February 13, 2020

IESO Engagement
Independent Electricity System Operator
1600–120 Adelaide Street West
Toronto, ON M5H 1T1

To Whom it May Concern:

Re: Exploring Expanded DER Participation in the IESO-Administered Markets Part 2: Options and Considerations for Enabling DER Participation

On October 17, 2019 the Independent Electricity System Operator ("IESO") released the first in its series of white papers (the "Paper") on exploring expanded Distributed Energy Resource ("DER") participation in the IESO Administered Markets ("IAMs"). The Paper overviewed the ways in which DERs currently participate in the IAM, concluding that only directly participating generators, Demand Response ("DR") and aggregated non-dispatchable DR are currently able to fully participate. The Paper also examined several barriers that prevent DERs from other types or forms of participation.

On January 30, 2020, the IESO hosted a webinar to provide an overview of the next DER white paper and to introduce some of its high-level ideas and options to enhance DER participation that may be explored in the next Paper. The intention of the next Paper will be to include more detailed examination of participation models and options to address barriers identified in the first Paper. The IESO is seeking feedback from stakeholders on the options presented in the webinar in order to determine or guide which should be explored further.

Alectra Utilities ("Alectra") serves over one million customers across 1,800 sq. km of service territory, spanning 17 communities in Ontario, including Alliston, Aurora, Barrie, Beeton, Brampton, Bradford, Guelph, Hamilton, Markham, Mississauga, Penetanguishene, Richmond Hill, Rockford, St. Catharines, Thornton, Tottenham and Vaughan. Alectra owns, maintains and operates approximately 6,576 km of overhead primary distribution feeders and 13,321 km of underground primary distribution circuits within its service territory.

Given the large territory and the number of customers served by Alectra, as well as the significance of the commodity portion of electricity bills, Alectra is keenly interested in the issues, processes, and outcomes of the IESO's research efforts towards the development of policies and market structures that will impact the deployment of DERs in the province. Notably, deployment and integration of DERs at larger scales has the potential to critically impact the operations, costs, facilities, and systems that Alectra and other distributors will require in order to facilitate safe, reliable, and affordable electricity distribution.

Overview of the Webinar Material

The following themes were identified in the stakeholder feedback to the first Paper:

- General consensus that the correct barriers to DER participation have been identified – the IESO is comfortable moving forward to explore options to address those barriers within the second white paper.

- Reconsider the exclusion of energy efficiency ("EE") from the definition of DERs – the IESO has excluded EE from the scope as this is being examined elsewhere. The IESO will provide further thoughts on the challenges and opportunities of EE to participate in markets in the next Paper.

- Need for increased coordination between the IESO and the Ontario Energy Board ("OEB") – the IESO believes that coordination with the OEB will become more important when and if DER integration initiatives progress to implementation.

- Consider potential cost and reliability impacts to Local Distribution Companies ("LDCs") and distribution systems generally – options to enhance interoperability with LDCs will be proposed in the next Paper.

The IESO has developed certain key principles to guide its perspective and direction with respect to the integration of DERs:

1. Provide an appropriate level of visibility of the resources operating within the distribution system;

2. Enable increased competition by removing unnecessary barriers that limit DER's ability to compete within the IAMs;

3. Expose resources operating within the distribution system to economic signals reflecting conditions and needs of the bulk system;

4. Maintain an appropriate level of system reliability;

5. Consider and respect the potential impacts on the distribution system;

6. Prioritize initiatives with the greatest benefits;

7. Support sector evolution that enables transparency and competition at all levels of the system.

Generally speaking, Alectra is pleased to see that the IESO has generated a list of guiding principles and believes these serve as a good basis on which to evaluate considerations of future market design. The guiding principles are a good reflection of the themes that the IESO identified from stakeholder submissions on the first paper.

Below, Alectra offers general comments in response to the questions posed by the IESO.

Responses to IESO Webinar Questions

1. **Would the draft options presented in the posted presentation enhance DER participation in the IAMs?**

Alectra provides its comments for each of the draft options as presented by the IESO below.

Adjusting the Minimum Size Threshold

The IESO sees three potential ways in which this could be implemented:

a) Allow for reduced minimum size thresholds if the resources and infrastructure can perform adequately;
b) Phase in reduced minimum size thresholds gradually by capping the number of participants, and increasing the cap annually;
c) Reduce the minimum size threshold for certain services, such as energy production and capacity, but not for other services, such as for operating reserve.

Alectra agrees with the IESO that the potential benefit of proceeding with adjusting minimum size thresholds would result in increased competition within IAMs by expanding the pool of resources available to compete. This, in turn, has the potential to result in lower commodity prices for electricity consumers. As more DERs are introduced to the market, it should go without saying that the impact to distribution system operations will also be more acute.

Clarifying Aggregation Rules and Processes

The options that the IESO has put forward for consideration include the following:

a) Identify and communicate where and under what circumstances aggregations are more or less likely to be approved;
b) Clarify market rules related to aggregation to ensure they are appropriate for distributed resources and not just transmission connected aggregations.

Establishing clear market rules for aggregation and identifying the areas of greatest benefit for aggregation would enhance DER participation. It would allow utilities and third-party aggregators to identify and react to opportunities that result in enhanced market outcomes. It is generally true

that market performance and outcomes will benefit when market participants have a clear understanding of the rules and expectations in order to determine which opportunities to develop.

Modifying Aggregation Boundaries

The options that the IESO has put forward for consideration include the following:

a) Establish sub-zonal aggregation boundaries for DERs, determining zone size and areas that are unlikely to have adverse impacts on the transmission system;
b) Enable multi-nodal (i.e., more than one Transmission-Distribution node) aggregation for aggregated dispatchable generation and aggregated dispatchable DR.

Establishing sub-zonal aggregation boundaries for DERs would ensure DER participation where it makes sense to do so. This would also allow distributors, transmitters, and the IESO a greater ability to ensure reliable and effective system operations.

Modifying Aggregation Compositions

Options that the IESO will explore toward aggregation composition include the following:

a) Allowing aggregations of different types of dispatchable generation (wind, hydro, solar, gas) – i.e. mixed aggregations;
b) Allowing DR aggregations consisting of contributors from LDC metered residential and Commercial & Industrial ("C&I") customers, as well as IESO revenue metered dispatchable loads (with alternative telemetry sources).

These options will increase DER participation levels by leveraging infrastructure already in place, or by allowing smaller applications of dispatchable generation to form a larger unit of generation.

Create Participation Model for Aggregated Non-Dispatchable Generation

The IESO has identified one option to consider for aggregated non-dispatchable generation:

a) Enabling non-dispatchable aggregations of generation to participate in the Energy and Capacity Markets.

Aggregating non-dispatchable generation resources to act in ways like variable or self-scheduling resources would presumably increase opportunities for increased DER participation by allowing participants to scale or generate incremental revenue. This would also allow the IESO to maintain visibility for planning and operations of the wholesale market.

Permitting Alternative Telemetry Sources

Here again, the IESO has identified the following option for consideration:

a) Explore the ability for resources to provide the IESO with alternative telemetry to secure operational data.

This option would likely increase DER participation by providing participants with greater flexibility. Producing this greater flexibility, however, would require investments or enhancements from distributors and/or the IESO, depending on the particular telemetry requirements.

Enhancing Transmission-Distribution Operability

The options identified by the IESO for enhancing Transmission-Distribution operability include:

a) Modify connections/registration process for aggregations to collect constituent resources, communicate them to the distributors, and receive approval from distributors based on consideration of distribution system impacts;
b) Share day-ahead schedule of DERs with distributors to determine reliability impacts and feasibility of dispatch;
c) Coordinate with distributors on the boundaries of aggregation zones in intra-day timeframes to manage any changes to distribution network conditions that could affect the feasibility of dispatch and delivery.

Alectra believes that a market design that directly integrates distributors into the process will yield enhanced, and more effective DER participation. These options mitigate the risk of system reliability impacts by involving distribution system operations.

Identifying and Communicating System Needs and Capabilities

The options identified by the IESO for identifying and communicating system needs and capabilities include:

a) Regularly identifying hosting capacity on the transmission and distribution system;
b) Identifying and communicating opportunities for aggregations of DR through load forecasts per node or sub-zone.

Communicating the location of system needs and capabilities would ensure that DER resources are sited where it makes the most sense to do so.

2. Are there other implementation considerations the IESO should be aware of?

Alectra provides further comments with respect to implementation for each of the options identified below.

Adjusting the Minimum Size Threshold

Distributors will play a vital role in ensuring that DER assets are supported by adequate distribution infrastructure in order to enable the benefits of the increased supply resource. That said, distributors will require a certain time path to ready their systems and processes with the right technology and planning tools to provide the support as necessary. Distributors may also need to reinforce their systems in certain ways in order to avoid or manage voltage swings or variability in particular locations. Importantly, distributors may also require different rate designs or structures to accommodate the potential for stranded assets, cross subsidization, and equitable customer access.

Different distributors might be at different stages of readiness to accommodate higher influxes of DERs, so options that phase in implementation likely make the most sense. Alectra also believes that maintaining greater integrity for operating reserves is the best approach, as least for a transition period. This will ensure that minimum levels of reliability can be maintained while the market and market participants adapt to and manage the change.

It will be critical that the IESO (and other market participants) have greater and more granular visibility into resource capability. Without this visibility, the electricity system would be subject to greater variability than desired and may result in reduced reliability. In order to attain this visibility, electricity distributors will need to prepare their systems and processes with the appropriate grid edge technologies that will enable this evolution.

Control of the resources will also be a critical issue. If customers or the IESO retain complete control of resources, the impact on distribution system operations will need to be understood and prepared for. Alternatively, it may be the case that resources can be controlled by distribution operators to ensure the optimization of wholesale and distribution systems or that particular operating thresholds are put into place to at least mitigate negative outcomes.

As above, Alectra agrees with the point raised by the IESO that, left unchecked, increasing the number of participants beyond a reasonable level could overwhelm the ability of IESO to perform the functions necessary for the efficient operation of the market. This is also true for distribution system operations. In light of this, it would be reasonable to introduce an approach that allows for gradual phasing in of participants.

Clarifying Aggregation Rules and Processes

Enhancing DER participation by clarifying market rules for aggregation and identifying aggregation opportunities implies that aggregators and the IESO will require information from distributors regarding specific locational considerations. Distributors, in turn, will require information about DER aggregation plans, in order to ensure system reliability will not be compromised and that the appropriate infrastructure is in place to support the aggregation.

As the IESO indicates, current aggregation rules were designed at a time before DER integration, as we know it today, could have been conceived. As a result, it may be necessary to create aggregation rules specific to DER integration according to operational or size characteristics. Whether the aggregation is administered by the IESO, the distributor, or a third party, distributors will need to model and understand the potential impact to distribution system operations just as the IESO will be interested in wholesale market outcomes.

Modifying Aggregation Boundaries / Composition / Non-Dispatchable Generation

For any of the options that consider aggregation, it will be necessary to ensure that the operations of the aggregation perform as expected or within certain thresholds, for both wholesale and distribution operations. It will be necessary to coordinate with distributors to ensure the infrastructure necessary to support DERs is available. Enhancing DER participation will require distributors to acquire and provide information regarding specific locational considerations. Distributors, in turn, will require information about DER aggregation plans in order to ensure system reliability will not be compromised and that the appropriate infrastructure is in place to support the aggregation.

Permitting Alternative Telemetry Sources

One issue to consider may be any differences between metering standards as between those currently in place for revenue metering versus retail metering. If the IESO wishes to explore leveraging distribution level metering, then uniform standards may need to be developed. There will also be issues around data privacy, security and controls to consider.

Enhance Transmission-Distribution Operability

As with all of the options considered that seek to increase the participation of DERs, distributors will require enhanced visibility through distribution system and technology enhancements. Distributors will be required to understand, model, predict, and perhaps even control resources in order to maintain both efficiency and reliability. This is especially important as variability in production can result in outcomes that reduce optimization and could ultimately result in compromised reliability. With increased DER participation, there will be a need for greater integration among distribution, transmission, and whole markets, which may require various Code amendments. As a result, Alectra sees a need for OEB participation in the IESO's white paper series, and the IESO's participation in the OEB's policy consultation.

Identifying and Communicating System Needs and Capabilities

As above, distributors will be required to make investments in their systems and technologies in order to produce the information that will make it possible to identify opportunities. There will also be a number of other issues that will need to be addressed. For example, determinations will be

required as to what information should or could be available to which parties, and by when. Depending on the information requirements, it may be that information should be available in successive tranches. That is, perhaps information pertaining to opportunity identification should be different from information pertaining to opportunity commitments. Similarly, it will be necessary to determine how to equitably apportion the costs of generating and disseminating the information. Answering these critical questions will be an essential condition to ensuring the best outcomes from the potential proliferation of DERs.

3. **Are there other options the IESO should be exploring in the second DER white paper?**

Alectra has no further comment on additional options that the IESO should explore. The next white paper should fully explore the pros and cons for each of the options presented in accordance with the guiding principles that the IESO has identified.

Conclusion

As the IESO continues to develop the scope and content of review for DER integration, it will be important for the IESO to remain cognizant of the impacts that future changes that result from the Market Renewal Project might have on the options explored for increased DER integration. Similarly, and in accordance with the themes identified from the first Paper, the IESO should bring its positions or findings to the OEB's policy consultation, Utility Remuneration and Responding to DERs (EB-2019-0287). This forum will ensure that the OEB has the opportunity to consider the implications of changes in market design and the impact on the public interest. The OEB will need to explore and understand the criticality of distributor involvement, and the investments necessary to facilitate enhanced DER participation. This should be done in advance of any decision making by the IESO. That is, issues and decisions made by the IESO should not preempt or limit the decision making by the OEB in respect of the role of utilities, customer impacts, and ultimately the public interest.

Alectra appreciates the opportunity to provide comments in guiding the IESO to develop the scope for the next in its White Paper series and looks forward to further engagement with the IESO on these topics.

If you have any questions with respect to any of the above, please feel free to contact Alectra at your earliest convenience.

Sincerely,

Original signed by Indy J. Butany-DeSouza

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