trade in Large Civil Aircraft*, *supra* note 109.

one case will probably not all be applicable to its analysis of the world market for cotton in another case, let alone its assessment of a provincial electricity market in Canada in yet a different case. The Appellate Body's analysis of the Ontario electricity market, in turn, may not color its analysis of, say, the California market in a future WTO challenge to California's RPS regulation, or, for instance, the Brazilian market in an analogous challenge to Brazil's EA regulation.²⁰⁴

In *Canada – RE/FiT*, the Appellate Body gave more weight to differences in supply-side distinctions between conventional and RE generators to find that, the similarity of demand-side characteristics notwithstanding, these generators supplied different markets. Starting with the Appellate Body's supply-side distinctions, it does not necessarily follow that RE-generated electricity does not constrain the market behavior of conventional generators. I indicated in Part II of this paper that RE-generated energy in a FiT regulation, owing to its "must take" characteristics, has a price suppressive effect on wholesale electricity prices – on the Ontario grid and, presumably, in most other jurisdictions with FiT regulations. If the Appellate Body were referring to a hypothetical Ontario market, absent the FiT and microFiT regulations, its findings would make more sense. Even here, however, it will not always be a given that RE-generated electricity cannot constrain conventional electricity pricing in the absence of a FiT regulation: negative bids from wind-generated energy in the Texas wholesale markets, for instance, are reportedly driving conventional generators out of the market.²⁰⁵ Further, if we buy the Appellate Body's reasoning on supply-side constraints, one could push market segmentation even further: for instance, it takes nuclear and coal-fired plants a full day to power up. In a competitive market, such plants could not easily react to constrain the behavior of gas-fired turbine plants, by ramping up or down. It does not necessarily follow that this further splits electricity markets between these base and intermediate load plants. In this

204. Both described in INT'L RENEWABLE ENERGY AGENCY (IRENA) & CLEAN ENERGY MINISTERIAL (CEM), RENEWABLE ENERGY AUCTIONS—A GUIDE TO DESIGN (2015), http://www.irena.org/DocumentDownloads/Publications/IRENA_RE_Auctions_Guide_2015_6_liabilities.pdf [<https://perma.cc/9KJU-LD5G>].

205. See Huntowski, *supra* note 74, at 6.

sense, one could argue that the panel majority's benchmark was more intellectually honest: it openly acknowledged that government policy sought to correct environmental externalities, and accepted that this policy warranted market segmentation.²⁰⁶

Turning to the demand-side distinctions, the Appellate Body bifurcated the demand-side market between retail and wholesale (government) buyers to highlight that there were, in fact, some demand-side distinctions between conventional- and RE-generated energy. It is indeed true, as I indicated in Part II above, that electricity is, physically, identical. Yet, the Appellate Body did not need to segment its buyer-side analysis to come to this conclusion: customers are increasingly environmentally conscious. To address these concerns, electricity distributors have, in recent years, marketed a range of green energy tariffs.²⁰⁷ While it is suggested in the literature that such tariffs may reflect more of a marketing gimmick than a response to consumer tastes,²⁰⁸ this might not hold true in energy markets such as California's, where residents proactively require that their electricity come from renewables, and are willing to pay higher energy bills. It becomes difficult otherwise to explain the overwhelming support for the 50% RPS target announced by Governor Jerry Brown on October 7, 2015.²⁰⁹

Having emphasized that market definition matters for prospective respondent Members, it bears emphasizing that

206. Absent such segmentation, one can fathom of a situation where a foreign supplier of natural gas combined cycle (NGCC) turbines relies on demand-side synergies and the lack of pertinent supply-side distinctions to pressure its government to initiate a challenge against those states in the United States that subsidize their coal generators under a theory that these generators are being subsidized relative to gas-fired generators, in a manner that hurts NGCC exports. Provided that the benchmark price in such a challenge can be established as the wholesale price for electricity, such a challenge could conceivably succeed.

207. See, e.g., LETHA TAWNEY ET AL., WORLD RES. INST., EMERGING GREEN TARIFFS IN U.S. REGULATED ELECTRICITY MARKETS (2016), http://www.wri.org/sites/default/files/Emerging_Green_Tariffs_in_US_Regulated_Electricity_Markets.pdf [<https://perma.cc/97X4-C3LF>] (listing examples of green energy tariffs electricity distributors have marketed).

208. AMAR BRECKENRIDGE & DAVID FOSTER, A MATTER OF DEFINITION: COMMENTARY OF ASPECTS OF THE APPELLATE BODY'S RULING ON THE CANADA-RENEWABLE ENERGY CASE IN THE WTO 4 (2013) http://worldtradelaw.typepad.com/files/fit_definition.pdf [<https://perma.cc/UD6Z-BUD9>].

209. S.B. 350, 2015 Leg., ch. 547, 93 (Cal. 2015), https://leginfo.ca.gov/faces/billTextClient.xhtml?bill_id=201520160SB350 [<https://perma.cc/4ENQ-TYS7>].

identifying proper benchmarks will be difficult for prospective complainant Members. For one, the Appellate Body may well have ruled wholesale electricity prices out as proper benchmarks in any future WTO challenge to RE electricity prices in a FiT, RPS or EA regulation, given the Appellate Body's implicit recognition that counterfactuals should allow for a reasonable rate of return on firms' capital investments, which marginal cost recovery in the spot market does not allow for.²¹⁰ Such benchmarks would thus need to address the "missing money" problem discussed in Part II of this paper. This is an eminently reasonable position, and one that is aligned with the reality that the electricity market is, quite simply, not your typical commodity market.

In constructing any benchmark prices, it is important to recall that there is no such thing as a perfectly competitive electricity market – they are all regulated to some degree. This renders any constructed electricity market benchmarks arbitrary to some degree. Such models, and the assumptions contained therein, are sure to be open to various points of attack by experts adduced by respondents. One possible point of attack, as I mentioned in Part II, is that deregulation initiatives in emerging economies have all yielded "dual markets." Such dual markets are acknowledged in the literature as representing rational equilibrium points.²¹¹ Precisely how a prospective complainant Member would construct a viable dual market, with solvent private operators and insolvent public suppliers, will be interesting to track in future disputes. If the arbitrary nature of constructed benchmarks is off-putting enough to spur a prospective complainant to first seek to identify a real market, the need for proper benchmarks to take supply mixes as a given makes life *even more* difficult: how many jurisdictions pursue the same or similar supply mixes?²¹² And

210. See Appellate Body Report, *Canada – Renewables/FiT*, *supra* note 18, ¶ 5.175. In so doing, the Appellate Body would seem to distance itself from the dissent's view that wholesale market prices could serve as an appropriate benchmark.

211. See HELLER & VICTOR, *supra* note 34.

212. Indeed, the Appellate Body acknowledged that such complainants would likely have to resort to economic models – which brings us back full circle to the problem of arbitrary benchmarks. See Appellate Body Report, *Canada – Renewables/FiT*, *supra* note 18.

within such jurisdictions, how many will operate the same type of energy procurement regulation?

B. FiT v RPS and EA Regulations

On balance, FiT, RPS and EA regulations, where they lack local content requirements, are now relatively insulated from WTO challenges. Where a respondent Member is challenged on FiT pricing, it may now argue, in line with the Appellate Body's findings in *Canada – RE/FiT*, that its interventions in the market, spurred by pro-environment policies or considerations, have led to the creation of a new market for RE-generated energy. Accordingly, its FiT pricing should be assessed against hypothetically competitive RE-generated electricity prices, subject to the “terms and conditions that would be available under market-based conditions for each of these technologies, taking the supply-mix as a given”²¹³ This not only adds a layer of complexity for a complainant Member: it invariably raises counterfactual prices.

RPS and EA regulations are even more insulated from a WTO challenge. Before a complainant Member can even tackle the complexities of establishing an appropriate benchmark to show the existence of any benefit to recipients, it need first show, in subsidies challenge to an RPS regulation, that such regulation resulted in a “financial contribution.” The same considerations that led the panel in *Canada – RE/FiT* to find that the Ontario *government* was purchasing goods, are arguably lacking in an RPS regulation²¹⁴ while publicly-owned utilities may be covered by RPS obligations, they apply with equal force to IOUs. While the argument can be made that such private bodies are being ‘entrusted’ or ‘directed’ to purchase electricity by the government, it bears mentioning that the Appellate Body has never upheld any findings under this definitional provision, preferring instead to broaden the scope of a “public body” than opening the Pandora’s Box of bringing private party action within the purview of SCMs litigation.²¹⁵ Assuming, *arguendo*, that a complainant establishes

213. *Id.* ¶ 5.190.

214. An EA regulation would feature a government purchaser.

215. The Appellate Body has made various obiter remarks on SCMs article 1.1(a)(iv), notably alluding to its anti-circumvention purposes, without ever positively finding any instances of entrustment or direction in appeals to date.

a financial contribution; with respect to an RPS regulation, where the only or predominant purchasers in a market are public bodies; and with respect to an EA regulation for that very reason, it will still have to establish that the prices negotiated with RE generators are *supra* competitive. As RPS and EA regulations are designed to be market-driven, this is a tall order to meet.

Canada – RE/FiT thus sets an encouraging precedent for governments (as respondents) and RE industries. Prior to the dispute, cautious governments may have preferred implementing RPS or EA regulations to FiT regulations, on the understanding that the former two are less likely to be found trade distortive than the latter. Following *Canada – RE/FiT*, these governments – insofar as they can afford it – can safely provide FiT regulations safe in the knowledge that they are, to some degree, insulated from a WTO challenge.²¹⁶ I qualify the statement with “to some degree” as, paradoxically, it would seem that they fall into a certain ‘safe harbor’ if they can sufficiently distort the electricity market to the point where it may be shown, objectively, that a new market for RE-generated electricity has been created. Governments that are unable to do so might still be exposed to wholesale electricity benchmark prices, although such prices might have to be adjusted to reflect reasonable rates of return. The need to sufficiently distort a market would seem to privilege developed Member States with deeper pockets than developing Member States, although the counter-argument can certainly be made that some level of subsidization of RE-generated electricity, falling short of creating a new market, is less likely to cause a given respondent Member’s trading partners any adverse effects of the type normally required before a complainant Member can seek to impose countermeasures in the first place.

V. CONCLUSION

RE-generated electricity is a critically important component of states’ commitment, under the UNFCCC Paris Accord, to curb

See generally, on the anti-circumvention purposes, Appellate Body Report, *US – Softwood Lumber IV*, *supra* note 88, ¶ 52.

216. See Appellate Body Report, *Canada – Renewables/FiT*, *supra* note 18. In practice, countries are increasingly viewing EA regulations as a more cost-effective alternative to FiT regulations.

anthropogenic greenhouse gas emissions to below disastrous levels in the course of the next century. The WTO's 164 Member States will all have to deliver on this commitment, if the world is to avoid some of the gloomier projections of a world that has warmed by in excess of 2 degrees Celsius from present-day average global temperatures. The WTO and its Secretariat staff are fully aware of this.²¹⁷ The importance of sustainably incorporating RE generators onto national grids by Members, in this regard, cannot be understated.

Electricity markets are all, more or less, reaching an inflection point, where regulators are revisiting ways to best incorporate RE-generated energy on wholesale electricity markets. This is a task that, amongst other things, must result in a level playing field between conventional and RE generators. Conventional generators in certain markets have enjoyed embedded privileges. In the United States, for instance, many utilities have fully amortized their facilities equipment, and are much better placed to absorb marginal cost pricing when bidding in spot markets than new market entrants. RE generators, as new entrants to the market, in turn cannot compete with conventional generators without government support. They are most vulnerable to the "missing money" problem.

Government support to remedy this problem has, typically, come in the form of FiT, RPS or EA regulations, requiring public bodies and encouraging private bodies to enter into long-term PPAs with RE generators at contract rates sufficiently attractive to allow investors a reasonable rate of return. These programs are sometimes reinforced with various other types of incentives, notably tax incentives and payment subsidies, some of which incorporate local content requirements. Such incentives may raise issues under the WTO GATT, TRIMS and SCMs Agreements.

Local content requirements are simply not tolerated under WTO law. Production subsidies, on the other hand, are fine in principle. Before *Canada – RE/FiT*, it was understood that production subsidies were actionable by prospective complainant Members, where they cause adverse effects. In *Canada – RE/FiT*, the Appellate Body tightened disciplines relating to permissible

217. It bears mentioning that WTO HQ in Geneva is resourced with state of the art recycling facilities!

government procurement, but loosened disciplines relating to production subsidies.

The Appellate Body, in its benchmark analysis of the Ontario market, has created a safe harbor for RE production subsidies, in introducing a significant evidentiary hurdle for complainants to cross if they are to succeed in any challenge to production subsidies. Such complainants will have to show that RE generators are being remunerated in excess of whatever rates, inclusive of a reasonable rate of return, would prevail in the RE electricity segment of the market (a separate and newly created market), taking the allegedly subsidizing Member's supply mix as a given. The need to scour through potentially confidential company-level financial data to obtain the requisite rate of return information to calculate market benchmarks, let alone the complexities involved in constructing such benchmarks, makes it less likely that Members will challenge each other's electricity markets in the future.

Scholars disagree on the Appellate Body's motivations. Further, its market analysis probably had some economists seething with rage. Ultimately, none of these aspects matter: only the Appellate Body's holding matters. The takeaway from this is that FiT, RPS and EA regulations are now insulated from a WTO challenge. One implication is that, inasmuch as cautious governments preferred RPS or EA regulations for fear of having a FiT characterized as a subsidy, such Member States will be released of those fears. It is doubtful that *Canada – RE/FiT* will lead to an onslaught of FiTs, given the considerable costs to consumers they entail. Further, anecdotal evidence indicates that countries, particularly in Latin America, are increasingly preferring EA regulations to FiT regulations.²¹⁸ It may well be that developing countries will instead be more emboldened to enact aggressive EA regulations, safe from the possibility of a WTO challenge.

Whatever the energy procurement regulation chosen, provided such Members can show that they are supporting RE-generated electricity through them for environmental purposes, and that,

218. INT'L ENERGY AGENCY, RENEWABLE POLICY UPDATED 2-4 (2016), <https://www.iea.org/media/pams/repolicyupdate/REDRenewablePolicyUpdateNo920160405.pdf> [<https://perma.cc/T2T4-GX2J>]. But see text at note 45.

absent such support, RE generators could not compete in the wholesale market for electricity (something that the historical development of electricity markets fully supports), they are free to remunerate RE generators well in excess of these wholesale market prices. This is a significant development for energy markets, and one that may well spur governments to experiment with bolder RE subsidies in the future, with a view to testing the bounds or upper limits of the Appellate Body's findings in *Canada – RE/FiT*. There are definitely fast times ahead for RE generators, energy regulators, their governments, and their trading partners.