

## **VIII. CONCLUSIONS AND RECOMMENDATIONS**

8.1 As already noted in the cover page to these Reports, our conclusions and recommendations have been set out separately with respect to each dispute in the following sections.

A. COMPLAINT BY JAPAN (DS412)

**1. Conclusions**

8.2 In the light of the findings set out in the foregoing sections of this Report, we conclude that Japan has established that the "Minimum Required Domestic Content Level" prescribed under the FIT Programme, and implemented through the individual FIT and microFIT Contracts executed since the FIT Programme's inception, places Canada in breach of its obligations under Article 2.1 of the TRIMs Agreement and Article III:4 of the GATT 1994.

8.3 On the other hand, in the light of the findings set out in the foregoing sections of this Report, we conclude that Japan has failed to establish that the FIT Programme, and the individual solar PV and windpower FIT and microFIT Contracts executed since the FIT Programme's inception, constitute subsidies, or envisage the granting of subsidies, within the meaning of Article 1.1 of the SCM Agreement, and thereby that Canada has acted inconsistently with Articles 3.1(b) and 3.2 of the SCM Agreement.

**2. Recommendations**

8.4 Pursuant to Article 3.8 of the DSU, in cases where there is infringement of the obligations assumed under a covered agreement, the action is considered *prima facie* to constitute a case of nullification or impairment of benefits under that agreement. Accordingly, we conclude that to the extent Canada has acted inconsistently with Article 2.1 of the TRIMs Agreement and Article III:4 of the GATT 1994, Canada has nullified or impaired benefits accruing to Japan.

8.5 We recommend that Canada bring its measures into conformity with its obligations under the TRIMs Agreement and the GATT 1994.

B. COMPLAINT BY THE EUROPEAN UNION (DS426)

**1. Conclusions**

8.6 In the light of the findings set out in the foregoing sections of this Report, we conclude that European Union has established that the "Minimum Required Domestic Content Level" prescribed under the FIT Programme, and implemented through the individual FIT and microFIT Contracts executed since the FIT Programme's inception, places Canada in breach of its obligations under Article 2.1 of the TRIMs Agreement and Article III:4 of the GATT 1994.

8.7 On the other hand, in the light of the findings set out in the foregoing sections of this Report, we conclude that the European Union has failed to establish that the FIT Programme, and the individual solar PV and windpower FIT and microFIT Contracts executed since the FIT Programme's inception, constitute subsidies, or envisage the granting of subsidies, within the meaning of Article 1.1 of the SCM Agreement, and thereby that Canada has acted inconsistently with Articles 3.1(b) and 3.2 of the SCM Agreement.

**2. Recommendations**

8.8 Pursuant to Article 3.8 of the DSU, in cases where there is infringement of the obligations assumed under a covered agreement, the action is considered *prima facie* to constitute a case of nullification or impairment of benefits under that agreement. Accordingly, we conclude that to the extent Canada has acted inconsistently with Article 2.1 of the TRIMs Agreement and Article III:4 of the GATT 1994, Canada has nullified or impaired benefits accruing to the European Union.

8.9 We recommend that Canada bring its measures into conformity with its obligations under the TRIMs Agreement and the GATT 1994.

**IX. DISSENTING OPINION OF ONE MEMBER OF THE PANEL WITH RESPECT TO WHETHER THE CHALLENGED MEASURES CONFER A BENEFIT WITHIN THE MEANING OF ARTICLE 1.1(B) OF THE SCM AGREEMENT**

A. INTRODUCTION

9.1 The Panel majority has undertaken a long and careful evaluation of the parties' arguments concerning the question whether the challenged measures confer a benefit, ultimately concluding that the complainants have failed to establish the existence of subsidization<sup>642</sup>. While I agree with parts of the Panel majority's benefit analysis, I respectfully disagree with certain key aspects of its reasoning and ultimate findings. In essence, the Panel majority has found that the circumstances of ensuring a reliable supply of electricity that achieves certain objectives sought by the Government of Ontario justifies the rejection of the competitive wholesale electricity market as the relevant focus of the benefit analysis. The Panel majority has furthermore suggested that, in these circumstances, the existence of benefit could be determined by focusing upon the rate of return associated with the FIT and microFIT Contracts and comparing this with the average cost of capital in Canada for projects having a comparable risk profile.

9.2 I respectfully disagree with these findings and the alternative benefit test. The wholesale electricity market that currently exists in Ontario is recognizable as a market for the buying and selling of electricity. It is undeniable that the supply of electricity, its price and competition between electricity generators – in particular, market entry – are very heavily regulated and conditioned in the market by the Government of Ontario. The wholesale electricity market that currently exists in Ontario is therefore not the kind of market where price is determined by the unconstrained forces of supply and demand. The regulatory impacts on the market are not simply in the nature of framework regulation, within which those forces may operate. The Government of Ontario (through Hydro One) and the municipal governments (through Local Distribution Companies) account for almost all purchases of electricity made at the wholesale level. The same product, which in this case is electricity, is purchased by these entities at different prices depending upon its method of generation or particular status in the Government of Ontario's electricity supply policy, including under the FIT Programme. In these circumstances the complainants have expressed their concern that an advantage is being given to the market participants that are receiving the highest prices for the electricity they produce, namely generators using solar PV and windpower technologies operating under the FIT Programme. The Panel's task is to test that concern according to the disciplines of the SCM Agreement.

9.3 The relevant question that a Panel in a case such as this must address is whether a benefit is conferred on the recipient of the financial contribution. The wholesale electricity market in Ontario does not allow for the discovery of a single market-clearing price established through the unconstrained forces of supply and demand. In that market the Government of Ontario and the municipal governments are the chief buyers of the goods concerned. In these circumstances the Panel must consider whether there is some appropriate frame of reference for determining if a benefit is conferred in the provision of that financial contribution. In my view, the competitive wholesale market for electricity that *could* exist in Ontario is the appropriate focus of the benefit analysis. Furthermore, I am of the view that facilitating the entry of certain technologies into the market that does exist – such as it is – by way of a financial contribution can itself be considered to confer a benefit. In the light of these considerations, it follows from the arguments and evidence presented by the complainants, as well as Canada's own statements, that the challenged measures confer a benefit, within the meaning of Article 1.1(b) of the SCM Agreement.

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<sup>642</sup> See above at Section VII.C.3.

B. THE COMPETITIVE WHOLESALE ELECTRICITY MARKET IS THE RELEVANT FOCUS OF THE BENEFIT ANALYSIS

9.4 As the Panel majority explained, a financial contribution will confer a benefit within the meaning of Article 1.1(b) of the SCM Agreement when it confers an advantage upon its recipient. It is well established that the existence of any such advantage is to be determined by comparing the position of the recipient with and without the financial contribution, and that "the marketplace provides an appropriate basis for [making this] comparison"<sup>643</sup>. Having found that the challenged measures amount to "financial contribution[s]" in the form of "government purchases [of] goods", it follows that the relevant "marketplace" must be the competitive market where electricity is purchased at the same level of trade as the government purchases that are challenged in the present disputes, namely, the wholesale level of trade.

9.5 The Panel majority concluded that the wholesale electricity market currently operating in Ontario cannot be used for the purpose of conducting the benefit analysis. In addition, the Panel majority found that the competitive wholesale electricity market that could, in theory, exist in Ontario could also not be used as a basis for the benefit analysis because, in the light of the prevailing conditions of supply and demand, such a market would fail to attract the generation capacity needed to secure a reliable supply of electricity for the people of Ontario<sup>644</sup>. In my view, however, the fact that a competitive market might not exist in the absence of government intervention or that it may not achieve all of the objectives that a government would like it to achieve, does not mean it cannot be used for the purpose of conducting a benefit analysis. Indeed, it is because competitive markets do not often work the way that governments would like them to that governments will decide to influence market outcomes by, for example, becoming a market participant, regulating market participants or providing them with incentives (or creating disincentives) to behave in a particular way. A government might also choose to intervene in competitive market outcomes by granting subsidies, as defined in Article 1.1 of the SCM Agreement. Provided that such subsidies are not prohibited under Article 3 of the SCM Agreement, a government will be entitled to maintain such measures, subject to the remedies available to other WTO Members under Parts III and V of the SCM Agreement where either "adverse effects" or "material injury" is proven.

9.6 The Panel majority has come to a number of conclusions about the shortcomings of competitive wholesale electricity markets and the inability of the market to achieve the legitimate objectives of the Government of Ontario for its electricity system. However the fact that a market is imperfect in its operation or does not meet the objectives that a government might have for the goods or services which are traded in it does not shield financial contributions which take place in the market from the benefit analysis that is required under the SCM Agreement. In this regard, it is important to recall that the Appellate Body has consistently identified the "marketplace" as the relevant focus of a benefit analysis, regardless of its particular characteristics or imperfections:

The terms of a financial transaction must be assessed against the terms that would result from unconstrained exchange in the relevant market. The relevant market may be more or less developed; it may be made up of many or few participants. ... In some instances, the market may be more rudimentary. In other instances, it may be difficult to establish the relevant market and its results. But these informational constraints do not alter the basic framework from which the analysis should proceed. ... There is but one standard—the market standard ...<sup>645</sup>

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<sup>643</sup> Appellate Body Report, *Canada – Aircraft*, para. 157.

<sup>644</sup> See above para. 7.312.

<sup>645</sup> Appellate Body Report, *Japan – DRAMS (Korea)*, para. 172.

9.7 On the basis of the above considerations, I now turn to examine the merits of the two lines of argument the complainants have advanced in support of their allegations of subsidization.

C. WHETHER THE CHALLENGED MEASURES PROVIDE FOR "MORE THAN ADEQUATE REMUNERATION" WITHIN THE MEANING OF ARTICLE 14(D) OF THE SCM AGREEMENT

9.8 The first line of benefit argument advanced by the complainants follows the approach that is described in the guidelines for calculating the amount of subsidy in terms of benefit contained in Article 14(d) of the SCM Agreement. Although intended to guide benefit determinations for the purpose of countervailing duty investigations, previous disputes tell us that the approach adopted by the complainants may be one way of demonstrating the existence of benefit in the present proceedings<sup>646</sup>. Thus, the complainants have advanced a series of different prices for electricity, which they submit represent the price that a distributor or trader would have to pay for electricity in Ontario's current wholesale electricity market, or are a proxy for that price. As the complainants note, each of the proposed benchmark prices is outwardly lower than the prices received by solar PV and windpower projects under the FIT Programme.

9.9 Before evaluating the merits of the complainants' arguments, it is important to recall that the guidelines in Article 14(d) of the SCM Agreement stipulate that the amount of benefit may be calculated by identifying the extent to which "more than adequate remuneration" has been paid for a purchased product "in relation to prevailing market conditions" in the *country* of purchase. In the present disputes, the complainants have not advanced *country*-specific price benchmarks, but rather benchmarks based on prices established in regional intra-national markets operating in Canada, and also the United States. The complainants appear to have done so because there are no national electricity wholesale markets in Canada. In other words, the "prevailing market conditions" in the country of purchase (Canada) are such that there are no country-wide electricity markets. In my view Article 14(d) does not suggest that the prevailing market conditions can only be those of a national market. Market conditions in a regional market of a country are, relevantly, market conditions "in the country of purchase". In this light, the complainants' approach is not inconsistent with the guidelines stipulated in Article 14(d) of the SCM Agreement.

9.10 Returning to the substance of the complainant's benefit submissions, the competitive nature of the IESO-administered wholesale electricity market in Ontario was closely examined by the Panel majority, which found that the equilibrium level of the HOEP that is set in this market is directly related to the electricity pricing policy and supply-mix decisions of the Government of Ontario<sup>647</sup>. I agree with this finding. The Government of Ontario's intervention in the IESO-administered wholesale market price outcomes encompasses participation not only as a purchaser of electricity, but also a generator, transmitter, distributor and price-setter (for both generators and consumers). As a result, the price outcomes of the IESO-administered wholesale market (the HOEP) are significantly distorted by the actions and policies of the Government of Ontario. For this reason, the HOEP and all related derivatives advanced by the complainants cannot be used as appropriate market benchmarks for the purpose of performing a benefit analysis under the terms of Article 14(d) of the SCM Agreement<sup>648</sup>. They do not represent a price established on a competitive wholesale electricity market in Ontario.

9.11 The complainants also present the prices for electricity paid in four allegedly competitive wholesale electricity markets outside of Ontario as proxies for the wholesale market price of

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<sup>646</sup> See above paras. 7.271-7.275.

<sup>647</sup> See above paras. 7.298 and 7.300.

<sup>648</sup> In this regard, I agree with the description of the relevant legal standard that is set out in the Panel majority opinion above at paras. 7.271-7.275.

electricity in Ontario, and argue that these prices demonstrate that the challenged measures confer a benefit. They are prices in Alberta, Canada (the "Alberta benchmark") and prices in New York, New England, and the PJM Interconnection (the "US benchmarks")<sup>649</sup>.

9.12 In *US - Softwood Lumber IV*, the Appellate Body found that where private prices for a particular good provided by a government are "distorted because of the government's predominant role in providing those goods", Article 14(d) of the SCM Agreement permits investigating authorities to use the price of the same or similar goods in a market outside of the country in question as a benchmark for conducting a benefit analysis<sup>650</sup>. However, the Appellate Body cautioned that when "an investigating authority proceeds in this manner, it is under an obligation to ensure that the resulting benchmark relates or refers to, or is connected with, prevailing market conditions in the country of provision, and must reflect price, quality, availability, marketability, transportation and other conditions of purchase or sale, as required by Article 14(d)". In addition, investigating authorities must keep in mind that:

[P]rices in the market of a WTO Member would be expected to reflect prevailing market conditions in that Member; they are unlikely to reflect conditions prevailing in another Member. Therefore, it cannot be presumed that market conditions prevailing in one Member, for instance the United States, relate or refer to, or are connected with, market conditions prevailing in another Member, such as Canada for example. Indeed, it seems to us that it would be difficult, from a practical point of view, for investigating authorities to replicate reliably market conditions prevailing in one country on the basis of market conditions prevailing in another country. First, there are numerous factors to be taken into account in making adjustments to market conditions prevailing in one country so as to replicate those prevailing in another country; secondly, it would be difficult to ensure that all necessary adjustments are made to prices in one country in order to develop a benchmark that relates or refers to, or is connected with, prevailing market conditions in another country, so as to reflect price, quality, availability, marketability, transportation and other conditions of purchase or sale in that other country.<sup>651</sup>

It is clear, in the abstract, that different factors can result in one country having a comparative advantage over another with respect to the production of certain goods. In any event, any comparative advantage would be reflected in the market conditions prevailing in the country of provision and, therefore, would have to be taken into account and reflected in the adjustments made to any method used for the determination of adequacy of remuneration, if it is to relate or refer to, or be connected with, prevailing market conditions in the market of provision. ...<sup>651</sup>

9.13 Like the Panel majority, I see no reason why the above principles that were pronounced in the context of a dispute involving a financial contribution in the form of a government *provision* of goods should not also apply in the context of the present disputes involving government *purchases* of goods.

9.14 Thus, in order for the complainants' US benchmarks to be validly applied in the benefit analysis, it must be shown that they: (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. The application of the Alberta benchmark is subject to

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<sup>649</sup> Collectively, the "out-of-Province" benchmarks.

<sup>650</sup> Appellate Body Report, *US – Softwood Lumber IV*, paras. 90, 103, and 115.

<sup>651</sup> Appellate Body Report, *US – Softwood Lumber IV*, paras. 108-109. (footnote omitted)

the same consideration as set out in (i). Given that the Alberta benchmark is a price which does exist "in the *country* of... purchase" a question arises as to whether the consideration set out in (ii) is also applicable. In my opinion it is equally applicable, because the "prevailing market conditions" in the country of purchase include those of both Ontario and Alberta. Determining whether a benefit is conferred "in relation to" prevailing market conditions in Canada includes a consideration of the divisions between markets in that country, and how the conditions of a regional market (that of Ontario) might need to be reflected in a price benchmark adopted from another regional market in that country (that of Alberta).

9.15 With respect to whether the prices in the out-of-Province markets are established through the unconstrained forces of supply and demand, Canada has not contested the complainants' assertions that the wholesale electricity markets in Alberta and in New York, New England and in the PJM Interconnection are competitive and would be available as market price benchmarks (were it not for the fact that they ignore the fundamental condition that the benchmark must relate to the purchase of electricity generated from renewable sources of energy). Nevertheless, the complainants have not presented the same detailed analysis of the alleged competitive nature of these markets as has been advanced in respect of the IESO-administered wholesale market in Ontario. This is an important deficiency because it is clear from the Hogan Report and other arguments and evidence presented in these proceedings that governmental regulation of electricity systems and/or markets is very pronounced across the world. There are many political, social and economic considerations underlying such regulation. Moreover, the specific characteristics of electricity (intangibility, inability to store effectively and almost simultaneous production-consumption) and its critical importance to all facets of modern life make it the type of product whose production, distribution and usage will invariably be susceptible to varying degrees of government intervention. Thus, in the absence of more detailed information about how each of the four out-of-Province markets actually operates, it is difficult to draw any definitive conclusions about their competitive nature for the purpose of conducting a benefit analysis under Article 1.1(b) of the SCM Agreement<sup>652</sup>.

9.16 In any case, the complainants have not made any of the adjustments to the prices in the out-of-Province markets that would need to be made in order to use them as appropriate benchmarks for assessing the existence of benefit. As already noted, such adjustments would need to take into account the "prevailing market conditions" in Ontario for electricity at the wholesale level of trade. Such conditions might include: (i) the mix of generation technologies that are currently needed to satisfy Ontario's overall baseload, intermediate load and peak load demand; (ii) Ontario's particular transmission grid characteristics; (iii) Ontario's comparative advantage (or disadvantages) with respect

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<sup>652</sup> Japan has referred the Panel to the website of the Independent Power Producers Society of Alberta, and also provided Exhibits containing information about the electricity markets of Alberta, New York, New England and the PJM Interconnection. (Japan's response to Panel question No. 7 (first set), introducing Exhibits JPN-208-211.) The information contained in these Exhibits suggests that competitive market benchmarks may be derived from experiences in other electricity markets. However, the information provided by Japan was not detailed enough to permit any definitive conclusions in this regard. In this respect, Japan argued that:

Even if these benchmarks are not "perfect", they are "reasonable and objective", which as the panel explained in *US – Anti-Dumping and Countervailing Duties (China)*, is all that is required for purposes of the benefit analysis. (footnote omitted)

The comments of the panel in *US – Anti-Dumping and Countervailing Duties (China)* that Japan refers to were made in the context of its review of a decision by an investigating authority to impose a countervailing measure. The panel's comments did not, however, relate to the acceptance of an out-of-country benchmark *per se*. The comments related to the need for an investigating authority to identify a benchmark that "relates or refers to, or is connected with" the prevailing market conditions in the country of provision. It was a description of this relationship, and of the adjustments necessary to allow the acceptance of a benchmark based on out-of-country information, that were absent from the submissions of the complainant in that dispute.

to accessing energy sources used to generate electricity; and (iv) key demand characteristics such as population size, industrial base as well as seasonal or daily consumption fluctuations. The complainants have failed to make any adjustments to the out-of-Province prices to account for these and other "prevailing market conditions" in Ontario, nor have they adequately explained away why such adjustments need not be made. Thus, in my view, the evidence is not in a sufficient state to enable the Panel to conduct the benefit analysis under the terms of Article 14(d) of the SCM Agreement in the way the Appellate Body has insisted that it should be conducted<sup>653</sup>.

D. WHETHER THE CHALLENGED MEASURES ENABLE SOLAR PV AND WINDPOWER GENERATORS TO CONDUCT VIABLE OPERATIONS AND THEREBY PARTICIPATE IN THE WHOLESALE ELECTRICITY MARKET

9.17 The second line of benefit argument advanced by the complainants is focused on the very nature and objectives of the FIT Programme. In particular, the complainants submit that the FIT Programme was created and operates for the purpose of allowing generators of electricity from renewable sources of energy, including solar and wind, to supply electricity into the Ontario electricity system because a competitive wholesale electricity market could not support such high cost producers. Thus, the complainants argue that in the absence of the FIT Programme, solar PV and windpower generators would be unable to support commercially viable operations in the wholesale electricity market in Ontario<sup>654</sup>.

9.18 Canada accepts that in the absence of the FIT Programme, "most" of the contested FIT generators would be unable to conduct viable operations. Thus, Canada explains that:

Like FIT programs in other parts of the world, the Ontario FIT Program was created to induce new renewable generation. As recognized by Japan, the Ontario 'FIT Program ... became necessary to encourage the entry into the market of renewable energy generators, most of which would not have entered the market in the absence of the FIT Program<sup>655</sup>.

9.19 Moreover, referring to Ontario's episodic market opening experience in 2002, Canada states that "the market alone would not be sufficient to encourage the construction of new generation facilities able to provide the long-term supply needed by Ontario residents", adding that "[a]s recognized by Japan, the OPA was created 'because the market structure established immediately following the dissolution of Ontario Hydro in 1998 did not invite the sufficient entry of new

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<sup>653</sup> As made clear by the chapeau, Article 14(d) is a method for determining benefit "[f]or the purpose of Part V" of the SCM Agreement. Article 1.1(b) is in Part I of the SCM Agreement. Nonetheless, Article 14(d) strongly informs the interpretation of Article 1.1(b) in the case of the conferral of benefit from the sale or purchase of products. In every case, considering whether and how to adjust an out-of-country benchmark so that it could be said to be "in relation to prevailing market conditions" in the country concerned is a relevant consideration. The European Union made reference to "the natural conditions prevailing in Ontario" in the context of a comparison "with the rates in France and Germany, in addition to all the evidence already put forward by the European Union" (European Union's response to Panel question No. 27 (second set)). However this reference does not discharge the burden of the "strong obligation" of considering "prevailing market conditions" insisted upon by the Appellate Body in *US - Softwood Lumber IV*, para. 106.

<sup>654</sup> Japan's second written submission, paras. 3-7; opening statement at the second meeting of the Panel, paras. 10-13; comments on Canada's response to Panel questions No. 1 and 42 (second set); European Union's second written submission, paras. 69-70, 103 and 105; and opening statement at the first meeting of the Panel, paras. 23 and 27.

<sup>655</sup> Canada's first written submission (DS412), para. 39.

generators, particularly generators using alternative and renewable energy sources"<sup>656</sup>. Thus, the OPA was established with a mandate to:

[R]estructure Ontario's electricity sector, to promote the expansion of electricity supply and capacity, including supply and capacity from alternative and renewable energy sources ...<sup>657</sup>

9.20 That the FIT Programme was intended to bring about the entry of new generating capacity from renewable sources of energy that would otherwise not exist in the Ontario wholesale electricity market can also be understood from the objectives of the FIT Programme described in the Ministerial Direction, which include to "[i]ncrease capacity of renewable energy supply to ensure adequate generation and reduce emissions", to "[p]rovide incentives for investment in renewable energy technologies" and "[e]nable new green industries through new investment and job creation"<sup>658</sup>. Similarly, the FIT Rules explain that the "fundamental objective of the FIT Program, in conjunction with the *Green Energy and Green Economy Act of 2009* is to facilitate the increased development of Renewable Generating Facilities of varying sizes, technologies and configurations ..."<sup>659</sup>.

9.21 Professor Hogan confirms that renewable energy technologies are typically too expensive to be supported by the spot prices achieved on wholesale electricity markets<sup>660</sup>. Table 2 (Ontario Electricity Generation Mix) contained in the Panel majority's opinion identifies solar PV and windpower technologies as having "very high" relative capital costs, with albeit "very low" relative operating costs per kWh of electricity generated. This reflects the following specific cost data that is provided in the Hogan Report<sup>661</sup>:

**Cost and Operating Characteristics of Different Generating Technologies**

Plant Type	Typical Plant Size	Capital Cost	Fixed Operating Cost	Variable Operating Cost	Fuel Cost	Heat Rate	Start Fuel	Start Cost	Project Life	Average Annual Availability	Capacity Factor
	(MW)	(2007 C\$/kW)	(2007 C\$/kW)	(2007 C\$/MWh)	(2007 C\$/MWh)	(BTU/kWh HHV)	(BTU/kWh /Start HHV)	(2007 C\$/Start/Unit)	(years)	(%)	(%)
Frame Single-Cycle Gas Turbine <sup>1</sup>	340	\$665	\$16	\$3.50		9,500	700	\$10,000	20	97%	10-30% <sup>2</sup>
Aeroderivative Single-Cycle Gas Turbine <sup>1</sup>	93	\$1,174	\$34	\$3.50		8,700	200	\$375	20	97%	10-30% <sup>2</sup>
Combined Cycle Gas Turbine <sup>1</sup>	500	\$924	\$17	\$2.75		7,000	800	\$10,000	20	95%	
Nuclear <sup>3</sup>	1,000	\$2,970	\$89	\$1.50	\$6				30	90%	70-80% or higher <sup>3</sup>
Large Wind Farm <sup>1</sup>	100	\$1,741	\$37	\$0					20	98%	13.5-43% <sup>4</sup>
Landfill Gas <sup>1</sup>	1	\$2,288	\$140	\$0	\$0	10,000			15	85%	
Wood-Residue Biomass <sup>1</sup>	20	\$2,096	\$231	\$4.00	\$23	14,800			20	85%	
Wastewater Biogas <sup>2</sup>	2	\$4,215	\$68	\$13.00	\$0	10,000			15	85%	85%
Small Wind Farm <sup>1</sup>	10	\$2,750	\$41	\$0					20	98%	13.5-43% <sup>4</sup>
District Energy Combined Heat and Power <sup>1</sup>	2	\$2,346	\$24	\$8.00		5,700	0	\$0	20	95%	
Industrial Combined Heat and Power <sup>1</sup>	50	\$1,413	\$22	\$3.00		6,300	150	\$0	20	95%	
Gas Engine Distributed Generation <sup>1</sup>	0.5	\$1,172	\$9	\$16.00		10,770	0	\$0	15	85%	
Roof-mounted Solar <sup>2</sup>	0.5	\$6,690	\$12	\$0					20		13%
Ground-mounted Solar <sup>2</sup>	10	\$4,600	\$15	\$0					20		14%

Sources:  
<sup>1</sup> "Evaluation of Costs of New Entry, Prepared for: Ontario Power Authority", Navigant Consulting, February 21, 2007, page 35, biogas capacity factor on page 30 (Exhibit CDA-49).  
<sup>2</sup> "Proposed Feed-In Tariff Price Schedule Stakeholder Engagement - Session 4", Ontario Power Authority, April 7, 2009, page 36. Shown statistics are in 2008 C\$ (Exhibit CDA-46).  
<sup>3</sup> IESO Monthly Generator Disclosure Report Overview, <http://www.ieso.ca/imoweb/marketdata/genDisclosure.asp>  
<sup>4</sup> Dr. Khaqan Kahn, Ontario IESO, "Growing Wind in Canada: An Ontario Perspective on Wind", CanWEA 2008 Annual Conference and Trade Show, October 20, 2008, p. 9 (Exhibit CDA-47).

**Table 3: Cost and Operating Characteristics of Different Generating Technologies**

<sup>656</sup> Canada's first written submission (DS412), para. 27.  
<sup>657</sup> Highlights of the *Electricity Restructuring Act of 2004*, Exhibit JPN-9.  
<sup>658</sup> Minister's 2009 FIT Direction, Exhibit JPN-102, p. 1.  
<sup>659</sup> FIT Rules, Exhibit JPN-119, Section 1.1.  
<sup>660</sup> Hogan Report, Exhibit CDA-2, pp. 15-18 and 36.  
<sup>661</sup> Hogan Report, Exhibit CDA-2, Table 1, p. 8.

9.22 According to Professor Hogan, the major costs differences between solar and windpower generating facilities compared with more "conventional" technologies exist for the following reasons:

The relatively small scale of wind and solar facilities leads to few if any economies of scale in generation in comparison with large nuclear, coal, hydro and gas plants.

Wind and solar facilities have relatively low capacity factors, due to their dependence on the wind and the sun, meaning that the generating facilities produce electricity for a much smaller proportion of the hours of the year or day than conventional generating technologies.

The relatively small base of experience in operating wind and solar generating facilities means that there are fewer efficiencies in operating new facilities.

The lack of experience in constructing wind and solar generating facilities, leading to relatively fewer efficiencies in constructing new facilities<sup>662</sup>.

9.23 Thus, by contracting to purchase electricity produced from solar PV and windpower technologies under the FIT Programme at a price intended to provide for a reasonable return on the investment associated with a "typical" project, the Government of Ontario ensures that qualifying generators are remunerated at a level that allows them to recoup the entirety of their "very high" capital costs. As the complainants argue and Canada accepts, such levels of remuneration would never be achieved through the unconstrained forces of supply and demand in a competitive wholesale electricity market in Ontario. Nor could they be achieved within the constrained forces of supply and demand which actually do operate within the wholesale electricity market in Ontario, without an intervention which remunerates the facilities which generate power from solar PV and windpower technologies at a higher rate than is paid in respect of electricity generated by the other technologies<sup>663</sup>. It follows that by bringing these high cost and less efficient electricity producers into the wholesale electricity market, when they would otherwise not be present, the Government of Ontario's purchases of electricity from solar PV and windpower generators under the FIT Programme clearly confer a benefit upon the relevant FIT generators, within the meaning of Article 1.1(b) of the SCM Agreement.

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<sup>662</sup> Hogan Report, Exhibit CDA-2, p. 10.

<sup>663</sup> Moreover, both Japan and the European Union point to the 20-year guaranteed pricing available to FIT generators as features of the FIT and microFIT Contracts that demonstrate the existence of benefit. See e.g. Japan's opening statement at the second meeting of the Panel, paras. 10-13; and European Union's opening statement at the second meeting of the Panel, para. 22.