City of Toronto
Interrogatories of CanSIA

**INTERROGATORY 9**

QUESTION

Issue: A 2, 3 4, 5, 7, 8 & 9

Reference: Exhibit L-4-3.1

Please provide further explanation of the term "average performance ratio" as used at page 9 of Ex.L-4-3.1 and assumed to be 75%, as distinguished from the terms "capacity value" or "effective load carrying capability"/"ELCC" as used at pages 22-23 and in Attachment 2 of Ex.L-4-3.1. In the explanation please elaborate on the applicability/relevance of each concept to the PV analysis presented in the evidence.

RESPONSE

Average performance ratio is the ratio of effective output of a system to nameplate capacity of the module.

Capacity value, also known as capacity credit, gives an orientation of how much capacity can reliably be provided by the particular group of installations - i.e. all plants of a specific type. Effective load carrying capacity is one way to calculate this value.

Average performance ratio concerns the behaviour of a specific system and measures how well the components of a system are coordinated. Capacity credit and effective load carrying capacity describe the behavior of a group of power plants.

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**INTERROGATORY 10**

QUESTION

Issue: A 2, 3 4, 5, 7, 8 & 9

Reference: Exhibit L-4-3.1, page 14

The evidence states: "*A residential consumer compares the cost of his self-generated solar electricity to the cost of delivered grid power, which is the price of electricity, including all fees and taxes.*"

a) Please comment on the incremental, non-price, barriers to broad consumer adoption posed by such considerations as "inertia", transactional costs, lack of information, and the like.

b) Please describe any tested strategies for overcoming such additional barriers to adoption and provide any information on the success of such strategies as may have been used in other jurisdictions of which you are aware.

RESPONSE

a) See Supplementary Report, at page 33 as well as answer to PWU IR 10 at Exhibit I-124-10.

b) A selection of programs from the following list could be used to increase residential uptake of PV:

- financial incentives (with built-in degression mechanisms): a pre-determined compensation level for each kWh of PV power supplied. If the system does not show the required effect – which we doubt – it can be supported as needed by low interest loans, grants, subsidies, rebates, tax credits, and building economies of scale into the market

- infrastructure and information: facilitation of net and time of use metering, grid connection and access, consumer awareness, stakeholder engagement and technical training

- elimination of possible barriers: removal of caps on renewable energy market growth, removal of administrative barriers within programs, and removal of municipal regulatory and tax barriers

The impacts of these strategies in the context of different jurisdictions would be beyond the possible scope of an interrogatory. Possible examples at a national level where strategies have been tested include Spain, California, New Jersey, France, Greece. A similar number of cases can be found on the municipal level. In all these cases good and bad practices can be observed. Among other things, our recommendations are the result of a EU-funded research project that dena conducted with partners from 8 European countries (see www.pvpolicy.org).

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**INTERROGATORY 11**

QUESTION

Issue: A 2, 3 4, 5, 7, 8 & 9

Reference: Exhibit L-4-3.1, pages 25 & 32

As pointed out in the evidence, Ontario regulations allow customers who own renewable energy installations of up to 500 kW to participate in net metering. However, the evidence goes on to posit that Ontario has failed to capitalize on its potential for rooftop PV development among private homeowners, who have been major contributors to Germany's PV sector.

a) Please describe any special metering or connection requirements in order for a customer to implement net metering.

b) Please confirm whether the costs of any such requirements is included in the PV costs used for the analysis presented in the evidence.

c) Please discuss the extent to which such special requirements may be a barrier (due to cost, information, technical familiarity, or otherwise) to penetration of very small scale self-generation, and how such barriers have been addressed in Germany and any other jurisdictions with respect to which you have information.

RESPONSE

a) Please see our responses to PWU Interrogatories 10 and 12 at Exhibit 1-124-10 and 1-124-12.

b) Only turn-key system costs are included in the PV costs used for the analysis.

c) Please see answers to PWU IRs 10 and 12, at Exhibit I-124. German law is clear that connection costs must be borne by the utility. Market penetration in Germany has lead to an installers industry with sufficient technical familiarity. Our responses also discuss the resulting employment effects.

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**INTERROGATORY 12**

QUESTION

Issue: A 2, 3 4, 5, 7, 8 & 9

Reference: Exhibit L-4-3.1, pages 33 & 34

In discussing successful and efficient PV policies, the evidence states:

> *"While the framework conditions and financial incentives should evolve over time in line with market development, they must at the same time be stable enough to convey investor reliability. Regular review and comparison of achieved deployment with targets after about four years is necessary for adjustments of support measures and should be announced ahead of time. In between the system should be kept stable in order to avoid unnecessary go-and-stop effects that hinder industry to grow safely."*

> *"Regular review and comparison of the achieved deployment figures with the targets of the Road Map helps to keep dialogue alive and to keep the support policies effective and efficient."*

> *"Monitoring of installation figures and their performance supports the review and helps analyze the efficiency of the support system."*

The OPA's IPSP process envisions iteration of its power system plan and review of the refreshed plan by the Ontario Energy Board (OEB) every 3 years. Would this planning and review framework provide a suitable mechanism to support stable yet evolving PV policy in Ontario? Can you provide any recommendations as to how the OEB, the OPA and/or the Ontario Government could, as a matter of process or practice, contribute to PV policy stability and responsiveness as part of this ongoing IPSP planning and review process?

RESPONSE

While solar PV and solar thermal should be addressed in the next version of the IPSP, CanSIA believes that a failure to address it now: (i) constitutes a failure of the OPA's obligations; and (ii) will prejudice the development of solar in the context of the Plan because key procurement and policy measures will have already been enacted which are likely to preclude a significant role for solar. Therefore, getting the first plan is crucial. Revisions in the Plan every 3 years after to assess and adjust may be appropriate. These considerations must be balanced with the need to provide the industry a relatively stable set of rules to act on – instituting large changes every

three years may hinder the development of the industry and market for any electricity technology.

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**INTERROGATORY 13**

QUESTION

Issue: A 2, 3 4, 5, 7, 8 & 9

Reference: Exhibit L-4-3.1, page 34

In discussion of the characteristics of successful and efficient PV policies, the evidence states: "Priority access to the grid and a take-off guarantee should be in place for all system operators."

Please provide additional information on the parameters of "priority access to the grid", and how such has been accomplished in Germany or in any other jurisdictions with which you are familiar.

RESPONSE

"Priority Access to the Grid" encompasses three elements in Germany:

(i) The grid operator is obliged to connect the installation at the bus point of the generators choosing

(ii) The grid operator bears the cost of the connection – this is of course favorable for the generators. Any provision that gives a clear distribution of the cost and that allows the generators to obtain a reliable estimate for the cost of the connection is good as long as it does not introduce regional distortions.

(iii) The grid operator must allow the power to go through their lines. If the grid does not have sufficient transmission capacity, the grid operator has to enforce the grid. Until the grid is enforced, the grid operator is allowed to reduce the amount of renewable power going through the lines – this however, needs to be limited to exceptional cases.

While this definition is far reaching, it has proven effective in the German context. It favors the plant operator in terms of the costs of connectivity and grid access. However, the most important aspect of this regulation is that there is no uncertainty on the timing and responsibilities and obligations in terms of the grid connection and access to the transmission system, no long and uncertain negotiation processes and no transaction costs. This, in our view, is the crucial element of any regulation on grid access.