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Distributed Energy Resources Connections Review Initiative

The Ontario Society of Professional Engineers (OSPE) is the voice of the engineering profession. We represent the entire engineering community in Ontario, including professional engineers, engineering graduates and students who work or will work in several of the most strategic sectors of the economy.

OSPE strongly supports the OEB's review of barriers to Distributed Energy Resources (DER) in conjunction with Local Distribution Companies' (LDC) remuneration. Rapid improvement in DER capabilities concurrently with significant technology cost reductions poses the potential for profound consequences to LDC's existing business model. The existing uncertainty with respect to the LDC business implications is a barrier to achieving the full benefits that can be realized from DER projects.

As the technological and financial impacts are inseparably interwoven, economic decisions that have historically been considered the primary responsibility of the financial and policy staff have significant technological and operational impacts. Accordingly, OSPE believes that any changes should be reviewed by Professional Engineers to ensure that the impacts have been considered and understood.

Fourteen DER and LDC Renumeration Policy Recommendations

OSPE believes the following principles should be used to guide any changes with respect to the way the system incorporates Distributed Energy Resources and compensates distribution utilities.

(1) Align rate design closer to the actual underlying cost of electricity service and value of this energy to the grid, while concurrently preserving a competitive market-based supply pricing mechanism.

The OEB should examine the correct allocation of fixed monthly costs, average peak monthly kilo Watt capacity demand costs and actual real time energy production costs. Generation capacity that is available during high demand periods should be compensated more than capacity that is available during times of low demand. This rate design approach should apply to all components (generation, transmission, distribution and regulation).

(2) Remove inefficiencies in the application processes needed to connect DERs. The analysis of such inefficiencies should be undertaken by a licensed Professional Engineer experienced in DER integration studies and incorporate lessons learned in other jurisdictions.

This analysis should examine the provision of data by the LDCs required for the DER design process, including more efficient provision of distribution bus ratings, load profiles, available spare capacity and protection requirements, and where possible, a fast track light analysis process where the proposed DER is well within the capability of the bus/feeder/transformer.

(**3) Remove barriers that prevent synergistic combinations of equipment and functionality that provide benefits to distribution, transmission or generation requirements or that reduce costs for the DER project.**

For example, behind-the meter microgrid installations of multiple forms of generation and storage technologies currently will not recognize energy from renewable generation and storage if co-generation is also used even though the renewable generation could be separately sub-metered.

(4) Allow real upstream system benefits to be included in the justification and approval of DER projects.

Some of these benefits include: voltage and frequency regulation, provision of reactive power, reduction in transmission and distribution losses, grid resiliency, deferral or avoidance of system maintenance costs or equipment upgrades, and improvement in security and reliability.

(5) Remove barriers to new business models and retail rate structures that allow more competition, higher efficiencies, lower emissions or higher reliability and resilience of the electricity supply.

(6) Incorporate lessons learned from other jurisdictions that have implemented a high level of penetration of DERs.

For example, California provides operational level information to the feeder level to:

(i) encourage developers to propose innovative cost-effective projects that alleviate the need for grid upgrades and
(ii) eliminate the payment of developer costs associated with proposing projects that are not feasible.

On the other hand, Germany no longer requires formal CIAs for renewable generation projects on feeders that have substantial available capacity.

(7) Allow technology choices to be made based on lifecycle economics rather than by predetermined technology preferences.

(8) Introduce retail rate designs that encourage greater use of surplus clean electricity to offset higher emission energy sources.

Rather than primarily considering the replacement of higher emission electrical generation sources, retail rate designs should consider the broader sources of energy generations that can be displaced or substituted by cleaner forms of energy. For example, encouraging use of off-peak surplus electricity at its marginal cost of production to displace fossil fuels for space and water heating. For further details refer to OSPE's April 9, 2019 report titled "Retail Electricity Price Reform".

(**9) Subsidies for social or regional development purposes should be funded out of tax income rather than rate income to ensure local businesses are not competitively disadvantaged.**

(10) Make any new rate structures voluntary to reduce objections by entrenched private interests and accelerate adoption by consumers willing to take advantage of the new rate structures.

OSPE believes that as the market becomes familiar with such rate structures, most individuals will voluntarily adopt them, thereby making it easier to discontinue sub-optimal rate structures.

(11) The IESO should charge all high voltage power system consumers, including LDCs, the global adjustment based on average peak monthly megawatt (MW) demand and not based on megawatt/hr (MWh) energy use.

This provides an incentive for LDCs to manage and smooth demands on their peak, as well as providing an incentive mechanism for LDCs to compensate DERs that propose projects that reduce LDC costs.

(12) The LDCs should charge or pay for DER capacity contributions based on average peak monthly kilowatt (kW) demand or supply and not based exclusively on kilowatt per hour (kWh) energy use or supply.

Energy provided should be paid for at the wholesale market price value to the grid at that time. Adjustments can be made to the DER capacity charges or payments to the extent the DER does not impose a kW demand or provides a kW capacity value onto the high voltage power system respectively.

(13) Transmission charges should be allocated based on average peak monthly MW demand and not on MWh energy use.

Line losses should be charged based on system energy losses, including adjustments for non-unity power factors.

(14) Industry participants should be able to compete on an equivalent basis without any participants being seen to have preferential access.

Energy Distributors have recently established unregulated businesses that are able to compete with private market participants.

Given emerging changes and threats to the long-term viability of the LDC business model, the allowable business of regulated distribution companies should be reconsidered and clarified.

Clarification should be given as to whether the purpose of regulated energy distributors is:

(i.) to provide and deliver the lowest cost energy to their customers, or
(ii.) to operate and maintain the distribution grid and aggregate and administer the settlement of energy costs.

<u>Further questions the OEB should consider addressing</u>

- If the primary purpose of distributors is deemed to provide the lowest-cost energy to its customers, then should energy distributors have the ability to procure energy directly from any supplier (including DERs)?

- Should distributors be able to contract with third parties to store off-peak energy for usage during peak hours?
- Should energy distributors have the freedom to offer voluntary local energy pricing schemes beyond the mandatory pricing established via formal regulatory mechanisms?

OSPE thanks the OEB for the opportunity to submit these principles for consideration as OEB considers how to increase energy innovation while concurrently ensuring that local distribution businesses remain viable.

Decisions that follow from this process will impact technology and business development for decades to follow. The right decisions will foster a competitive and innovation-based energy sector that will be able to export this innovation elsewhere. Decisions that have the effect of preserving the historical status quo will not ensure Ontario's economic growth and future prosperity.

Ontario Engineers have the knowledge and the vested interest in ensuring that any changes are safe and serve the long-term interests of both business and residential consumers. Innovation in the energy sector is the path for Ontario's energy sector to satisfy customer demands, support business competitiveness and create new exportable technologies.

OSPE would gladly participate in a working group that seeks to address the concerns put forward through this submission.

Sincerely,

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