

Memorandum

To: Technical Panel

From: Adam Cumming

Date: June 16, 2020

Re: MR-00445: Updates to Performance Requirements: Market Rule Appendices 4.2 and 4.3

The IESO is proposing to amend the performance requirements for *generators, wholesale customers* and *distributors*, as well as, expand the applicability of several existing requirements to all distributed energy resources (DERs), regardless of their size. The proposed amendment also specifies the required behavior for inverter-based *facilities* during and immediately following disturbances to avoid these *facilities* ceasing to inject current during system disturbances. In addition, the language of several other performance requirements is being clarified in order to help *market participants* better understand these requirements. These changes to performance requirements are aligned with industry-wide standards (NERC PRC-024-3 and CSA 22.3 no.9).

Background

In recent years, there has been a gradual shift in the supply mix, moving from traditional synchronous *generation facilities* to increasing amounts of inverter-based generation (e.g. wind and solar generators, and, more recently, storage *facilities*), many of them being distributed energy resources. The IESO's 2019 Operability Study identified that the behavior of small distributed energy resources, combined with their increasing penetration levels, poses a risk to *transmission system reliability* as these units could cease producing power during and following significant system events, hence amplifying the effects of those events on the power grid.

The technical performance requirements for generation, wholesale customer load, and distribution facilities are specified in Appendix 4.2 and Appendix 4.3 of the market rules. Appendix 4.2 lists the technical performance requirements for *generation facilities*, whereas Appendix 4.3 lists the technical performance requirements for *wholesale customers* and *distributors*.

To act on the recommendations from the 2019 Operability Study report, the IESO is proposing to amend the *generator* performance requirements to expand the applicability of several existing requirements to all distributed energy resources, regardless of their size. As well, the IESO would like to use this opportunity to make improvements to the language of several other

performance requirements that would help market participants more easily understand those requirements, and align our performance requirements with the more recent industry-wide standards.

The *IESO* has been actively involved in the Ontario Energy Board's technical sub-group on Distributed Energy Resources and CSA's update of C22.3 No. 9, Interconnection of distributed resources and electricity supply systems standards. These proposed amendments will ensure that the *market rules* are in alignment with these other industry initiatives.

Stakeholder feedback

Through face-to-face meetings and webinars, the *IESO* has conducted broad stakeholder engagement of the proposed amendments to Appendices 4.2 & 4.3. These efforts have seen very high levels of engagement both in terms of total viewers and participation from attendees. Overall the stakeholder feedback received during and following these sessions has been positive, and the suggestions and requests have been considered and responded to by the *IESO*. Information presented at these webinars can be found on the Updates to Performance Requirements [website](#), including presentations, written stakeholder feedback and *IESO* responses.

Recommendation

The *IESO* recommends that the Technical Panel vote to post MR-00445: Updates to Performance Requirements: Market Rule Appendices 4.2 and 4.3 for broader stakeholder feedback and comment for a period of two weeks at its June 23, 2020 meeting.

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