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Ontario Energy Board
P.O. Box 2319
2300 Yonge Street, Suite 2700
Toronto ON M4P 1E4

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To whom it may concern,

Thank you for providing us with the opportunity to comment on the Ontario Energy Boards (OEB) Distributed Energy Resources (DER) Connections Review Initiative. Providing a path forward for innovation and development for the energy sector, one that respects the concerns of reliability and affordability, while driving our economy forward is critical for Ontario.

As Canada's first private sector nuclear operator, supplying 30 percent of Ontario's electricity at 30 percent less than the average cost to produce residential power, Bruce Power provides affordable, emissions-free electricity and life-saving isotopes, while also driving the economy through significant infrastructure investments, innovation and a commitment to the protection of our environment.

Bruce Power recognizes the challenge faced by the government and OEB to strike the correct balance to achieving grid innovation through DER proliferation while also providing certainty and clarity to stakeholders that the process will be fair, efficient, and most importantly cost effective for all customers in Ontario. Bruce Power applauds the governments and OEB's efforts to ensure that the DER Connections Review Initiative addresses the concerns of stakeholders, is accountable to clear objectives and seeks to address key challenges with practical solutions presented by DER's.

DERs have been hailed as a critical component to smart grid innovation, as a new and innovative technology and as a way reduce system costs for Ontario electricity customers. While DERs do present innovative energy options for some industrial customers, their effectiveness and pace of implementation must consider several crucial issues. Viewed from this lens it is imperative to understand the promised benefits, versus the system realities in which they would exist.

Policy-makers cannot simply choose a desired end state. Determining how to get there, how quickly, what intermediate steps are involved, and which principles should guide those decisions will be more pressing issues for the next few years. Also therefore be a very costly undertaking at a time when system costs are a challenge for government.

As detailed in the consultation document the OEB has currently identified high level issues which may be posing barriers to DER adoption including:

- the need for standardization and clarity of definitions, terminology and regulatory rules in respect to DERs;
- The need for clear rules regarding cost responsibility for connection of DERs to ensure fairness to DER customers and all other customers of the distributor
- More detailed and comprehensive timelines for the connection process to ensure the timelines are well understood
- Appropriate standardization of connection technical requirements

While these reflect some of the issues, they are not exhaustive and also tangentially appeared biased toward the conclusion that DER proliferation on a large is scale is inevitable in Ontario.

Pat Dalzell
Director, Government and Stakeholder Relations
Bruce Power 123 Front St. West, Toronto, ON Canada M5J 2M2
Telephone (416) 607-4355
Cellular (647) 625-3264
Email: Pat.Dalzell@brucepower.com

Bruce Power believes they are also operating from a view that fails to adequately acknowledge that the first question the OEB should be asking is **IF** DERs can be safely, economically and reliably integrated into the distribution system, and into region creating a net system benefit.

As shown in the NARUC *Manual on Distributed Energy Resources Rate Design and Compensation* 2016, the idea that any given distribution system can absorb any given amount of DER is mistaken. This and numerous other studies have been undertaken in Ontario to examine DER's point to several other key challenges some of which are summarized below:

Technology not for the sake of technology

It is generally assumed that customers want choice and innovation when it comes to energy options and this is embedded as a principle in the Ontario Energy Board's Strategic Blueprint. However, it is not clear that this assumption is accurate or that customers have actually considered in a practical way the advantages and disadvantages associated with any such options. In part this may be due to uncertainty as to how DER installations will be evaluated and dealt with from a regulatory point of view. Innovation should not come at the cost of customer reliability, inter-rate class conflict or overall cost effectiveness.

Stranded Assets

Ratepayers have collectively invested in a distribution system over the course of decades, designed and capable of meeting the needs of all customers. Stranded assets need to be accounted for in the consideration of DER value, and the regional plan. Erosion of load can be a significant issue insofar as load, or the established infrastructure needed to deliver it, underpins the rates architecture. To the extent that revenues ride with usage, defection of partial or full loads has the effect of increasing the burden on non-participating customers. It is also true that certain rate designs can have the effect of causing DER-adopting customers to defect entirely from the system. Regulators need to be mindful of the effects that rate design can have on customer's decisions to defect, in whole or in part from the local distribution system.

Environment

The pursuit of a low carbon economy may conflict directly with major important DER options, particularly in an environment where natural gas prices are low, and expected to continue to be low. This was demonstrated by a Directive on October 26, 2017 received by the IESO which removed behind-the-meter fossil fuelled generation from LDC CDM Plan eligibility.

Not Economical for Ontario

By 2035, approximately 2,000 contracts – representing 18,000 MW of installed capacity, which is equivalent to about 10,000 MW of available capacity at time of peak – will expire. With the retirement of the Pickering Nuclear Generating Station (PNGS) and the subsequent gradual expiration of Ontario's contracted renewables and natural gas-fired generation, 30% of Ontario's generation capacity will have to be renewed or replaced by this time. The unfortunate truth is that renewables-based DER solutions are not a cost-effective way to meet Ontario's electricity needs in 2035 because the intermittency of renewables output negatively impacts the cost of storage. These intermittency costs outweigh the forecast cost declines of the renewables and storage technologies. Analysis from Marc Bruellete in *Distributed Energy Resources in Ontario: A Cost and Implications Assessment*, finds that renewables-based DER systems in Ontario could cost 60% to 230% more than an alternative nuclear-based DES option. These higher costs have the potential to increase ratepayer bills by 10-20%.

Bruce Power feels that these issues must be adequately addressed by this process. One part of the solution is that the process must ensure that an examination of the full system costs of introducing all DERs, and allows for a proper assessment of the impacts to the overall system. This can only be accomplished first through the clear development of an Ontario wide integrated resource plan.

DERs may offer an opportunity for the renewal and transformation of the traditional electricity system, but care needs to be taken to ensure that their integration is appropriately assessed and evaluated from a system benefit/cost point of view. In many cases, methods for establishing the business cases for DER that are predicated upon market pricing practices generally favour installers of DER at the expense of increasing total system costs. Just because grid-scale solar is becoming less expensive does not directly imply that an integrated grid-scale solar system will be cheaper.

Simply put, the benefit-cost analysis should provide a reliable tool for the comparison of the traditional utility distribution investment methodology currently in use, on the one hand, and that developed for DER alternative installations, on the other. The benefit-cost analysis needs to take into account all relevant costs and benefits.

For over 100 years the electricity transmission and distribution systems in Ontario have been largely composed of large centralized generation assets and connected by high-voltage transmission facilities and at the point of contact with most customers through lower voltage assets. This architecture perfectly reflected the fundamental rationale for regulation of the sector, which was based in economies of scale and management of a monopolist system. Ontario's nuclear advantage is as an example of the benefit of creating that economy of scale, helping to drive down electricity costs for customers.

Similar to a "buy local" approach to food or growing your own food, DER's can offer individual choice, however they are often not economical and create challenges for centralized production methods required for and by the majority of people. The problem is that neither of these approaches is sustainable long term and result in gaps of adequacy when it comes to getting the entire nutrient value of things we need. Centralized food serves the same purpose then as electricity in this example as it provides us with the quality and quantity year round to meet our needs reliably and affordably. In Ontario's system there is no way around it, centralized generation, transmission, and distribution systems will continue to be essential to the system as a means of keeping costs down.

Stakeholders also need to have as clear a picture as possible, as soon as possible, as to the economic methodologies that are going to be used to evaluate the relative system/customer value of any installations.

The current low-cost, emissions-free power provided by Ontario's nuclear fleet must continue to be a central component to Ontario's supply mix. Ontario's baseload generation is essential to ensuring cost increases are mitigated in Ontario, and an exploration of new technologies like DERs are simply uneconomical from a system planning perspective.

Bruce Power appreciates the opportunity to participate in this important consultation and is available to discuss any aspects of this submission further or to answer any questions.

Regards,

A handwritten signature in black ink that reads "Pat Dalzell". The signature is written in a cursive, slightly slanted style.

Pat Dalzell
Director, Government and Stakeholder Relations
Bruce Power

Pat Dalzell
Director, Government and Stakeholder Relations
Bruce Power 123 Front St. West, Toronto, ON Canada M5J 2M2
Telephone (416) 607-4355
Cellular (647) 625-3264
Email: Pat.Dalzell@brucepower.com