

# Ancillary Services – Mandatory Requirements for Regulation Service Providers (MR-00432)

June 27, 2017

---

# Proposed Amendment

---

- The IESO is proposing changes to the *market rules* that will increase the transparency and consistency of performance requirements for all *registered facilities* providing *regulation*, regardless of size and connection location, to ensure dependability of the service from all *regulation* providers
- Specifically, all *regulation* providers will be obligated to meet the following categories in Appendix 4.2 of the *market rules*:
  - Category 1 - off-nominal frequency
  - Category 2 - speed/frequency regulation
  - Category 3 - voltage ride through

# Background

- *Regulation* is the *ancillary service* required to control power system frequency and maintain the balance between load and generation on a second-by-second basis
- *Regulation* has been traditionally supplied by synchronous *generation units* directly connected to the *IESO controlled grid* (ICG) that, in addition to the specific requirements for *regulation* of Appendix 5.1 (Performance Standards for Ancillary Services) are all subject to the performance requirements of Appendix 4.2 (*Generation Facility Requirements*)
- *Regulation* needs to be procured from/supplied by dependable sources to ensure Ontario's compliance with the applicable NERC standards

# New Regulation Providers

---

- Alternative technologies such as batteries, flywheels and load aggregation now have the potential to be suppliers of *regulation*
- Size, composition or location of an alternative technology *regulation* provider may make a connection to the *distribution system* more suitable than a direct connection to the ICG
- The current *market rules* do not contemplate the provision of *regulation* service from *distribution* connected providers
- Due to the size and connection location (to a distribution system) of some of these providers, it is not clear in the market rules that they are obligated to meet some performance requirements specified in Appendix 4.2, which only apply to distribution connected generation facilities larger than 50 MW or to generation units larger than 10 MW

# Consistency of Performance Requirements

---

- Dependability of service from *regulation* providers is expected to be the same regardless of their size or connection location
- To ensure this expectation is met (and provide a level playing field to all providers), the amendment will clarify that all *regulation* providers are subject to the performance requirements of specific categories (1, 2 and 3) of Appendix 4.2 (will also include distribution connected facilities of 50 MW or less and units of 10 MW or less that are providing *regulation*)

# Proposed Amendment Details

- New section under Appendix 5.1 (Performance Standards for Ancillary Services) will clarify that all *regulation* providers must comply with the following categories of Appendix 4.2 (notwithstanding any language to the contrary contained therein):

<b>1. Off-Nominal Frequency</b>	Operate continuously between 59.4 Hz and 60.6 Hz and for a limited period of time in the region above straight lines on a log-linear scale defined by the points (0.0 s, 57.0 Hz), (3.3 s, 57.0 Hz), and (300 s, 59.0 Hz).
<b>2. Speed/Frequency Regulation</b>	Regulate speed with an average droop based on maximum active power adjustable between 3% and 7% and set at 4% unless otherwise specified by the IESO. Regulation deadband shall not be wider than $\pm 0.06\%$ . Speed shall be controlled in a stable fashion in both interconnected and island operation. A sustained 10% change of rated active power after 10 s in response to a constant rate of change of speed of 0.1%/s during interconnected operation shall be achievable. Due consideration will be given to inherent limitations such as mill points and gate limits when evaluating active power changes. Control systems that inhibit governor response shall not be enabled without IESO approval.
<b>3. Voltage Ride Through</b>	Ride through routine switching events and design criteria contingencies assuming standard fault detection, auxiliary relaying, communication, and rated breaker interrupting times unless disconnected by configuration.

# Impact of Change

---

- The *market rules* will clearly outline that all *regulation* providers are subject to the same performance requirements regardless of size or connection point (ICG or a *distribution system*)
- *Regulation* providers will know at the outset what their obligations are, rather than learning about potential *reliability* issues during the Connection Assessment and Approval Process

# Proposed Timelines

---

Date	Activity
June 27, 2017	Technical Panel meeting – Introductory presentation and rule amendment submission – seek a vote from the Panel that the rule amendment warrants consideration
August 15, 2017	Technical Panel meeting – Review market rule amendment and seek a vote to post the proposed amendment for stakeholder comment
September 26, 2017	Technical Panel meeting – Review comments from stakeholders and seek a vote to recommend the proposed amendment to the IESO Board for consideration
October 25, 2017	IESO Board to consider proposed rule amendment
November 17, 2017	Earliest effective date (22 days following publication of IESO Board approved amendment)