

Market Rule Amendment Proposal Form

Part 1 - Market Rule Information

Identification No.:	MR-00461-R02
Subject:	Market Renewal Program – Calculation Engines: Batch 3 Definitions
Title:	Market Renewal Program - Calculation Engines: Batch 3 Definitions
Nature of Proposal:	<input checked="" type="checkbox"/> Alteration <input checked="" type="checkbox"/> Deletion <input checked="" type="checkbox"/> Addition
Chapter:	11
Appendix:	
Sections:	
Sub-sections proposed for amending:	
Current Market Rules Baseline:	December 1, 2021

Part 2 - Proposal History

Version	Reason for Issuing	Version Date
1.0	Draft for Stakeholder Review	February 4, 2022

Approved Amendment Publication Date:

Approved Amendment Effective Date:

Part 3 - Explanation for Proposed Amendment

Summary

Background

Discussion

Part 4 - Proposed Amendment

Definitions

cascade group means one or more *forebays* in a cascade river system in which all *resources* registered across each *forebay* have the same owner;

commitment cost parameters means *start-up offer*, *speed-no-load offer*, and the portion of an *energy offer* up to and including the *minimum loading point*;

day-ahead market calculation engine means an algorithm that consists of three passes, where each pass executes one or more optimization problems solved by the *IESO* to determine schedules and prices in accordance with Appendix 7.1A of Chapter 7 to meet the needs of the *day-ahead market*;

delivery point means a uniquely identified reference point determined in accordance with section 2.4A.1 of Chapter 9 and used for *settlement* purposes in the *day-ahead markets* and *real-time markets*, other than in respect of transactions involving the transmission of *energy* or *ancillary services* into or out of the *IESO-controlled grid* from a neighbouring *transmission system*;

energy limited resource means a *dispatchable generation resource* with a *maximum daily energy limit* for the applicable *dispatch day*;

forebay means a body of water within a *cascade group* upon which one or more hydroelectric *generation resources* that have the same *registered market participant* may be registered;

intertie border price or *IBP* means, in respect of an *intertie zone*, the portion of the *locational marginal price* of *energy* or *operating reserve* that is exclusive of the *intertie congestion price*, determined in the *real-time market* or *day-ahead market* in accordance with the provisions of Chapter 7 or established by the *IESO* in accordance with section 8.4A of Chapter 7;

intertie congestion price (ICP) means, in respect of a ~~given dispatch hour~~ an intertie zone, the portion of the locational marginal price that consists of the cumulative congestion costs resulting from the binding import or export transmission limits that affect transactions scheduled at such intertie zone, including any net interchange scheduling limit congestion costs, as determined in the real-time market or day-ahead market in accordance with the provisions of Chapter 7 or established by the IESO in accordance with section 8.4A of Chapter 7; ~~a price equal to the projected market price for energy or operating reserve for a given intertie zone minus the projected uniform market price for energy or operating reserve respectively, in the IESO control area, determined in accordance with section 8.1.1A of Chapter 7;~~

linked forebay means a forebay that is upstream or downstream from another forebay in the same cascade group, and that has a time lag relationship and MWh ratio with the other forebay;

main island means, in the event of a network split, the island with the largest number of IESO-controlled grid buses;

minimum daily energy limit means the minimum amount of energy in MWh that must be scheduled within a dispatch day for a hydroelectric generation resource or collectively from all hydroelectric generation resources registered on the same forebay;

minimum hourly output means the minimum amount of energy, in MWh, that must be scheduled for a hydroelectric generation resource within a dispatch hour if scheduled above 0 MWh;

MWh ratio means the proportional amount of energy that must be scheduled on the resources registered on the downstream linked forebay after the time lag has elapsed for every MWh of energy scheduled on the resources registered on the upstream linked forebay;

non-quick start resource means a generation resource whose electrical energy output cannot be provided to the IESO-controlled grid within 5 minutes of the IESO's request and is provided by equipment not synchronized to the IESO-controlled grid when the request to start providing energy is made;

Ontario Zonal Price means the price of energy in Ontario applicable to non-dispatchable loads, as determined in the day-ahead market in accordance with the provisions of Chapter 7 or established by the IESO in accordance with section 8.4A of Chapter 7;

ramp up energy to minimum loading point means the amount of energy, in MWh, a generation resource is expected to inject into the IESO-controlled grid in each hour from the time of synchronization to the time it reaches its minimum loading point;

real-time schedule means, in respect of a ~~registered facility~~ resource that is not a boundary entity resource, a dispatch schedule for a dispatch interval as determined by the ~~dispatch algorithm~~ real-time calculation engine and, in respect of a ~~registered facility that is a boundary entity resource~~, the interchange schedule pertaining to ~~it~~ that registered facility;

reference bus -means the bus designated by the IESO in accordance with section 5.2 of Appendix 7.1A, section 5.2 of Appendix 7.2A or section 5.2 of Appendix 7.3A for the purpose of determining the components of locational marginal price the RWM on the basis of which the IESO determines, where applicable in accordance with section 3.6.2 of Chapter 9, the energy market price for the purpose of determining the losses used in calculating contributions to the transmission charge reduction fund;

reliability must-run resources means the ~~resources~~resources described in section 4.8.1 of Chapter 5; these may also be referred to as *must-run resources*;

reserve loading point means the minimum level of energy output in MWs required for a generation resource to provide its maximum amount of a given class of operating reserve;

settlement floor price means the minimum price that a market participant may be charged or paid for energy and is established by the IESO Board;

single cycle mode means the mode of operating the resource associated with the combustion turbine generation unit of a combined cycle generation facility without the resource associated with the steam turbine generation unit(s);

virtual transaction zone means a region internal to the IESO control area designated by the IESO for the purpose of conducting virtual transactions;

virtual zonal price means, in respect of a virtual transaction zone, the price of energy determined in the in the day-ahead market or real-time market in accordance with the provisions of Chapter 7;

virtual zonal resource means a construct existing within the IESO's systems that corresponds to a virtual transaction zone, that facilitates virtual transactions;

**Changes to Definitions Provisionally Approved by the IESO Board in MR-00461-R00:
Batch 1 Definitions:**

Provisionally approved version:

load means one or more pieces of equipment that consume energy from the integrated power system;

Revised (proposed changes to the provisionally approved version are highlighted in grey):

load equipment means equipment within a load facility that draws electrical energy from the integrated power system;

Provisionally approved version:

load resource means a resource modelled to represent one or more loads;

Revised (proposed changes to the provisionally approved version are highlighted in grey):

load resource means a resource modelled to represent one or more sets of load equipment;

Provisionally approved version:

forbidden region means a predefined operating range within which a hydroelectric generation ~~facility~~resource cannot maintain steady operation without causing equipment damage. A hydroelectric generation ~~facility~~resource may have more than one *forbidden region*;

Revised (proposed changes to the provisionally approved version are highlighted in grey):

forbidden region means an predefined operating range between the applicable lower limit and upper limit within which a hydroelectric generation ~~facility~~resource cannot maintain steady operation without causing equipment damage. A hydroelectric generation ~~facility~~resource may have more than one *forbidden region*;

Provisionally approved version:

pre-dispatch schedule means an hourly schedule for the remaining hours of a *dispatch day* and may include all hours of the next dispatch day as determined by the *dispatch algorithm*;

Revised (proposed changes to the provisionally approved version are highlighted in grey):

pre-dispatch schedule means an hourly schedule for the remaining hours of a *dispatch day* and may include all hours of the next dispatch day as determined by the pre-dispatch calculation engine;

Provisionally approved version:

pseudo-unit means a resource associated with a combined cycle *generation facility* that is modeled based on a gas-to-steam relationship between generation units, and which is comprised of one combustion turbine generation unit and a share of one steam turbine generation unit at the same combined cycle *generation facility*;

Revised (proposed changes to the provisionally approved version are highlighted in grey):

pseudo-unit means a dispatchable generation resource associated with a combined cycle generation facility that is modeled based on a gas-to-steam relationship between generation units, and which is comprised of one combustion turbine generation unit and a share of one steam turbine generation unit at the same combined cycle generation facility;

Provisionally approved version:

virtual transaction means a transaction in the IESO-administered markets that creates a financial obligation to settle against the difference between the day-ahead market energy price and the real-time market energy price;

Revised (proposed changes to the provisionally approved version are highlighted in grey):

virtual transaction means a transaction in the IESO-administered markets in the form described in section 3.4.1.4B of Chapter 7, that creates a financial obligation to settle against the difference between the day-ahead market virtual zonal price and the real-time market virtual zonal price, without a corresponding injection or withdrawal of energy in the real-time market;

Note: Cross reference to section 3.4.1.4B of Chapter 7 is a new section which will be introduced in the Offers, Bids and Data Inputs and Grid and Market Operations Integration market rule amendments.

Change to Definition in MR-00461-R01: Market Power Mitigation: Batch 2 Definitions:

Proposed:

maximum daily energy limit means a maximum amount of energy in MWh that may be scheduled for a resource within a dispatch day;

Revised (proposed changes to draft are highlighted in grey):

maximum daily energy limit means a maximum amount of energy in MWh that may be scheduled within a dispatch day for a resource or collectively from all hydroelectric generation resources registered on the same forebay, where applicable;