

## **Hydro One Networks Inc. Comments on IESO Stakeholder Engagement SE-57 Embedded Generation Status Update**

Hydro One Networks Inc. (“Hydro One”) is pleased to participate in the IESO’s Stakeholder Engagement (SE-57) on Embedded Generation Status Update. Hydro One welcomes the opportunity to comment on the proposed changes. As Ontario’s largest distributor whose service territory covers areas with favourable conditions for renewable energy technologies, Hydro One would be the distributor most affected by these changes.

Our specific comments are as follows:

### **Connection Assessment and Approvals Process**

1. Hydro One is prepared to support the IESO’s recommendation that the Local Distribution Company (“LDC”) should apply for a System Impact Assessment (“SIA”) on behalf of all generators that trigger the 10 MW reverse flow at a Transmission Station. However, this presents several challenges:
  - Queue Rules and Cost Allocation – Under existing queuing procedures outlined in the Ontario Energy Board’s Distribution System Code (“DSC”), the generator that triggers the additional system upgrades to enable its connection is responsible for the costs of those investments. Since the IESO recommends that the LDC apply for an SIA on behalf of multiple generators, the allocation of costs for conducting the SIA and for implementing the SIA’s findings will need to be clarified by the Ontario Energy Board (“OEB”), which has the authority to assign cost responsibilities for required investments.
  - Losses – Increased losses result when generation exceeds the load – particularly when reverse flows are introduced at the TS. These losses due to embedded generation may be in contradiction with the OEB’s requirement to reduce losses. Further studies and clear rules will be required on how this issue will be addressed by the Ontario Power Authority (“OPA”) and the OEB.
  - Clarity and Transparency – Hydro One believes it is extremely important to set a clearly defined trigger point for the need for an SIA, and the “10 MW reverse flow” requirement would satisfy this. Generators should be informed of all the technical requirements, costs, and timelines before the project is confirmed.
  - Confidentiality – The IESO would need modelling data from all earlier applicants and existing generation in order to do its SIA. As such, Hydro One may need to amend confidentiality terms in its agreements with generators, especially those that are already connected, before the information can be given to the IESO.
  - Timelines – The IESO’s recommendation would affect the application process, timelines, and steps prescribed in OEB’s DSC.
2. Resource Mix and Demand Profile – Hydro One submits that once a 10MW criterion, or any other magnitude of reverse flow criteria is established, it will also be extremely important to establish the rules surrounding assumptions for resource mix and demand profile based on conservative assumptions for assessments. Otherwise, implementation could be extremely difficult and be challenged by proponents who may be disadvantaged. We suggest that these assumptions be discussed with stakeholders for wind, solar and other relevant technologies as generation patterns vary widely by technology and location, and this will need to be addressed when developing these rules.
3. Finally, it should be emphasized that clear rules are essential. Any uncertainty would not only delay the generation connection process amid confusion around the need for an SIA but also raise questions by proponents around the fairness of the process.

## **Performance Standards**

1. Low Voltage Ride Through (“LVRT”) – Hydro One supports the need for LVRT, but cautions that the exact requirement should be in accordance with existing cease to energize requirements. (e.g. IEEE 1547 Clause 4.2.3, DSC Appendix F.2 Section 6.5)
2. Automatic Reconnection – Hydro One agrees with this proposal.
3. Power Factor Regulation – Clarification on this item is requested. Hydro One can support the IESO’s removal of the requirement with respect to the Distribution System, however, the change in power factor at the TS due to embedded generation warrants further discussion so that transmitters are not held responsible for low power factor.
4. Reactive Power, Voltage Variations and Automatic Voltage Regulation – Clarification on this item is requested. While these may have limited effects on the IESO-controlled grid, they could have significant impacts on the safe and reliable operation of the distribution system. A uniform approach could be challenging because of innate site-specific and technological differences. (e.g. solar technologies cannot provide reactive power.)
5. Under Frequency Load Shedding (“UFLS”) – Hydro One supports the need for UFLS, but cautions that the exact requirement should be in accordance with existing cease to energize requirements. (e.g. IEEE 1547 Clause 4.2.4, DSC Appendix F.2 Section 6.5)
6. Load Power Factor – Clarification on this item is requested.
7. Excitation and Speed Governing Systems – Clarification on this item is requested.

## **Visibility (Telemetry)**

1. The OPA contract may not be the most suitable place for active monitoring requirements. The OPA’s contract outlines commercial arrangements, but this is a requirement for safe and effective operation of the transmission and distribution systems.
2. Currently, Hydro One has monitoring requirements already in place. Consultation should ensure harmonious integration of the various requirements and needs of the LDC and the IESO. Cost allocation will have to be considered not only from an initial connection perspective, but also when the distribution system configuration changes.
3. The IESO should identify their requirements. For example, does the IESO need aggregate generation data at the delivery point (i.e. the TS’s low voltage bus) or at the generator’s connection point within the distribution system?

In general, Hydro One is in favour of revising standards to facilitate connections. However, the rationale behind each technical requirement affected should be identified for stakeholder discussion. Although the IESO should propose changes necessary for it to operate and control the IESO-controlled grid, it is also important that due consideration is given to requirements that are in place to ensure the integrity of the distribution system. Hence, it is extremely important to ensure that the IESO requirements are not in conflict with other governing codes, standards, or industry-wide practices. Finally, the implementation of new changes needs to consider the fair treatment of new facilities, the challenges for the LDCs, and generators that are already connected.

If you have any questions regarding our comments, please do not hesitate to contact us.

Yours truly,

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