

# Memorandum

To: Technical Panel

From: Adam Cumming

Date: August 4, 2020

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

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At the June 23<sup>rd</sup> Technical Panel meeting, the Technical Panel voted to post the proposed market rule amendment for broader stakeholder comment. The proposed market rule amendment was posted on the Proposed Market Rule Amendments [webpage](#) on June 24<sup>th</sup> and the two week window for submission of comments closed on July 9.

## Background

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, 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).

## Stakeholder feedback

In response to the broader call for stakeholder comment, one submission was received by the IESO. Ontario Power Generation (OPG) submitted an evaluation of the proposed amendment providing recommendations to the IESO. The IESO has reviewed and agrees with the feedback provided by OPG.

OPG recommendation #1:

OPG believes that the reactive power requirements need to be explicitly defined at particular voltage conditions.

The IESO agrees with this recommendation and has revised the proposed amended category #5– Reactive Power, to state:

Continuously (i.e., dynamically) inject or withdraw reactive power at the high-voltage terminal of the main output transformer up to 33% of rated active power at all levels of active power output, and at the typical *transmission system voltage*, except where a lesser continually available capability is permitted with the *IESO's approval*. A conventional synchronous unit with a power factor range of 0.90 lagging and 0.95 leading at rated active power connected via a main output transformer impedance not greater than 13% based on *generation unit* rated apparent power is acceptable. Reactive power losses or charging between the high-voltage terminal of the main output transformer and the *connection point* shall be addressed in a manner permitted by *IESO approval*.

OPG recommendation #2:

OPG contends that the IESO does need to retain the rated field current definition, or at least a similar definition, somewhere in the Market Rules or Manuals.

The IESO agrees with this recommendation and will be adding the following information into [Market Manual 1.6 - Performance Validation](#) (formerly 2.20):

Rated field voltage is defined as the product of field current at rated terminal voltage, rated active power and the required maximum continuous reactive power, with the field resistance at nominal operating temperature.

The nominal operating temperatures are specified in the [Register Facility Help File](#) as 75 °C for hydro units and 100 °C for thermal units.

OPG's submission can be found on the Technical Panel [webpage](#).

Information presented at previous stakeholder engagement webinars can be found on the Updates to Performance Requirements [website](#), including presentations, written stakeholder feedback and *IESO* responses.

At the June 23<sup>rd</sup> technical panel meeting, a member of the panel recommended that categories 11 and 12 in appendix 4.3 be reordered to improve clarity. The IESO has accepted this recommendation and reordered the categories so that Voltage Ride-Through is now category 11 and Generation Units is category 12.

### **Recommendation**

The *IESO* recommends that the Technical Panel vote to recommend MR-00445: Updates to Performance Requirements: Market Rule Appendices 4.2 and 4.3 to the IESO Board for consideration at its August 25, 2020 meeting. The IESO is recommending an effective date of September 21, 2020 for the proposed amendment.

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