Market Rule Amendment Proposal

PART 1 – MARKET RULE INFORMATION

Identification No.:	MR-00381			
Subject:	Renewable Integration Initiative			
Title:	Floor Prices for Variable and Nuclear Generation			
Nature of Proposal:	☐ Alteration	☐ Deletion	☒ Addition	
Chapter:	7, 11	Appendix:		
Sections:	Chapter 7, section 3.5.4A (new), Chapter 11 definitions			
Sub-sections proposed for amending:				

PART 2 – PROPOSAL HISTORY

Version	Reason for Issuing	Version Date
1.0	Draft for Technical Panel review	July 10, 2012
2.0	Publish for Stakeholder Review and Comment	July 19, 2012
3.0	Submitted for Technical Panel Vote	September 21, 2012
4.0	Recommended by Technical Panel; Submitted for IESO Board Approval	October 16, 2012
5.0	Approved by IESO Board	November 29, 2012

Approved Amendment Publication Date:	January 3, 2013
Approved Amendment Effective Date:	February 1, 2013

PART 3 – EXPLANATION FOR PROPOSED AMENDMENT

Provide a brief description of the following:

- The reason for the proposed amendment and the impact on the *IESO-administered markets* if the amendment is not made.
- Alternative solutions considered.
- The proposed amendment, how the amendment addresses the above reason and impact of the proposed amendment on the *IESO-administered markets*.

Summary

The IESO proposes to establish floor prices for variable generators (i.e. wind and solar) that are registered market participants, and flexible nuclear generation.

This proposal is based on stakeholder consultation as part of SE-91 Renewable Integration - the Floor Price Focus Group (FPFG). The amendment is based on SE-91 Renewable Integration Final Design Principle 10[1], and is the first set of rule amendments related to variable generation dispatch.

Further information on SE-91 can be found on the IESO's website at:

http://www.ieso.ca/imoweb/consult/consult_se91.asp

Background

The rapid influx of renewables in Ontario will fundamentally change the characteristics of the power system, challenging the IESO's ability to maintain reliable and cost-efficient operations. As part of the renewable integration design, the IESO will actively dispatch all variable generation[2] directly connected to the IESO-controlled grid and those embedded variable resources that are registered market participants through the five-minute security constrained economic dispatch.

In order to better ensure efficient dispatches during periods of local and/or global surplus baseload generation (SBG) events, the IESO will establish floor prices for variable generators as well as for flexible nuclear generators. A dispatch order for baseload generation will produce real-time outcomes that:

- Better promote market efficiency and cost-effectiveness;
- Minimize environmental impacts.

Discussion

Subject to IESO Board approval, the IESO will establish floor prices for variable generators (wind and solar) and flexible nuclear generation. With a coordinated approach using nuclear and variable

[1] **Principle 10:** The IESO may establish various floor prices for offers from baseload generators (e.g. wind, must-run hydro, nuclear, etc.) to ensure efficient dispatches during periods of local and/or global surplus baseload generation (SBG) events.

[2] Market Rules, Chapter 11 Definition: *variable generation* means all wind and solar photovoltaic resources with an installed capacity of 5MW or greater, or all wind and solar photovoltaic resources that are directly connected to the *IESO-controlled grid.*

PART 3 – EXPLANATION FOR PROPOSED AMENDMENT

resources, once a real-time dispatch is received, the IESO will make an assessment of surplus conditions and commit flexible nuclear based on technical requirements and forecasted needs. Other resources, including wind and solar, will fill in the remaining differences between the intervals through the five-minute economic dispatch.

Periodically, (for example, every 6 months – frequency to be determined) the IESO will assess the impact of the floor prices on system operations and the IESO-administered markets. Such assessment will include seeking input from all stakeholders, and the IESO will provide a recommendation to the IESO Board which will unilaterally determine whether any changes to the floor prices are warranted. The prices will be published in the applicable market manual (MM 4.2: Submission of Dispatch Data in the Real-Time Energy and Operating Reserve Markets) rather than being hardcoded into the market rules to allow for a more expedited change process.

The following changes are proposed in Chapter 7, section 3.5.4A (new) to specify that:

- The IESO Board will establish floor prices for energy offers from variable generators that are registered market participants, and flexible nuclear generators for flexible nuclear generation in accordance with the applicable market manual. This approach is consistent with section 4.4.6 of Chapter 7 where the IESO Board specifies the maximum market clearing price (MMCP) and negative MMCP.
- The prices in each energy offer submitted by the variable generator or by a flexible nuclear generator in respect of flexible nuclear generation for each dispatch hour shall not be less than the floor prices specified in the applicable market manual.

In addition, it is proposed to add defined terms in Chapter 11 for:

- "Flexible nuclear generation," meaning the component of a nuclear generation facility that has flexibility for reductions due to the operation of condenser steam discharge valves, and is made available at the sole discretion of the flexible nuclear generator to manoeuvre without requiring a unit to shutdown under normal operations, while respecting safety, technical, equipment, environmental and regulatory restrictions.
- "Flexible nuclear generator," meaning a generator whose generation facility has a component classified as flexible nuclear generation.

PART 4 – PROPOSED AMENDMENT

Chapter 7

3.5 Energy Offers and Energy Bids

3.5.1 A *registered market participant* may submit no more than one *energy offer* or one *energy bid* with respect to a given *registered facility* for any *dispatch hour*.

3.5.2 All *energy offers* and *energy bids* shall be submitted using such forms as may be specified by the *IESO*, which forms shall require, at a minimum, provision of all of the information specified in Appendices 7.1 and 7.2, respectively, except where

the *IESO* specifies an alternative means and/or an alternative simplified form pursuant to section 3.2.2.3.

3.5.3 Each *energy offer* or *energy bid* must contain at least 2 and, may contain up to 20 *price-quantity pairs* for each *dispatch hour*. The price in each such *price-quantity pair* shall be not more than the *Maximum Market Clearing Price* or *MMCP* and not less than the negative *Maximum Market Clearing Price* or negative *MMCP* and shall be expressed in dollars and whole cents per MWh. The quantity in each such *price-quantity pair* shall:

3.5.3.1 in the case of a *registered facility* other than a *boundary entity*, be expressed in MW (or MWh/hour) to one decimal place and shall not be less than 0.0 MW (or 0.0 MWh/hour); or

3.5.3.2 in the case of a *registered facility* that is a *boundary entity*, be expressed in whole MW (or MWh/hour) and shall not be less than 0 MW (or 0 MWh/hour).

The quantity in the first *price-quantity pair* shall be 0.0 MW (or 0.0 MWh/hour) or 0 MW (or 0 MWh/hour) as applicable. The price in the second *price-quantity pair* shall be the same as the price in the first *price-quantity pair*.

3.5.4 Prices in *energy offers* and *energy bids* may be negative and such negative price shall imply:

3.5.4.1 when in an *energy offer*, that the *registered market participant* is willing to pay up to that price for each MWh of *energy* it injects rather than reduce its output; and

3.5.4.2 when in an *energy bid*, that the *registered market participant* is willing to take or dispose of excess *energy*, but only if paid at least that price for each excess MWh taken or disposed of.

3.5.4A The *IESO Board* shall establish floor prices for *energy offers* from *variable generators* that are *registered market participants* and for *energy offers* from *flexible nuclear generators* for *flexible nuclear generation*, in accordance with the applicable *market manual*. The prices in each *energy offer* submitted by the *variable generator* or by a *flexible nuclear generator* in respect of *flexible nuclear generation* for each *dispatch hour* shall not be less than the floor prices specified in the applicable *market manual.*

Chapter 11

1. Definitions

flexible nuclear generation means the component of a nuclear *generation facility* that has flexibility for reductions due to the operation of condenser steam discharge valves, and is made available at the sole discretion of the *flexible nuclear generator* to manoeuvre without requiring a unit to shutdown under normal operations, while respecting safety, technical, equipment, environmental and regulatory restrictions;

flexible nuclear generator means a *generator* whose *generation facility* has a component classified as *flexible nuclear generation;*

PART 5 – IESO BOARD DECISION RATIONALE

As part of the renewable integration design, this amendment is a component of the IESO's ability to actively dispatch all variable generators that are registered market participants through the five-minute security constrained economic dispatch, which is an essential tool for the IESO to maintain system reliability and market efficiency.