Final Alignment Supplementary: Incremental Amendments

Incremental Amendments from Provisionally Approved baseline	
Title:	Chapter 0.7 – System Operations and Physical Markets
Current Market Rules Baseline:	
This document shows only excerpts from sections that have been revised since the Technical Panel provisionally recommended/IESO Board provisionally approved version with tracked changes. For the full version of this and other chapters, refer to the market rule amendment proposal documents (MR-00481-R00-R12).	

Introduction

A.1.1   This Chapter is part of the *renewed market rules,* which pertain to:

   A.1.1.1   the period prior to a *market transition* insofar as the provisions are relevant and applicable to the rights and obligations of the *IESO* and *market participants* relating to preparation for operation in the *IESO-administered markets* following commencement of *market transition;* and

   A.1.1.2   the period following commencement of *market transition* in respect of all the rights and obligations of the *IESO* and *market participants.*

A.1.2   All references herein to chapters or provisions of the *market rules* will be interpreted as, and deemed to be references to chapters and provisions of the *renewed market rules.*

A.1.3   Upon commencement of the *market transition*, the *legacy market rules* will be immediately revoked and only the *renewed market rules* will remain in force.

A.1.4   For certainty, the revocation of the *legacy market rules* upon commencement of *market transition* does not:

   A.1.4.1   affect the previous operation of any *market rule* or *market manual* in effect before the *market transition*;

   A.1.4.2   affect any right, privilege, obligation or liability that came into existence under the *market rules* or *market manuals* in effect prior to the *market transition*;

   A.1.4.3   affect any breach, non-compliance, offense or violation committed under or relating to the *market rules* or *market manuals* in effect prior to the *market transition*, or any sanction or penalty incurred in connection with such breach, non-compliance, offense or violation; or

   A.1.4.4   affect an investigation, proceeding or remedy in respect of,

      (a)   a right, privilege, obligation or liability described in subsection A.1.4.2, or

      (b)   a sanction or penalty described in subsection A.1.4.3.

A.1.5   An investigation, proceeding or remedy described in subsection A.1.4.3 may be commenced, continued or enforced, and any sanction or penalty may be imposed, as if the *legacy market rules* had not been revoked.

1.   Introductory Rules

1.6   IESO Authorities and Obligations Regarding the Operation of the IESO-Administered Markets

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1.6.4   The *IESO* shall suspend the *day-ahead market* or *real-time market* as required in accordance with section 13. If the *IESO* suspends the *day-ahead market* or *real-time market*, the *IESO* shall:

      1.6.4.1   inform *market participants* of the suspension, the impacted trade date, hours and cause of error if practicable;

      1.6.4.2   inform *market participants* of when normal *market operations* is expected to resume; and

      1.6.4.3   subject to section 13.6, apply *administrative prices* in accordance with section 8.4A.

1.6.5   Unless otherwise directed by the *IESO Board*, the *IESO* shall no less than once every two calendar years, commission and *publish* the results of an independent review of the operation and application of the *day-ahead market calculation engine*, *pre-dispatch calculation engine*, and *real-time* calculation engine and the related *dispatch* processes and procedures. The *IESO* shall use the results of such review to determine the need or otherwise for improvements in the calculation engines and related procedures in meeting the objectives of the *market rules* and/or the mathematical representation of the *electricity system* or the solution procedures which form part of the market clearing logic. The first such review shall be completed no later than two years following the ~~MRP commencement date~~*market transition completion*.

2. Registration for Physical Operations in the Day-Ahead Market and Real-Time Market

2.2 Facility and Associated Resources Registration

2.2.11 The *IESO* shall approve a request for registration as a ~~self-scheduling generation~~an *electricity storage* facility or a *self-scheduling* ~~electricity storage~~generation facility if the information required by this section 2.2 is provided and the *IESO* determines that the participation of ~~those facilities~~that facility and any associated *resources* will not have a material adverse effect on power system *security*.

2.2.16 ~~An~~A *generator* with an *intermittent* ~~generator~~generation resource whose request for *facility* registration has been approved by the *IESO* is a *facility* with associated *resources* registered by the *IESO*.

2.2A Registration of Commissioning Generation Facilities

2.2A.1 A *market participant* may apply to register a *commissioning generation facility*, in accordance with section 2.2, for the purpose of being permitted to convey electricity or a *physical service* into, through or out of the *integrated power system* or of participating in the *day-ahead market* or *real-time market* during the period in which the *commissioning generation facility* is undergoing the commissioning tests referred to in section 2.2A.4.

2.2A.2 The *IESO* shall approve an application to register a *commissioning generation facility* if the *IESO* is satisfied that the *commissioning generation facility* meets the requirements provided by section 2.2 applicable to *generation facilities* associated with a *self-scheduling generation resource* ~~.~~, except for section 2.2.9.1. Any such registration shall expire upon completion by the *commissioning generation facility* of the final commissioning test submitted to and approved by the *IESO* pursuant to section 2.2A.4.

2.2A.5 The detailed commissioning test plans, referred to in section 2.2A.4.2 shall be submitted to the *IESO* for approval and shall be scheduled in accordance with the procedures applicable to the *outage* coordination process described in

~~section 6 of Chapter 5~~MR Ch.5 s.6 and with any applicable *market manual* and shall include, but not be limited to:

2.2A.5.1   the time required for the *commissioning generation facility* to synchronize to and de-synchronize from the *IESO-controlled grid*;

2.2A.5.2   *energy* and reactive output levels;

2.2A.5.3   the timing of and ramp rates associated with changes in *energy* and reactive output levels; and

2.2A.5.4   run-back or trip tests for the *commissioning generation facility*.

2.2A.6   Except as otherwise provided in this section 2.2A, where a *commissioning generation facility* has been registered by the *IESO* pursuant to section 2.2A.2, the *IESO* shall, while such registration is in effect,

2.2A.6.1   For purposes of the *settlement process,* treat the *commissioning generation facility* as the type of *resource* for which it has sought registration; and

2.2A.6.2   For the purposes of the *day-ahead market, pre-dispatch process* and *real-time dispatch process,* treat the *resource* as a *self-scheduling generation resource* ~~for all purposes under these~~ *~~market rules~~* ~~including, but not limited to, the submission of~~ *~~dispatch data~~* ~~and settlement.~~.

2.2D   Registration of Commissioning Electricity Storage Facilities

2.2D.1   A *market participant* may apply to register a *commissioning electricity storage facility*, in accordance with section 2.2, for the purpose of being permitted to convey electricity or a *physical service* into, through or out of the integrated power system or of participating in the *day-ahead market* or *real-time market* during the period in which the commissioning *electricity storage facility* is undergoing the commissioning tests referred to in section 2.2D.4.

2.2D.2   The *IESO* shall approve an application to register a *commissioning electricity storage facility* if the *IESO* is satisfied that the *commissioning electricity storage facility* meets the requirements provided by section 2.2 applicable to *electricity storage facilities* associated with a *self-scheduling electricity storage resource*~~.~~ except for section 2.2.9A.1. Any such registration shall expire upon completion by the *commissioning electricity storage facility* of the final commissioning test submitted to and approved by the *IESO* pursuant to section 2.2D.4.

2.2D.4   Where a *commissioning electricity storage facility* has been registered by the *IESO* pursuant to section 2.2D.2, the *market participant* for that *commissioning electricity storage facility* shall, while such registration is in effect:

    2.2D.4.1   ensure that the *commissioning electricity storage facility*:

        a.   complies with all of the provisions of these *market rules* applicable to *self-scheduling electricity storage resources* excluding section 3.4.1.7 and associated *electricity storage facilities*; and

        b.   notwithstanding section 2.2D.4.1(a), where it will seek to be registered other than pursuant to this section 2.2D, in accordance with section 2.2 as other than a *self-scheduling electricity storage resource* and associated *electricity storage facility*, complies with all of the applicable requirements of section 2.1.1.4 and MR Ch.4 s.7.~~3~~3A; and

    2.2D.4.2   submit to the *IESO*, for approval and in accordance with section 2.2D.5, information detailing the commissioning test plans for the *commissioning electricity storage facility*.

2.2D.5   The detailed commissioning test plans, referred to in section 2.2D.4.2 shall be submitted to the *IESO* for approval and shall be scheduled in accordance with the procedures applicable to the *outage* coordination process described in ~~section 6 of Chapter 5~~MR Ch.5 s.6 and with any applicable *market manual* and shall include, but not be limited to:

    2.2D.5.1   the time required for the *commissioning electricity storage facility* to synchronize to and de-synchronize from the *IESO-controlled grid*;

    2.2D.5.2   *energy* and reactive output levels;

    2.2D.5.3   the timing of and ramp rates associated with changes in *energy* and reactive output levels; and

    2.2D.5.4   run-back or trip tests for the *commissioning electricity storage facility*.

2.2D.6   Except as otherwise provided in this section 2.2D, where a *commissioning electricity storage facility* has been registered by the *IESO* pursuant to section 2.2D.2, the *IESO* shall, while such registration is in effect:

    2.2D.6.1   For purposes of the *settlement process*, treat the *commissioning electricity storage facility* as the type of *resource* for which it has sought registration; and

2.2D.6.2   For the purposes of the *day-ahead market, pre-dispatch process* and *real-time dispatch process,* treat the *resource* that is registered to inject as a self-scheduling electricity storage resource ~~for all purposes under these market rules~~ including, but not limited to, the submission of *~~dispatch data~~* ~~and *settlement*.~~ , and the *resource* registered to withdraw, as the type of *resource* for which it has sought registration.

3.   Data Submissions for the Day-Ahead Market and the Real-Time Market

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Replacement Energy Offers – Forced Outage Revisions During the Real-Time Market Unrestricted Window and Mandatory Window

3.3.4   A *registered market participant* for a *generation resource* associated with a hydroelectric *generation facility*, a *combined cycle plant*, an *enhanced combined cycle facility* or a *cogeneration facility* that experiences a *forced outage* may submit revised *dispatch data* on a related *generation resource*, with respect to any *dispatch hour* up until 10 minutes prior to the beginning of that *dispatch hour*. If the revised *dispatch data* is submitted less than 10 minutes prior to the beginning of that *dispatch hour*, the revised *dispatch data* will apply to the subsequent *dispatch hour*. This section is subject to the following conditions:

   a.   The submission of revised *dispatch data* takes place no later than one hour after the *generation resource* experiences the *forced outage* and is limited to the maximum MW amount *offered* by the *generation resource* experiencing the *forced outage*~~.~~;

   b.   The *registered market participant* whose *generation resource* experienced a *forced outage* notifies the *IESO*, in accordance with the applicable *market manual*, of its intention to submit revised *dispatch data* for the related *generation resource* for the next available *dispatch hour* and of its intention to provide replacement *energy* from the related *generation resource*~~.~~;

   c.   Where the related *generation resource* is not synchronized, the *registered market participant* notifies the *IESO* of its intention to synchronize the related *generation resource* and the *IESO* determines synchronization will have no adverse impact on the *reliability* of the *IESO-controlled grid*~~.~~;

d.   The related *generation resource* and the *generation resource* experiencing the *forced outage* have the same *registered market participant*.; and

e.   The related *generation resource* and the *generation resource* experiencing the *forced outage* have the same *metered market participant*.

3.4   The Form of Dispatch Data

3.4.1   *Dispatch data* shall relate to a specified *dispatch hour* or *dispatch day* of the current or next *dispatch day*, as the case may be, and to a specified *resource*, shall comply with sections 3.5 to 3.11, and shall take one of the following forms:

      3.4.1.1   for a *dispatchable generation resource*, or a *dispatchable electricity storage resource* proposing to inject *energy*, an *offer* to provide a physical service to the appropriate *day ahead-market* or *real-time market*;

            a.   for a *dispatchable variable generation resource*, an *offer* to provide a *physical service* to the appropriate *day ahead-market* or *real-time market* reflecting the *resource's* full capacity available for production, determined in accordance with the applicable *market manual*.

3.4.7   Every submission of a *bid* on a *dispatchable* load or a *dispatchable electricity storage resource* proposing to withdraw *energy* shall specify a price of *energy*, in $/MWh, at and above which the *IESO* may instruct the *dispatchable load* or *electricity storage resource*, as the case may be, to reduce its *energy* schedule in the *day-ahead* market to zero, or, in the *real-time* market, reduce its *energy* withdrawals to zero. Every submission of a *bid* to withdraw energy *energy* on a *price responsive load* or a *self-scheduling electricity storage resource* shall specify a price of *energy*, in $/MWh, at and above which the *IESO* may instruct the *price responsive load* or *self-scheduling electricity storage resource* to reduce its *energy* schedule in the *day ahead* market to zero. Such price represents the highest price in the *price-quantity* pairs submitted for that *dispatchable load, electricity storage resource, price responsive load* or *self-scheduling electricity storage resource,* and shall not be greater than the *maximum market clearing price*.

3.5   Energy Offers and Energy Bids

3.5.11.6   the maximum allowed injection (for an *energy offer*) or withdrawal (for an *energy bid*) in that *dispatch hour* through the relevant *connection point*, as limited by the lesser of:

    a.   the capacity of any radial line connecting the relevant *facility* to the *connection point*; or

    b.   the maximum injection or withdrawal will be what is specified in the *connection agreement* applicable to the relevant *facility* or the maximum injection or withdrawal otherwise permitted by the relevant *transmitter,* and the sum of all *energy* ~~offers~~ *offers* or the sum of all *energy* ~~bids~~ *bids* from all *facilities* shall not exceed these limits.

3.5.16   A *registered market participant* for a *dispatchable* hydroelectric *generation resource* may submit an *hourly must run* if it has submitted the required information in accordance with section 2.2.6A.3, and that *registered market participant* reasonably expects the submission of *hourly must run* to be necessary to prevent the *resource* from operating in a manner that would endanger the safety of any person, damage equipment, or violate any *applicable law*.

3.5.22   For each *dispatch day,* an *energy offer* and *energy bid* shall include the following daily *dispatch data* parameters where applicable which will apply to each *dispatch hour* within the *dispatch day*:

3.5.22.1   *Minimum loading point* in accordance with section 3.5.29;

3.5.22.2   *Minimum generation block run-time* in accordance with section 3.5.30;

3.5.22.3   *Minimum generation block down-time* in accordance with section 3.5.31;

3.5.22.4   *Lead time* in accordance with section 3.5.32;

3.5.22.5 *Ramp up energy to minimum loading point* in accordance with section 3.5.33;

3.5.22.6 Daily ramp quantities and the corresponding ramp up and ramp down values in accordance with section 3.5.34; and

3.5.22.7 *Thermal state* in accordance with section 3.5.35~~;~~.

3.6 Operating Reserve Offers

3.6.5 Each *offer* to provide *operating reserve* associated with a *dispatchable generation resource* or *dispatchable electricity storage resource* that proposes to inject *energy* shall contain a *reserve loading point* for each applicable class of *operating reserve offered*.

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4. The Day-Ahead Market

4.2 Determining the Day-Ahead Schedule

4.2.1 When determining the *day-ahead schedule* applicable to the first hour of the next *dispatch day*, the *IESO* may disregard the net *interchange schedule~~intertie scheduling~~* limit.

4.3 ~~DAM~~Day-Ahead Market Scheduling Process Failure

4.3.1 If the *IESO* fails to produce valid results, the *IESO* may rerun the ~~DAM~~*day-ahead market* calculation engine before ~~DAM~~*day-ahead market* expiration. Where the *IESO* reruns the ~~DAM~~*day-ahead market* calculation engine, the *IESO* shall notify *market participants* of the rerun and of any revised inputs in accordance with the applicable *market manual*.

4.3.2 The *IESO* shall declare a failure of the *day-ahead market* by 15:30 EPT if it does not *publish day-ahead market* results in accordance with sections 4.7.2.

4.3.3 If the *IESO* declares a failure of the *day-ahead market*:

    4.3.3.1 as soon as reasonably practicable after the failure, the *IESO* shall notify *market participants* of the failure of the *day-ahead market* for the relevant *dispatch day*; and

    4.3.3.2 *registered market participants* shall not be subject to sections 3.1.11, 3.1.12, and 3.1.13 for the relevant *dispatch day*.

4.7 Publishing Day-Ahead Market Information

Daily information

4.7.2 As soon as practicable after the *day-ahead market calculation engine* produces valid results, and for the avoidance of doubt, there is not a failure of the *day-ahead market calculation engine*, the *IESO* shall *publish* the following hourly information for the *day-ahead market* results for the next *dispatch day*:

    4.7.2.1 any area *operating reserve* shortfalls;

    4.7.2.2 the forecast of expected total system load, total system losses, available *energy*, and *operating reserve* requirements ~~for the forecast period~~;

    4.7.2.3 binding *security* constraints;

    4.7.2.4 aggregated *energy offers* and *bids* submitted and cleared for each *virtual transaction zone*;

    4.7.2.5 *locational marginal prices* for *energy* and *operating reserve* in the *IESO control area*;

    4.7.2.6 *virtual zonal prices*;

    4.7.2.7 the *day-ahead market Ontario zonal price*; and

    4.7.2.8 *locational marginal prices* for *energy* and *operating reserve* for each *intertie zone*.

Other information

4.7.~~4~~3 The *IESO* shall *publish* the daily *dispatch* order determined randomly by the *IESO* in accordance with section 3A.1.1 for *variable generation resources* at least once each calendar month in accordance with the applicable *market manual*.

4.7.~~5~~4   The *IESO* shall *publish* the shadow prices for each binding *security* constraint that are used to generate *locational marginal prices* by the *day-ahead market calculation engine* no sooner than five calendar days after the *trading day*.

4.7.~~6~~5   As soon as practicable after the *day-ahead market calculation engine* produces valid results, and for the avoidance of doubt, there is not a failure of the *day-ahead market calculation engine,* and the conditions set out in section 10.5.1 of Appendix 7.5 are met, the *IESO* shall *publish* a summary of the hours in the study period related to global market power conditions for *energy*.

5.8   Issuing Market Participant-Specific Pre-Dispatch Information

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5.8.3   The *IESO* shall issue to any appropriate *market participants* as soon as practicable, the approval or rejection of an *availability declaration envelope* expansion request pursuant to section 3.1.14.

6.2   Determining the Real-Time Schedule

6.2.1   The *IESO* shall use the information described in greater detail in the applicable *market manual* and Appendix 7.6 to determine a *real-time schedule* for each *dispatch interval* as follows:

6.2.1.1   *interchange schedule data* shall be input as constant values for the given *dispatch hour* unless otherwise specified by the *IESO* and shall be derived in accordance with the outputs of *the pre-dispatch calculation engine* for each *dispatch hour* as determined under Appendix 7.5A;

6.2.1.2   *intertie* flows at the beginning of each *dispatch interval* shall be set at the *IESO's* best estimate of their actual values, as determined from real-time system data or applicable *interchange schedules* to reflect actual unscheduled flows; and

6.2.1.3   *intertie* flows at the end of each *dispatch interval* shall be set at the value ascribed to such flows in the relevant *interchange schedule*.

6.6　Publishing Real-Time Information

6.6.4　The *IESO* shall *publish* the shadow prices for the binding constraints that are used to generate *locational marginal prices* by the *real-time calculation engine* no sooner than five days after the *trading day~~te~~*.

7.　IESO Dispatch Instructions

7.1　Purpose and Timing of Dispatch Instructions

7.1.1B1　Section 7.1.1B shall apply until the *registered market participant* for a *variable generation resource* is issued a *release notification* for that *resource*.

7.3　The Content of Dispatch Instructions

7.3.1　The *IESO* shall, subject to section 7.1.1A, issue *dispatch instructions* for each *dispatch interval* to each *resource* specified in section 7.1.1A indicating for that *dispatch interval*:

　　7.3.1.1　the rate at which *energy* is to be injected into or withdrawn from the *IESO-controlled grid* (in MW) at the end of the *dispatch interval*;

　　7.3.1.2　the amount of each class of *operating reserve* that is to be in a condition to respond to a *dispatch instruction* issued pursuant to section 7.4.3 calling for additional *energy* production or reductions of *energy* withdrawals; and

　　7.3.1.3　the amount of *reactive support* and *regulation* that is to be provided under *contracted ancillary service* contracts or *reliability must-run contracts* or as a consequence of any requirement to provide *reactive support* and *regulation*~~same~~ which derives from the application of these *market rules*.

7.6 Dispatch Scheduling Errors

7.6.4 Any amount determined by an *arbitrator* or by the *IESO,* as the case may be, pursuant to section 7.6.3 or 7.6.5 shall be assessed in accordance with MR Ch.1 s.13.1.4 and shall ~~exclude~~only include such amount as may be required to account for ~~any applicable~~ *~~day-ahead market~~* ~~and~~ *~~real-time market~~* ~~make-whole payment~~ *settlement amounts* ~~triggered by the relevant~~ *~~dispatch scheduling error and already credited to the~~* *~~market participant~~*outlined in MR Ch.9 ss.3.1, 3.2. 3.8, 4.7 and 4.8.

7.6.5 If a *market participant* wishes to dispute a determination made by the *IESO* pursuant to section 7.6.3.2, it shall submit the matter to the dispute resolution process set forth in MR Ch.3 s.2 and shall, if the good faith negotiations referred to in MR Ch.3 s~~s~~.2.5.3A and 2.5.3B fail to resolve the matter, request in the *notice of dispute* that the *arbitrator* determine the *market participant's* entitlement to the compensation referred to in section 7.6.2, the amount, if any, of such compensation or both, as the case may be.

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8. Determining Market Prices and Economic Operating Points

8.4A Administrative Pricing

8.4A.3C For the purposes of section 8.4A.2.4, a published *energy* or *operating reserve market price* will be subject to *administrative prices* if it is incorrect due to the loss or corruption of the *day-ahead market calculation engine* data due to an ~~IESO~~ *IESO* business process failure.

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9. IESO Procurement Markets

9.4 The Effect of Grid Connection Requirements

9.4.1 The *IESO* may at any time direct a *facility* or *resource* to provide the level of any *ancillary service* that the *facility* or *resource* is required to provide as a condition of any *licence* or as a result of any *connection* requirements provided for in MR Ch.4.

9.4.2 Subject to section 9.4.4, a *facility* or *resource* shall not be entitled to compensation from the *IESO* for any *ancillary service* that must be provided pursuant to the *connection* requirements provided for in MR Ch.4 unless and until the *IESO* develops a market for such *ancillary service* that pays all providers of the *ancillary service* and/or that requires any *facility* or *resource* to pay for the failure to supply up to some standard that may be less than that attributable to the *connection* requirement.

9.4.3 If the *IESO* directs a *facility* or *resource* to provide a level of any *ancillary service* above the levels required by the *licence* applicable to that *facility* or *resource* or any ~~connection~~ *connection* requirements provided for in MR Ch.4 and the *facility* or *resource* is not otherwise subject to a *contracted ancillary service* contract with the *IESO*, the *IESO* shall compensate the *facility* or *resource* for any costs, including lost opportunity costs, incurred by the *facility* or *resource* in complying with the *IESO*'s direction.

9.4.4 If the *IESO* directs a *facility* associated with a *generation unit* or an *electricity storage unit* to provide *reactive support* within the range required by the *connection* requirements provided for in MR Ch.4, the *IESO* shall only be required to compensate the associated *market participant* for a *generation unit* or *electricity storage unit* to the extent that the *generation unit* or *electricity storage unit* incurs additional costs, provided that such additional costs are demonstrated to the satisfaction of the *IESO* to have been incurred in order to comply with the *IESO's* direction.

9.4.5 If the *IESO* directs a *facility* associated with a *generation unit* or an *electricity storage unit* to provide *reactive support* within the range required by the *connection* requirements provided for in MR Ch.4 or as stipulated in the applicable *contracted ancillary service* contract, and that *generation unit* or *electricity storage unit* has to reduce its active power output in order to comply with the *IESO*'s direction, the associated *market participant* for a *generation unit* or *electricity storage unit* shall not be entitled to a ~~day-ahead market or~~ *real-time market* make-whole payment *settlement amount~~, as applicable,~~* for that reduction in active power output.

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11. Generation Resource and Electricity Storage Resource Synchronization Procedures

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11.1.2   All *generation facilities* located within the *IESO control area* are subject to the provisions of this section 11 except for:

      11.1.2.1   *self-scheduling generation facilities* with name-plate ratings of less than 10 MW;

      11.1.2.2   *generators* with *intermittent generation resources*~~,;~~

      11.1.2.3   any *generators* classified as *minor generation facilities* or as *small generation facilities*;

      11.1.2.4~~3~~   *generation facilities* that, for the purposes of the application of the provisions of this section 11, have been designated by the *IESO* as not impairing the ability of the *IESO* to maintain the *security* or *adequacy* of the *electricity system*; and

      11.1.2.5~~4~~   any *generators* exempt from the provisions of the Electricity Act, 1998 by regulation made thereunder.

11.2   Process for Synchronization

Approval of Synchronization Plan

11.2.4   Receipt by the *registered market participant* of the notification of acceptance by the *IESO* under section 11.2.3 allows it to synchronize the *non-quick start resource* to the *IESO-controlled grid* or the embedding *facility*, as the case may be. However, the *IESO* may, at any time, require the de-synchronization of a *non-quick start resource* in the event of over-generation ~~in accordance with any applicable provisions of these *market rules* relating to over-generation~~.

11.3 Process for De-synchronization

Non-quick Start Resources

11.3.2 Subject to 11.3.1A, a *registered market participant* for a *non-quick start resource* intending to de-synchronize from the *IESO-controlled grid* or embedding *facility*, as the case may be, shall request the *IESO's* approval <u>at least</u> one hour in advance of the intended de-synchronization time unless an advisory notice for over-generation is in effect, in which event the *resource* may de-synchronize at will subject to the conditions of the advisory notice.

Approval of De-synchronization

11.3.5 The exact time of de-synchronization shall be subject to directions from the *IESO* and to the terms and conditions specified in the *generator's* or *electricity storage participant's connection agreement* or, in the case of a *resource* associated with an *embedded generation unit*, or *embedded electricity storage unit*, its ~~connection agreement~~ <u>connection agreement</u>, in such form as may be prescribed by the *OEB*, with the *distributor* with whom it is *connected.*

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12. Status Reports, Advisories, and Protocols

12.2 Over-Generation and Under-Generation Advisories

12.2.1 If the *IESO* issues an over-generation advisory notice pursuant to section 12.1.3, the *IESO* shall, unless the *IESO* determines that it is not able to do so for operational or system *security* reasons, and notwithstanding any notification requirements or other conditions specified elsewhere in these *market rules*:

12.2.1.1   solicit and accept additional or revised *bids* to increase *demand* in response to low prices;

12.2.1.2   allow *generation units* or *electricity storage units* or any associated *resources* to de-synchronize from the *IESO-controlled grid* or the embedding *facility*, as the case may be, without penalty, some or all of the *generation units* or *electricity storage units* or any associated *resources* within any *facility* in locations designated by the *IESO*; and/or

12.2.1.3   solicit and accept revised *offers* that will decrease generation or injection of *energy* in response~~response~~ to low prices, in locations designated by the *IESO*.

12.2.2   If the *IESO* issues an under-generation advisory notice pursuant to section 12.1.3, the *IESO* shall, unless the *IESO* determines that it is not able to do so for operational or system *security* reasons, and notwithstanding any notification requirements or other conditions specified elsewhere in these *market rules*:

12.2.2.1   solicit and accept additional or revised *bids* that will decrease~~reduce~~ *demand* in response~~response~~ to higher prices;

12.2.2.2   allow *generation units* or *electricity storage units* or any associated *resources* to synchronize to the *IESO-controlled grid* or the embedding *facility*, as the case may be, without penalty, some or all of the *generation units* or *electricity storage units* or any associated *resources* within any *facility* in locations designated by the *IESO*; and/or

12.2.2.3   solicit and accept additional or revised *offers* that will increase generation or injections of *energy* in *response* to higher prices, in locations designated by the *IESO*.

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13.   Suspension of Market Operations

13.1   Introduction

13.1.1   The *IESO* may, or may be required to, suspend the operation of all or part of the *IESO-administered markets* in accordance with this section 13.

13.1.2   This section 13 sets forth the procedures the *IESO* must follow in:

13.1.2.1   determining whether to declare a suspension of *market operations;*

13.1.2.2   directing the operation of the *IESO-controlled grid* during suspension of *market operations*; and

13.1.2.3   restoring *market operations* once the conditions triggering suspension are eliminated.

13.1.3   This section 13 also sets forth the requirements that *market participants* must meet immediately prior to, during, and immediately after a suspension of *market operations*.

13.2   Market Suspension Events

13.2.1   Subject to section 13.3, the *IESO* may suspend *market operations* if it determines that any of the conditions described in section 13.2.4 exists or is imminent.

13.2.2   As soon as practical the *IESO* shall notify the *IESO Board,* the *OEB* and relevant government authorities of any suspension of *market operations* pursuant to this section 13.

13.2.3   Upon being notified under section 13.2.2, the *IESO Board* may determine whether to continue the suspension or to resume normal *market operations* under such conditions as the *IESO Board* may specify.

13.2.4   The *IESO* may suspend *market operations* in the event of:

13.2.4.1   *market operations* cannot be continued in a normal manner due to a failure in the software, hardware or communication systems that support *market operations*;

13.2.4.2   a major blackout;

13.2.4.2A   the *IESO-controlled grid* breaks up into two or more *electrical islands*;

13.2.4.3   an *emergency* situation requiring the *IESO* to evacuate its principal control centre and move to a backup control centre, under conditions and subject to the requirements of MR Ch.5; ~~or~~

13.2.4.4   a declaration of an emergency by the Premier of Ontario or a direction from the *Minister* to the *IESO* or to a *market participant* to implement an *emergency preparedness plan*~~.~~; or

13.2.4.5   a *market transition*, the commencement of which the *IESO* shall specify in a market advisory notice.

13.2A   Market Transition Suspensions

13.2A.1   Where the *IESO* has suspended *market operations* due to a *market transition*, the suspension shall be for the purposes of activating and, if necessary, testing, validating, adjusting, or restoring the software, hardware or communication systems that support normal *market operations*.

13.2A.2   Notwithstanding section 3.1.11, a *registered market participant* that intends for its *dispatchable generation resources*, *dispatchable electricity storage resources*, *dispatchable loads*, or *hourly demand response resources* to be eligible for *dispatch* by the *IESO* in a given *dispatch hour* of the *dispatch day* following the day on which the *market transition* commences shall, on the day the *market transition* commences, submit a *bid* or *offer*, as applicable, for *energy* on the *resource* for the applicable *dispatch hour*. The most recent maximum quantity of *energy* included in the *bid* or *offer* submitted on the *resource* prior to 23:50 EST on the day the *market transition* commences shall be deemed to be the *resource's availability declaration envelope* submitted pursuant to section 3.1.11 for the *dispatch day* following the day on which the *market transition* commences.

13.2A.3   Notwithstanding section 4.3.3.2, sections 3.1.12 and 3.1.13 shall continue to apply on the *dispatch day* following the day on which the *market transition* commences even where the *IESO* has declared a failure of the *day-ahead market* pursuant to section 4.3.2.

13.2A.4   For the *dispatch day* following the day on which the *market transition* commences, any *dispatch data* submission or revision restriction in section 3.3 applicable to a *registered market participant* for a *GOG-eligible resource*:

13.2A.4.1   that has received a *day-ahead operational schedule* or *day-ahead operational commitment* shall also apply to a *registered market participant* for a *GOG-eligible resource* that has received a *pre-dispatch operational commitment* or a *reliability* commitment; and

13.2A.4.2   that has not received a *day-ahead operational schedule* or *day-ahead operational commitment* shall also apply to a *registered market participant* for a *GOG-eligible resource* that has not received a *pre-dispatch operational commitment* or a *reliability commitment*.

13.2A.5   Notwithstanding section 3.3.9, any *standing dispatch data* submitted prior to the commencement of the *market transition* shall not apply following the

commencement of the *market transition*. A *registered market participant* may submit *standing dispatch data* on the *dispatch day* following the day on which the *market transition* commences, which, if submitted by 06:00 EPT on that *dispatch day*, shall take effect for the following *dispatch day*.

13.2A.6   Where the *IESO* has suspended *market operations* due to a *market transition* and the *IESO* determines pursuant to section 13.2A.7 that a *market transition error* has occurred, the *IESO* may *dispatch* the *IESO-controlled grid* and administer the *IESO-administered markets* in accordance with the *legacy market rules*, which the *IESO* shall *publish*. During any *dispatch hour* subject to such *dispatch* and administration, any *price responsive load* shall for all purposes be deemed a *non-dispatchable load*.

13.2A.7   The *IESO* may determine that a *market transition error* has occurred where it considers that:

13.2A.3.1   the software, hardware, communication systems or business processes that support normal *market operations* have experienced a critical failure;

13.2A.3.2   this failure would prevent the *IESO* from *dispatching* the *IESO-controlled grid* or administering the *IESO-administered markets* in a manner consistent with normal *market operations* or *reliability*; and

13.2A.3.3   the *IESO* is unable to resolve the failure within a reasonable time.

13.2A.8   Where the *IESO* is satisfied with the results of the activation, testing, validation, adjustment or restoration performed in accordance with section 13.2A.1, the *IESO* shall issue a market advisory notice pursuant to section 13.7.1 indicating the time at which the suspension shall end. The time specified in this market advisory notice shall be the *market transition completion.*

13.3   Reasons for Market Suspension

13.3.1   ~~Notwithstanding section~~With respect to sections 13.2.4.1, 13.2.4.2, 13.2.4.3 and 13.2.4.4, the *IESO* may suspend *market operations* in response~~response~~ to an event described in ~~that section~~those sections only if the *IESO* determines that its ability to operate the *IESO-administered markets* in accordance with these *market rules* has or will become substantially impaired.

13.3.2   The *IESO* shall not suspend *market operations* solely because:

13.3.2.1   the *market price* has reached positive or negative *maximum market clearing price*; or

13.3.2.2   some *load* has been *curtailed*.

13.4   IESO Declaration of Market Suspension

13.4.1   Only a declaration by the *IESO* may suspend *market operations*. If the *IESO* declares a suspension of *market operations*, the *IESO* shall:

13.4.1.1   immediately notify *market participants*; and

13.4.1.2   issue to *market participants* a market suspension notice via such means as the *IESO* determines will ensure timely notification, informing *market participants* of the nature and scope of the suspension and its expected duration, if known.

13.4.2   Any suspension of *market operations* shall commence at the start of the next *dispatch interval* after the *IESO* makes the declaration, unless the *IESO* suspends *market operations* to protect or restore *reliability*, in which case the suspension shall commence at the time the *IESO* makes the declaration.

13.4.3   The *IESO* may not declare a retroactive suspension of *market operations*.

13.5   IESO Responsibilities During Market Suspension

13.5.1   While a suspension of *market operations* is in effect, the *IESO* shall:

13.5.1.1   prescribe and apply procedures for restoring and maintaining *reliable* operation of the *electricity system* and restoring *market operations* as rapidly as practical, consistent with the safety of persons and *facilities*;

13.5.1.2   endeavour to continue use of normal market information, scheduling and pricing procedures to the extent practical;

13.5.1.3   subject to section 13.6, prescribe and apply *administrative prices* in accordance with section 8.4A.6;

13.5.1.4   suspend the *day-ahead market* when a suspension of the *real-time market* is expected to be in effect for future *dispatch days*;

13.5.1.5   provide timely information to *market participants* concerning the reasons for the suspension and efforts by the *IESO* to resume normal *market operations*; and

13.5.1.6   issue directions, through market suspension advisory notices to *market participants*, that will enable the *IESO* to continue *reliable*

operations, continue non-suspended *market operations* and resume normal *market operations* as soon as practical.

13.6 Participant Responsibilities and Compensation

13.6.1   If the *IESO* suspends *market operations*, each *market participant* shall:

13.6.1.1   comply with the *IESO's* market suspension advisory notices and any other directions issued by the *IESO*;

13.6.1.2   conduct their operations and interactions with the *IESO* in a manner consistent with such advisory notices and directions, including, where the *IESO* has, pursuant to section 13.2A.2, advised *market participants* that it will *dispatch* the *IESO-controlled grid* and administer the *IESO-administered markets* in accordance with the *legacy market rules*, complying with the *legacy market rules* until the *IESO* advises otherwise; and

13.6.1.3   upon resumption of normal *market operations*, resume normal operations and interactions with the *IESO* pursuant to these *market rules*.

13.6.2   The *IESO* may issue *dispatch instructions* while a suspension of *market operations* is in effect and shall, subject to sections 13.6.3 and 13.6.4, compensate *market participants* for following these *dispatch instructions* based on *administrative prices* established in accordance with section 8.4A.6 rather than on market-determined prices.

13.6.3   Where the *IESO* suspends *market operations* due to a *market transition*, the *IESO* shall, except for *dispatch intervals* subject to compensation in accordance with section 13.6.4, compensate *market participants* for following *dispatch instructions* based on *administrative prices* calculated using the *market prices* determined by the *real-time calculation engine* where the *IESO* considers those *market prices* valid. Where the *IESO* does not consider the *market prices* determined using the *real-time calculation engine* valid, or where such *market prices* are not available, it shall compensate *market participants* for following *dispatch instructions* based on *administrative prices* calculated using one, or a combination of, the following methods to establish *administrative prices* as the *IESO* determines appropriate:

13.6.3.1   the closest preceding *dispatch interval* that has not been administered;

13.6.3.2   the closest subsequent *dispatch interval* that has not been administered;

13.6.3.3 the closest subsequent hourly *market prices* that have not been administered determined by the *day-ahead market calculation engine*; or

13.6.3.4 where the *IESO* gathers sufficient data following the *market transition* to use the methods to establish *administrative prices* set out in section 8.4A.5 based on that data, any or a combination of the methods in that section relying only on data gathered following the commencement of the *market transition*.

13.6.4 Where, pursuant to section 13.2A.2, the *IESO dispatches* the *IESO-controlled grid* and administers the *IESO-administered markets* in accordance with the *legacy market rules*, it shall, during any *dispatch interval* subject to such *dispatch* and administration and any appropriate preceding *dispatch interval* following the commencement of the *market transition*, compensate *market participants* in accordance with the *legacy market rules*.

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18. Capacity Auctions

18.1A Capacity Auction – Transitional Market Rules

18.1A.1 For the purposes of participation in a *capacity auction, market rules* and *market manuals* that specifically concern *capacity auction* participation, the satisfaction of *capacity obligations,* or the performance of requirements directly related to that participation, shall remain in effect from the date of the *capacity auction* until the end of its associated *capacity auction* commitment period, except as otherwise provided in sections 18.1A.1.1 and 18.1A.3.

18.1A.1.1 Nothing in this section 18.1A shall limit the effectiveness of a *market rule* amendment or *market manual* amendment that expressively excludes the application of sections 18.1A.1 and 18.1A.2.

18.1A.2 Except as otherwise provided in sections 18.1A.1.1 and 18.1A.3, changes to the *market rules* and applicable *market manuals* that specifically concern *capacity auction* participation, the satisfaction of *capacity obligations*, or the performance of requirements directly related to that participation, and which are brought into effect between the date of a given *capacity auction* and the end of its associated *capacity auction* commitment period, shall be applicable to subsequent *capacity auctions* and their associated *capacity auction* commitment periods.

18.1A.3   Nothing in this section 18.1A shall limit the effectiveness of an *urgent rule amendment.*

18.1A.4   The *IESO* shall maintain a *published* archive of *market rules* and applicable *market manuals* in effect on the date of a *capacity auction* for a period of ~~2~~two years following the end of its associated *capacity auction* commitment period.

18.5   Capacity Auction Parameters

18.5.1   The *IESO* shall conduct *capacity auctions* at least on an annual basis to acquire *capacity* for a future one-year *capacity auction* commitment period. In each *capacity auction* the *IESO* shall acquire *auction capacity* for each *obligation period* as specified in the applicable *market manual*.

18.9 Capacity Obligation Transfers

18.9.1   A *capacity transferor* may, subject to *IESO* approval and in accordance with the applicable *market manual*, request a transfer of all or a portion of its *capacity obligation* to a *capacity transferee* provided that the following criteria are met:

18.9.1.1   the quantity to be transferred does not exceed the difference between the *capacity transferee's unforced capacity* of a *capacity auction resource* for the applicable *obligation period,* and its existing *capacity obligation* of such *capacity auction resource* for the applicable *obligation period*;

18.9.1.1.1   [Intentionally left blank – section deleted]

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19.   Capacity Market Participants with Capacity Obligations

Capacity Auction Testing for Hourly Demand Response Resources

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19.4.15   The *hourly demand response resource* shall be entitled to compensation for valid *capacity auction dispatch tests* conducted during a *capacity auction commitment period* pursuant to this section 19.4 and in accordance with the applicable *market manuals*. The *hourly demand response resource* shall not be entitled to compensation for any costs related to any *capacity auction capacity test.*

19.9A   Eligibility Requirements for Generator-Backed Capacity Import Resources

19.9A.1   A *capacity market participant* is eligible to satisfy its *capacity obligation* with a *generator-backed capacity import resource* provided that the *capacity market participant*:

19.9A.1.1   demonstrates to the satisfaction of the *IESO* that it can provide the *capacity obligation*, as specified in the applicable *market manual*;

19.9A.1.2   is authorized as a *market participant* eligible to import *energy* in association with a *boundary entity resource*; ~~and~~ and

19.9A.1.3   has provided *prudential support* and *capacity prudential support* in accordance with MR Ch.2 s.5B.

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20.   Capacity Exports in the IESO-Administered Markets

20.3   Called Capacity Exports

20.3.1   The *IESO* shall only accept and schedule a *called capacity export* in accordance with section 20.4 when advised by the external *control area operator* that the applicable external *control area* is anticipating or experiencing an ~~adequacy~~ adequacy shortfall, as may be specified in the applicable *capacity export agreement*.

20.3.2   A *market participant* shall notify the *IESO* concerning the details of a *called capacity export* in the time and manner prescribed in the applicable *market manual*.

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21. Electricity Storage in the IESO-Administered Markets

21.3 Provision of Regulation Service

21.3.1 An *electricity storage participant* wishing to provide *regulation* services must register its *electricity storage resource* as further described in the applicable *market manual*.

21.3.2 Notwithstanding section 2.2.9A.1, an *electricity storage participant* may ~~apply~~request to register an *electricity storage facility* and its associated *resources* as a *self-scheduling electricity storage* ~~resource any electricity storage~~ facility ~~that~~if such *electricity storage facility* has an e*lectricity storage capacity* greater than or equal to 10 MW up to 50 MW~~ in capacity~~ for the purposes of providing *regulation services* only, provided that the *IESO* determines that there are no adverse impacts on the reliable operation of the *IESO-controlled grid*;

21.4 Energy Offers and Energy Bids

21.4.2 For each *dispatch hour* in which an *electricity storage participant* submits both an *energy offer* and *energy bid* for an *electricity storage resource*, the *electricity storage participant* shall not submit a *bid* for that *electricity storage resource* that includes a price that is higher than or equal to the lower of: (i) the lowest price in the *offer*~~offer~~ submitted for that *electricity storage resource;* and (ii) the lowest price in that *electricity storage resource's energy offer reference level value*.

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22. Market Power Mitigation

22.1 Reference Levels - General

22.1.1 The *IESO* shall determine and register~~, in accordance with the applicable market manual,~~ *reference levels* for each *dispatchable resource* registered to submit

offers or *bids* into the *energy market* or *offers* for *operating reserve* into the *operating reserve market*.

22.1.1.1 The *IESO* shall determine a *resource's* initial *reference levels* at the request of the *market participant* that is registered as the owner of the *resource*.

22.1.1.2 The *IESO* shall determine a *resource's reference levels* in accordance with the applicable *market manual*.

22.1.2 No *registered* market participant for a *resource* that meets the requirements in section 22.1.1 shall submit *offers* or *bids* for that *resource* unless the *IESO* has determined and registered *reference levels* for that *resource*.

22.1.3 A *market participant* shall provide to the *IESO* all information and supporting documentation that the *IESO* may reasonably require to determine a *resource's reference levels*, in accordance with the applicable *market manual*.

22.1.4 The *IESO* shall make available to each *market participant* the *reference levels* that are registered and *reference level values* that are calculated for that *market participant's resources*, in accordance with the applicable *market manual*.

22.1.5 The *IESO* shall not register an *energy offer reference level* or an *operating reserve offer reference level* that produces *reference level values* that do not monotonically increase in quantity, regardless of a *resource's short-run marginal costs*.

22.1.56 The *reference level values* of each *energy offer reference level* shall be consistent with the requirements for *energy offers* in section 3.5.3.

22.1.67 The *reference level values* of each *operating reserve offer reference level* shall be consistent with the requirements for *offers* to provide *operating reserve* in section 3.6.2.

22.1.78 A *dispatchable resource* installed pursuant to the Canadian Nuclear Safety Commission's requirement for nuclear power plants to maintain standby and emergency power systems is exempt from the requirements in, and market power mitigation framework established by, this section .22.

22.2 Reference Levels for Financial Dispatch Data Parameters

22.2.1 The *IESO* shall determine the following *reference levels* for *financial dispatch data parameters,* by month or season if applicable, for each *resource* that meets the requirements in section 22.1.1:

22.2.1.1   *energy offer reference level*;

22.2.1.2   one *speed no-load offer reference level*;

22.2.1.3   one *start-up offer reference level* per *thermal state*; and

22.2.1.4   one *operating reserve offer reference level* for each class of *operating reserve* that the *resource* is registered to provide.

22.2.2   The *IESO* shall determine the *reference levels* in section 22.2.1 based on a *resource*'s *short-run marginal costs*, except as set out in the applicable *market manual*.

22.2.3   ~~Notwithstanding~~Despite section 22.2.2~~,~~:

22.2.3.1   the *IESO* shall not register an *energy offer reference level* or an *operating reserve offer reference level* that produces *reference level values* that do not monotonically increase in quantity, regardless of a *resource's short-run marginal costs*; and

22.2.3.2   the *IESO* may register a *reference level* that produces *reference level values* below a *resource's short-run marginal costs* at the request of the relevant *market participant*.

22.3   Reference Levels for Non-Financial Dispatch Data Parameters

22.3.1   The *IESO* shall determine the following *reference levels* for *non-financial dispatch data parameters* in accordance with the applicable *market manual*, by month or season if applicable, for each *resource* that meets the requirements in section 22.1.1:

22.3.1.1   *energy ramp rate reference level*;

22.3.1.2   *operating reserve ramp rate reference level*;

22.3.1.3   *lead time reference levels* for each *thermal state*;

22.3.1.4   *minimum loading point reference level*;

22.3.1.5   *minimum generation block run-time reference level*;

22.3.1.6   *minimum generation block down-time reference levels* for each *thermal state*;

22.3.1.7   *maximum number of starts per day reference level*;

22.3.1.8   *ramp hours to minimum loading point reference levels* for each *thermal state*; and

22.3.1.9   minimum and maximum *energy per ramp hour reference levels* for each *thermal state*.

22.3.2   The *IESO* shall determine the *reference levels* in section 22.3.1 based on a *resource's* operating characteristics in *unrestricted competition*, except as may be set out in the applicable *market manual*.

22.3.3   If a *market participant* fails to provide the information or supporting documentation required by the *IESO* pursuant to section 22.1.3, the *IESO* may register the following values for a *reference level* determined pursuant to section 22.3.1:

22.3.~~2~~3.1   *energy ramp rate reference level*: 0.1 MW/min;

22.3.~~2~~3.2   *operating reserve ramp rate reference level*: 0.1 MW/min;

22.3.~~2~~3.3   *lead time reference levels* for each *thermal state*: 24 hours;

22.3.~~2~~3.4   *minimum loading point reference level*: the ~~sum~~maximum installed capacity of the ~~maximum active power capability of all~~ *generation units* ~~associated with the~~relevant *resource*;

22.3.~~2~~3.5   *minimum generation block run-time reference level*: 24 hours;

22.3.~~2~~3.6   *minimum generation block down-time reference level* for each *thermal state*: 24 hours;

22.3.~~2~~3.7   *maximum number of starts per day reference level*: 10,000 starts per day;

22.3.~~2~~3.8   *ramp hours to minimum loading point reference levels* for each *thermal state*: 24 hours;

22.3.~~2~~3.9   *minimum energy per ramp hour reference levels* for each *thermal state*: 0 MWh; and

22.3.~~2~~3.10   *maximum energy per ramp hour reference levels* for each *thermal state*: 1 MWh multiplied by the *resource's minimum loading point reference level*.

22.4 Resources with Multiple Sets of Reference Levels

22.4.5 The *IESO* shall determine one *operating reserve offer reference level* to be used when an *electricity storage resource* proposes to inject and a separate *operating reserve offer reference level* for when it proposes to withdraw, in accordance with the applicable *market manual.*

22.5 Changes to Reference Levels

22.5.1 Once the *IESO* has registered a *reference level* for a *resource*, the *IESO* shall not change that *reference level* unless:

22.5.1.1 the *IESO* ~~modifies~~ has modified the *market rules* or the applicable *market manual* ~~methodology used to calculate a *reference level*~~ such that the *reference level* determined following such modification differs from the registered *reference level*~~requires revision~~;

22.5.1.2 the *IESO* identifies a need in accordance with section 22.5.2;

22.5.1.3 the *IESO* registered that *reference level* pursuant to section ~~22.1 or~~ 22.3.~~3~~2;

22.5.1.4 the *IESO* is required to do so pursuant to section 22.5.3;

22.5.1.5 the *market participant* for the *resource* ~~notifies~~requests the *IESO* ~~of a change to the *resource's short-run marginal cost* or operational characteristics~~review that *reference level* pursuant to section 22.5.4 and the *IESO* has accepted the ~~change~~request;

22.5.1.6 the *market participant* for the *resource* requests a temporary revision to the fuel cost component of one of the *resource's reference levels* pursuant to section 22.5.5 and the *IESO* has accepted the temporary revision; or

22.5.1.7 more than two years have passed since the *reference level* was established or last updated, whichever is later.

22.5.2 The *IESO* may, at any time, review a *resource's* registered information or the supporting documentation submitted pursuant to section 22.1.3 to verify that the *resource's* reference ~~level determined is~~levels are consistent with the registered information or supporting documentation. If, as a result of such review, the *IESO* determines that the *reference level* needs to be amended to be consistent with the registered information or supporting documentation, the *IESO* shall ~~update~~

~~that~~determine a revised *reference level* on a go-forward basis from a date specified by the *IESO*.

22.5.7   A *market participant* may make a request pursuant to either, but not both, section 22.5.5 or 22.5.6 for a specific *dispatch hour* or set of *dispatch hours* in the *day-ahead market* or the *real-time market*. A *market participant* may make a request in either or both of the *day-ahead market* and *the real-time market*. A request made pursuant to section 22.5.5 or 22.5.6 must be submitted:

   22.5.7.1   for the *day-ahead market*, between the opening of and up to 30 minutes before the close of the *day-ahead market submission window*;

   22.5.7.2   for the *real-time market*, no later than 150 minutes before the first *dispatch hour* in the request.

22.5.9   The *IESO* may use the *reference level value* in force at the time of a request made pursuant to section 22.5.5 or 22.5.6 despite section 22.5.8 if, upon review, the *IESO* is not satisfied that the supporting documentation submitted demonstrates that the fuel cost component will not reflect the *resource's short-run marginal costs* for fuel in one or more hours of a *dispatch day* or that the *resource* needed to use the set of *reference levels* associated with the profile with the highest costs. The *IESO* may also assess whether a *settlement* charge is required in accordance with ~~Chapter~~ MR Ch.9.

22.5.10   If the *IESO* is not satisfied that the fuel cost component will not reflect the *resource's short-run marginal costs* for fuel in one or more hours of a *dispatch day* or that the *resource* needed to use the set of *reference levels* associated with the profile with the highest costs then, despite section 22.5.~~7~~8, the *IESO* may:

   22.5.10.1   use the *reference level value* in force at the time of a request;

   22.5.10.2   assess whether a *settlement* charge is required in accordance with ~~Chapter~~ MR Ch.9;

   22.5.10.3   reject subsequent requests for the *resource* made outside of 8:00 to 16:00 ~~EDT~~EPT on *business days* for ~~30~~20 *business* days following the *dispatch day* that was the subject of the initial request without reviewing such subsequent requests; and

22.5.10.4   reject subsequent requests for the *resource* that the *IESO* has not reviewed before:

22.5.10.4.1   the close of the *day-ahead market submission window*, for the *day-ahead market;* or

22.5.10.4.2   no later than 130 minutes before the requested *dispatch hour*, for the *real-time market*.

22.5.11   For a request made pursuant to section 22.5.6 that has been accepted by the *IESO*, the *IESO* may require that the *market participant* provide additional supporting documentation showing that the set of *reference levels* associated with the profile with the highest costs represented the relevant *resource*'s *short-run marginal costs* during the requested *dispatch hour*s within two *business days* after the *dispatch day* for which use of those *reference levels* was requested. The form and content of such documentation shall be set by the *IESO* and the *market participant* at the time the *resource's reference levels* are determined and may be amended with the agreement of the *IESO* and the *market participant*. If the *market participant* fails to provide the documentation within the specified time or if the *IESO* is not satisfied that the documentation provided shows that those *reference levels* represented the *resource's short-run marginal costs* during the requested *dispatch hours*, the *IESO* shall assess whether a *settlement* charge is required in accordance with ~~Chapter~~ MR Ch.9.

22.5.12   The requirement in section 22.8.1 to communicate a *preliminary view* to the relevant *market participant* prior to registering a *reference level* shall not apply to a *reference level* registered pursuant to sections 22.5.1.4 or 22.5.1.6.

22.6   Reference Quantities

22.6.1   The *IESO* shall determine and register~~, in accordance with the applicable market manual, day-ahead market and real-time market~~ *reference quantities* for each *dispatchable resource* registered to submit *offers* into the *energy* or *operating reserve* markets.

22.6.1.1   The *IESO* shall determine a *resource*'s initial *reference quantities* at the request of the *market participant* that is registered as the owner of the *resource.*

22.6.1.2   The *IESO* shall determine a *resource's reference quantities* in accordance with the applicable *market manual.*

22.6.2   No *registered* *market participant* for a *resource* that meets the requirements in section 22.6.1 shall submit *offers* or *bids* for that *resource* unless the *IESO* has determined and registered *reference quantities* for that *resource*.

22.6.7   If a *market participant* fails to provide the information or supporting documentation required by the *IESO* pursuant to section 22.6.3, the *IESO* may register as the *resource*'s *reference quantity*:

    22.6.7.1   the maximum quantity of *operating reserve* that the *resource* is registered to *offer*, if the *resource* is a *dispatchable load*, or an electricity storage resource that is withdrawing *energy*, or

    22.6.7.2   the sum of the maximum active power capability of all *generation units* or *electricity storage units* associated with the *resource*, ~~if the resource is not a *dispatchable load*~~for all *resources* other than those described in 22.6.7.1.

22.7   Changes to Reference Quantities

22.7.1   Once the *IESO* has registered a *reference quantity* for a *resource*, the *IESO* shall not change that *reference quantity* unless:

    22.7.1.1   the *IESO* ~~modifies~~has modified the *market rules or* the ~~methodology used to calculate~~ applicable *market manual* such that the *reference quantity* determined following such modification differs from the registered *reference quantity* ~~requires revision;~~;

    22.7.1.2   the *IESO* identifies a need in accordance with section 22.~~8~~7.2;

22.7.3   A *market participant* may request that the *IESO* review one of its ~~*resource's*~~*resources'* *reference quantities* if the *market participant*:

    22.7.3.1   believes the *reference quantity* does not accurately describe the operational characteristics of that *resource*; or

    22.7.3.2   reasonably expects the *reference quantity* will not accurately describe the operational characteristics of that *resource*.

22.8   Independent Review

22.8.1   Prior to registering a *reference level* or *reference quantity* for a *resource*, the *IESO* shall communicate a *preliminary view* to the relevant *market participant*.

22.8.1.1 The *IESO* shall register the *reference levels* and *reference quantities* contained in the *preliminary view* on the 11th *business day* after the date of the *preliminary view*, unless the *market participant*:

   i. makes a request pursuant to section 22.8.2;

   ii. requests that the *IESO* delay registration until a date specified by the *market participant* and the *IESO* has approved such request; or

   iii. requests that the *IESO* register the *reference levels* and *reference quantities* in the *preliminary view* at an earlier date, in which case the *IESO* shall register the *reference levels* and *reference quantities* in *the preliminary view* no later than the 11th *business day* after the date of the *preliminary view*.

22.8.1.2 A *market participant* shall not make a request pursuant to section 22.8.2 if the *IESO* has registered the *reference levels* and *reference quantities* contained in the *preliminary view* pursuant to section 22.8.1.1.

22.8.2 A *market participant* may request that the *IESO* engage ~~a consultant~~an expert independent of the *IESO* and the *market participant* to ~~review~~determine a value upon which the *IESO* and *market participant* disagree and which the *IESO* relied upon for the purpose of determining its *preliminary view* of a *reference level* or *reference quantity* ~~set out in the *preliminary view, as specified in the applicable market manual*~~. The *IESO* shall not register a *reference level* or *reference quantity* ~~for a *reference level* or *reference quantity* that~~ that is the subject of ~~the review~~an expert determination except in accordance with this section 22.8.

22.8.3 The *IESO* shall request proposals to conduct ~~the review~~a determination following a request made pursuant to section 22.8.2 or as required by section 22.8.11.2, as specified in the applicable *market manual*. If no responses to the request for proposals are received, the *IESO* shall register the applicable *reference levels* and *reference quantities* communicated in the *preliminary view*. A *market participant* may request a ~~review~~determination no more frequently than once every 60 days until such time as the *IESO* receives a response to the request for proposals, despite any time to do so specified in the applicable *market manual*.

22.8.4 The *IESO* shall provide the *market participant* with an estimate of the cost of the ~~review~~determination, as specified in the applicable *market manual*. If the *market participant* has not notified the *IESO* that it accepts the cost estimate and wishes to proceed with the ~~review~~determination within five *business days* of the *IESO's* notification, the *IESO* shall terminate the ~~review~~determination and register the applicable *reference levels* and *reference quantities* in the *preliminary view*.

22.8.5 The *IESO* shall~~,~~ in accordance with and as further prescribed in the applicable *market manual,* provide ~~a consultant~~an expert engaged pursuant to this section 22.8.~~2 or 22.8.3~~ with the following:

    22.8.5.1 a statement of the ~~applicable~~ values that are in dispute between the *IESO* and *market participant* and which the expert is required to determine;

    ~~22.8.5.2 all supporting documentation provided by the *market participant* relevant to the review; and~~

    2.2.8.5.2 the relevant *market rules, market manuals* and other documents setting out the values and supporting documents and information required to be submitted by *market participants* for the purpose of the *IESO's* determination of *reference levels* or *reference quantities*;

    ~~22.8.5.3 any other information or documentation that the *IESO* determines the consultant may require.~~

    22.8.5.3 the documents and information relevant to the expert's determination of the disputed values, as prescribed by the applicable *market manual*; and

    22.8.5.4 other relevant documents and information as may be agreed upon by the *IESO* and the *market participant*, including any documents or information that may be requested by the expert.

22.8.6 The *IESO* shall provide the *market participant* with a copy of the ~~consultant's findings~~expert's determination following receipt thereof.

~~22.8.7 The *IESO* shall register a *reference level* or *reference quantity* that is consistent with the consultant's findings and the *market rules* in accordance with the applicable *market manual*, unless it rejects a finding pursuant to section 22.8.8.~~

22.8.7 The *IESO* shall, subject to the *IESO's* and *market participant's* rights and obligations under sections 22.8.8, 22.8.10, and 22.8.13, register a *reference level* or *reference quantity* that is consistent with the expert's determination and the *market rules*, in accordance with the applicable *market manual*. If an expert has determined multiple values, the *IESO* rejecting a value pursuant to section 22.8.10 shall not affect the requirement in this section 22.8.7 that the *IESO* register *reference levels* or *reference quantities* consistent with the values that were not rejected.

~~22.8.8 The *IESO* shall reject a finding if the *IESO* determines that:~~

22.8.8 The *IESO* or *market participant* may request that the expert correct any typographical error, error of calculation or similar error in the expert's determination of any values, or request that the expert reconsider and vary the expert's determination of any values on the grounds that:

22.8.8.1 the expert did not determine certain values that the expert was requested to determine; or

22.8.8.2 the expert did not provide reasons, or adequate reasons, for his or her determination of certain values.

22.8.9 A request made pursuant to section 22.8.8 shall be made in accordance with the applicable *market manual*.

22.8.10 The *IESO* shall, within 15 *business day*s of receiving the expert's determination, or within 10 *business days* of receiving the expert's further determination following a request made pursuant to section 22.8.8, if applicable, reject the expert's determination of any value if~~A *market participant* that has requested a review pursuant to section 22.8.2 may request that the *IESO* discontinue the review process with respect to a *reference level* or *reference quantity* at any time prior to receiving the consultant's findings. In such cases, the *IESO* shall register the relevant *reference level* or *reference quantity* in the *preliminary view*.~~:

22.8.10.1 the expert's determination of that value contains a manifest error that materially affected the expert's determination of such value; or

22.8.10.2 the expert's determination of that value, if accepted and implemented by the *IESO* for the purpose of calculating and registering the applicable *reference level* or *reference quantity*, would require the *IESO* to breach the *market rules*.

22.8.11 If the *IESO* rejects any values pursuant to section 22.8.10, the *IESO* shall:

22.8.11.1 notify the relevant *market participant* within 15 *business days* of receiving a determination that it has rejected a determination and specify the reason for the rejection; and

22.8.11.2 within 10 *business days* of its rejection, take steps pursuant to

sections 22.8.3 to 22.8.5 to procure a new expert to determine the rejected values. The *IESO* shall not be required to procure a new expert if it registers *reference levels* or *reference quantities* pursuant to sections 22.8.12 or 22.8.13. A *market participant* disputing the *IESO's* rejection shall not stay the requirement that the *IESO* procure a new expert.

22.8.12 A *market participant* that has requested a determination pursuant to section 22.8.2 may request that the *IESO* discontinue the process with respect to a *reference level* or *reference quantity* at any time prior to receiving the expert's determination. In such cases, the *IESO* shall register the relevant *reference level* or *reference quantity* in the *preliminary view*.

22.8.13 Despite sections 22.8.7 and 22.8.10, the *IESO* and a *market participant* may, at any time, agree to discontinue ~~a review~~the determination process and register the *reference levels* or *reference quantities* that the *market participant* originally requested.

22.8.~~12~~14 The *IESO* may apply a *settlement* charge to the *market participant* equal to the amount charged to the *IESO* by the ~~consultant~~expert~~. The *IESO* shall not apply a *settlement* charge for subsequent reviews~~determinations conducted as a result of ~~the *IESO* rejecting a finding~~ pursuant to section 22.8.~~10~~2. The costs to the *IESO* of a review conducted pursuant to section 22.8.11.2 shall be recovered from *market participants* pursuant to MR Ch.9 s.4.14.12(j).

22.9   Market Control Entities

22.9.1   The obligations in this section 22.9 apply to a *market participant* that is registered with the *IESO* as:

22.9.1.1   the owner of a:

22.9.1.1.1   *generation resource*;

22.9.1.1.2   *dispatchable load*;

22.9.1.1.3   *load resource* participating as a *price-responsive load*; or

22.9.1.1.4   *electricity storage resource*;

22.9.1.2   an *energy trader*; or

22.9.1.3   a virtual trader,

and a reference to a *market participant* in sections 22.9.2 and section 22.9.3 includes a person who has filed an *application for authorization to participate* and indicated its intent to register as: (i) the owner of a *resource* type set out in section 22.9.1.1.1, 22.9.1.1.2, or 22.9.1.1.4; (ii) the owner of a *load resource* that will participate as a *price responsive load;* (iii) an *energy trader*; or (iv) a *virtual trader.*

22.9.12   A *market participant* shall disclose to the *IESO* the name, address, relationship to the *market participant*, and, if applicable, jurisdiction of formation, of each person or entity that meets any of the following criteria:

22.9.12.1   a person or entity that ultimately beneficially owns, directly or indirectly, whether through one or more subsidiaries or otherwise, voting securities carrying more than 10 per cent of the voting rights attached to all voting securities of the *market participant*;

22.9.12.2   a person or entity that is ultimately able to elect or appoint, directly or indirectly, whether through one or more subsidiaries or otherwise, at least 10 per cent of the directors of the *market participant*, other than ex officio directors;

22.9.12.3   a person or entity that is a partner in or of the *market participant*;

22.9.12.4   a person or entity that has a substantial beneficial interest in the *market participant* or that serves as a trustee in the *market participant*, if the *market participant* is a trust;

22.9.~~1~~2.5   a person or entity that is an *affiliate* of the *market participant*, excluding *affiliates* of the *market participant* that are controlled by the *market participant;*

22.9.~~1~~2.6   a person or entity that ultimately holds, directly or indirectly, whether through one or more subsidiaries or otherwise, an interest in the *market participant* that entitles the entity or individual to receive more than 10 per cent of the profits of the *market participant,* if the *market participant* is an entity other than a corporation; or

22.9.~~1~~2.7   a person or entity that has any form of agreement with the *market participant* whereby: (i) the *market participant* confers the right or ability to determine a *resource's energy offers* and *bids* or *offers* for *operating reserve* to that person or entity or the ability to follow the *dispatch* instructions given to the *resource*; and (ii) that person or entity is entitled to receive more than 10 per cent of the amounts paid to the *market participant* in respect of all *energy* and *operating reserve* transacted through the *energy* and *operating reserve markets* for a *resource~~...~~.*

22.9.~~2~~3   A *market participant* shall designate one of the persons or entities disclosed pursuant to section 22.9.~~1~~2 as the *market control entity for physical withholding* for each *dispatchable generation resource, dispatchable electricity storage resource* and *dispatchable load resource* ~~owned by~~for which the *market participant* is registered with the *IESO* as the owner, in accordance with sections 22.9.3-22.9.7.

22.9.3.1   A *market participant* shall designate *market control entities* and the *market control entity for physical withholding* for a *resource* in accordance with the applicable *market manual*.

22.9.4   ~~The~~A *market participant* shall designate a *market control entity* as the *market control entity for physical withholding* for a *resource* if the *market participant* has any form of agreement with that *market control entity* whereby: (i) the *market participant* confers the right or ability to determine the *resource's energy offers* and *bids* or *offers* for *operating reserve* to that *market control entity*; and (ii) that *market control entity* is entitled to receive more than 50 per cent of the amounts paid to the *market participant* in respect of all *energy* and *operating reserve* transacted through the *energy* and *operating reserve* markets by the *resource*.

22.10   Designation of Constrained Areas

22.10.1 Potential Constrained Areas

22.10.1.1 The *IESO* may designate an area as a *potential constrained area* following or in advance of relevant configuration changes on the *IESO-controlled grid,* in accordance with the applicable *market manual*.

22.10.1.2 ~~Potential~~The *IESO* shall assess *potential* constrained area designations ~~shall be assessed~~ on at least an annual basis.

22.10.3 Dynamic Constrained Areas

22.10.3.1 The *IESO* shall designate a *potential constrained area* as a *dynamic constrained area* if the *potential constrained area:* (i) is not currently designated as a *narrow constrained area*; and (ii) was import constrained in more than 15% of the previous 120 hours in either the *day-ahead market* or the *real-time market*, as further specified in the applicable *market manual.* The designation shall come into effect no sooner than four hours following the criteria above being met.

22.10.3.2 ~~The *IESO* shall *publish* a list of *dynamic constrained area*s, along with each of the *resources* and the transmission constraints within each *dynamic constrained area*. The designation of a *dynamic constrained area* shall become effective four hours following *publication*.~~

22.10.3.2~~.3~~ The *dynamic constrained area* designation shall remain in effect until: (~~1~~i) 120 *dispatch hours* have passed since the start of the *dispatch hour* in which the designation came into effect~~;~~: and (~~2~~ii) the *potential constrained area* was import constrained in fewer than 15% of the previous 120 hours in both the *day-ahead market* and the *real-time market* from the start of the current hour.

22.10.3.4~~3~~ The *IESO* shall assess a *dynamic constrained area* designation every day prior to the *dispatch day* for the *day-ahead market* and every hour for the *real-time market*.

22.10.3.4 The *IESO* shall *publish* a list of *dynamic constrained area*s, along with each of the *resources* and the transmission constraints within each *dynamic constrained area*.

22.13 Ex-Ante Validation of Non-Financial Dispatch Data Parameters

22.13.1 The *IESO* shall validate a *dispatchable resource*'s *non-financial dispatch data parameters* against its corresponding *reference level values* at the time the *registered market participant* for a *resource* submits a *non-financial dispatch data parameter* by evaluating whether the *resource*'s submitted *non-financial dispatch data parameter* exceeds the corresponding *reference level value*. A submitted *non-financial dispatch data parameter* shall be rejected if it violates any of the following:

22.13.1.1 *minimum generation block run-time* is ~~more~~greater than the ~~lesser~~minimum of:

22.13.1.1.1   100% above the *reference level value*; or

22.13.1.1.2   three hours above the *reference level value*;

22.13.1.2 *minimum generation block down-time* is ~~more~~greater than the ~~lesser~~minimum of ~~100%~~:

22.13.1.2.1   100% above the *reference level value* for the hot *thermal state*; or

22.13.1.2.2   three hours above the *reference level value* for the hot *thermal state*;

22.13.1.3 *minimum generation block down-time* is ~~below~~less than:

22.13.1.3.1   50% of the *reference level value* for the warm *thermal state*; or

22.13.1.3.2   the *reference level* value minus three hours for the warm *thermal state*~~.~~;

22.13.1.4 *minimum generation block down-time* is ~~below~~less than:

22.13.1.4.1   50% of the *reference level value* for the cold *thermal state*; or

22.13.1.4.2   the *reference level* value minus three hours for the cold *thermal state*~~.~~;

22.13.1.5 *minimum loading point* is greater than 100% above the *reference level value*;

22.13.1.6　*energy* ramp rate *offered* is ~~lower~~less than 50% of the *reference level value*;

22.13.1.7　*operating reserve* ramp rate *offered* is ~~lower~~less than 50% of the *reference level value*;

22.13.1.8　*lead time* is ~~more~~greater than the ~~lesser~~minimum of ~~100%~~:

22.13.1.8.1　100% above the *reference level value* for any *thermal state;* or

22.13.1.8.2　three hours above the *reference level value* for any *thermal state~~, or submitted~~*;

22.13.1.9　the summed *lead time* ~~across~~of all *thermal states* is ~~more~~greater than six hours above the ~~total~~summed *reference level values* ~~across~~of all *thermal states*;

22.13.1.~~9~~10　*ramp hours to minimum loading point* is ~~more~~greater than the ~~lesser~~minimum of:

22.13.1.10.1　100% ~~or three hours~~ above the *reference level value* for any *thermal state*; or

~~22.13.1.10~~　22.13.1.10.2　three hours above the *reference level value* for any *thermal state*;

22.13.1.11 *energy per ramp hour* is ~~more~~greater than:

22.13.1.11.1　50% above the upper bound *reference level value* ~~or~~ for any *thermal state*; or

22.13.1.11.2　50% below the lower bound *reference level value* for any *thermal state*; or

22.13.1.~~11~~12　*maximum number of starts per day* is 50% ~~lower~~less than the *reference level value* or ~~lower~~less than one.

22.14　Ex-Ante Mitigation of Economic Withholding

22.14.1　The *IESO* shall, for *dispatchable resources*, apply a conduct test and impact test to assess *economic withholding* of *energy* and *operating reserve* in any *dispatch hour* using *day-ahead market* and *real-time market reference levels* in the processes to determine *day-ahead schedules* and *pre-dispatch schedules*, respectively, as set out in Appendix 7.~~1A~~5 and Appendix 7.~~2A~~5A of the *market rules*.

22.14.2   If the application of a conduct test applied further to this section 22.14 would result in an *energy offer* that exceeds (i) 20 *price-quantity pairs*, for a *resource* that is not a *pseudo-unit*, or (ii) the number of *price-quantity pairs* specified in section 3.5.5.6, for a *resource* that is a *pseudo-unit*, the *IESO* shall:

   (i)   for conduct tests applicable to *price-quantity pairs* that are above the *price-quantity pair* that includes the *resource's minimum loading point*, delete the *price-quantity pairs* in order from the highest price to the lowest price, except maintaining the *price-quantity pair* with the highest price, until the number of *price-quantity pairs* is equal to the maximum number of *price-quantity pairs* permitted; and

   (ii)   for conduct tests applicable to *price-quantity pairs* that are up to and including the *price-quantity pair* that includes the *resource's minimum loading point*, replace all *price-quantity pairs* with one *price-quantity pair* where the price is equal to the highest price *price-quantity pair* of the relevant *reference level* and the quantity is equal to the submitted *minimum loading point*.

22.15   Ex-Post Mitigation of Physical Withholding

22.15.1   The *IESO* may apply the conduct tests and impact tests specified in this section 22.15, and as further specified in the applicable *market manual,* to assess *physical withholding* of *energy* and *operating reserve*.

22.15.2   The *IESO* may assess a *dispatchable resource* for *physical withholding* pursuant to this section 22.15 and may cease an assessment of *physical withholding* at any time.

22.15.3   When comparing an *offer* to the relevant *reference quantity value* pursuant to section 22.15.4, 22.15.5, 22.15.11, or 22.15.13, the *IESO* shall use the highest MW quantity value from that *offer*.

Conditions – Energy

22.15.4   The *IESO* may test an *energy offer* submitted by the *registered market participant* for a *resource* to assess *physical withholding* of *energy* if the *resource*:

   22.15.4.1 had a *day-ahead market* or a *real-time market locational marginal price* for *energy* greater than $25/MWh and can supply at least ~~10MW~~10 MW of *energy* based on that *resource's* maximum resource active power capability; or

22.15.4.2 had a *day-ahead market* or a *real-time market locational marginal price* for *energy* greater than $25/MWh and the *market control entity for physical withholding* for that *resource* was designated as the *market control entity for physical withholding* for *resources* that can supply at least 10 MW of *energy* in aggregate based on those *resources'* maximum resource active power capabilities,

and the *resource* met at least one of the following conditions in the *day-ahead market calculation engine* or the ~~one~~ hour-ahead run of the *pre-dispatch calculation engine*:

22.15.4.3 the *energy offer* was below the *resource's reference quantity value* and the *resource* was part of a *narrow constrained area* where at least one of the transmission constraints that defines that *narrow constrained area* was binding;

22.15.4.4 the *energy offer* was below the *resource's reference quantity value* and the *resource* was part of a *dynamic constrained area* where at least one of the transmission constraints that defines that *dynamic constrained area* was binding;

22.15.4.5 the *energy offer* was below the *resource's reference quantity value* and the *resource* had a positive congestion component greater than $25/MWh; or

22.15.4.6 the *energy offer* was below the *resource's reference quantity value* and the *resource* could have met incremental load within Ontario when the conditions for testing for global market power for *energy* price impact set out in Appendix 7.~~1A~~5 and Appendix 7.~~2A~~5A were met.

Conduct Test – Energy

22.15.5 The *IESO* may apply a conduct test for *physical withholding* to an *energy offer* of the *registered market participant* for a *resource* that met the requirements set out in section 22.15.~~3~~4. An *energy offer* shall fail the conduct test for *physical withholding* if:

22.15.5.1 that *resource* met the conditions in section 22.15.4.3 or 22.15.4.4 and:

22.15.5.1.1   the *registered market participant* for that *resource* submitted an *energy offer* ~~lower~~less than its *reference quantity value* by greater than the lesser of 2% or 5 MW; or

22.15.5.1.2   ~~the registered market participant for~~ that *resource* and every other *resource* ~~with which~~: (i) that ~~*resource*~~ shares a *market control entity for physical withholding* that met the same condition in section 22.15.4.3 or 22.15.4.4, but (ii) that did not meet the condition in section 22.15.5.1.1, submitted *energy offers* that were, in the aggregate, ~~lower~~greater than 5 MW ~~below~~less than those *resources'* aggregate *reference quantity values*; or

22.15.5.2   that *resource* met the condition in section 22.15.4.5 or 22.15.4.6 and:

22.15.5.2.1   the *registered market participant* for that *resource* submitted an *energy offer* ~~lower~~less than its *reference quantity value* by greater than the lesser of 10% or 100 MW; or

22.15.5.2.2   ~~the registered market participant for~~ that *resource* and every other *resource* ~~with which~~(i) that ~~*resource*~~ shares a *market control entity for physical withholding* that met the same condition in ~~sections~~section 22.15.4.5 or 22.15.4.6, but (ii) that did not meet the condition in section 22.15.5.2.1, submitted *energy offers* that were, in the aggregate, ~~below~~less than those *resources'* aggregate *reference quantity values* by greater than the lesser of 5% or 200 MW.

Impact Test – Energy

22.15.8   The *IESO* may apply an impact test for *physical withholding* to the *energy offers* of the *registered market participant* for a *resource* that had an *energy offer* fail any of the conduct tests in section 22.15.5. An *energy offer* shall fail the impact test if:

22.15.8.1   the *resource* met the condition in section 22.15.4.3 and the *resource*'s *simulated as-offered energy locational marginal price* is greater than the *resource*'s *simulated reference quantity energy locational marginal price* by greater than the lesser of 50% or $25/MWh;

22.15.8.2   the *resource* met the condition in section 22.15.4.4 and the *resource*'s *simulated as-offered energy locational marginal price* is greater than the *resource*'s *simulated reference quantity energy locational marginal price* by <u>greater than </u>the lesser of 50% or $25/MWh;

22.15.8.3   the *resource* met the condition in section 22.15.4.5 and the *resource*'s *simulated as-offered energy locational marginal price* is greater than the *resource*'s *simulated reference quantity energy locational marginal price* by <u>greater than </u>the lesser of 100% or $50/MWh; or

22.15.8.4   the *resource* met the condition in section 22.15.4.6 and the *resource*'s *simulated as-offered energy locational marginal price* is greater than the *resource*'s *simulated reference quantity energy locational marginal price* by <u>greater than </u>the lesser of 100% or $50/MWh.

Conditions – Operating Reserve

22.15.11   The *IESO* may test an *offer* for *operating reserve* of the *registered market participant* for a *resource* for *physical withholding* of *operating reserve* if the *resource*:

22.15.11.1 ~~has~~<u>had</u> a *day-ahead market* or a *real-time market locational marginal price* for <u>the *offered* class of </u>*operating reserve* greater than $5/MW and can supply at least 10 MW of *operating reserve* based on that *resource's* maximum resource active power capability ~~and~~<u>or its</u> maximum ~~registered dispatchable ~~load<u> active power</u>; or

22.15.11.2 ~~has~~<u>had</u> a *day-ahead market* or a *real-time market locational marginal price* for <u>the *offered* class of </u>*operating reserve* greater than $5/MW and the *market control entity for physical withholding* for the *resource* was designated as the *market control entity for physical withholding* for *resources* that can supply at least ~~10MW~~<u>10 MW</u> of *operating reserve* in aggregate based on those *resources'* maximum resource active power capabilities ~~and~~<u>or its</u> maximum ~~registered dispatchable loads,~~<u>load active power,</u>

and the *resource* ~~meets~~<u>met</u> at least one of the following conditions in the *day-ahead market* <u>*calculation engine* </u>or the ~~one-~~hour-<u>a</u>head ~~pre-dispatch ~~run of the *pre-dispatch calculation engine*:

22.15.11.3 the *offer* for *operating reserve* was below the *resource's reference*

quantity value and the *operating reserve locational marginal price* for the *offered* class of *operating reserve* for the *resource* ~~exceeded~~was greater than $15/MW; or

22.15.11.4 the *offer* for *operating reserve* was below the *resource's reference quantity value* and the *resource* was located in a reserve area where the value of a minimum constraint for a class of *operating reserve* that the *resource* is eligible to *offer* was greater than 0 MW.

~~22.15.12   A *resource* that is part of a reserve area in which incremental *operating reserve* of a given class was not scheduled due to a maximum area reserve constraint shall not be tested for *physical withholding* of that class of *operating reserve*.~~

Conduct Test – Operating Reserve

22.15.1~~3~~2 The *IESO* may apply a conduct test for *physical withholding* to the *offers* for *operating reserve* of the *registered market participant* for a *resource* that meet the requirements set out in section 22.15.11. An *offer* for *operating reserve* shall fail the conduct test for *physical withholding* if:

22.15.~~13~~12.1   that *resource* ~~meets~~met the conditions in section 22.15.11.~~1~~3, and:

22.15.~~13~~12.1.1   the *registered market participant* for that *resource* submitted an *offer* for *operating reserve* ~~lower~~less than its *operating reserve reference quantity* by greater than the lesser of 10% or ~~100MW~~100 MW; or

22.15.~~13~~12.1.2

the ~~registered market participant for~~ that *resource* and ~~at least one other *resource* and~~ every other *resource* ~~with which~~(i) that ~~resource~~ shares a *market control entity for physical withholding* that met the ~~conditions~~same condition in section 22.15.11.~~3~~, but (ii) that did not meet the condition in section 22.15.12.1.1, submitted *offers* for *operating reserve* that were, in the aggregate, ~~below~~less than those *resources'* aggregate reference ~~quantities~~quantity values by greater than the lesser of 5% or 200 MW; or

22.15.~~13~~12.2

        that *resource* ~~meets~~met the conditions in section 22.15.11.~~2~~4 and:

22.15.~~13~~12.2.1   the *registered market participant* for that *resource* submitted an *offer* for *operating reserve* ~~lower~~less than the applicable *reference quantity* by greater than the lesser of 2% or 5 MW; or

22.15.~~13~~12.2.2   ~~the *registered market participant* for~~ that *resource* and every other *resource* ~~with which~~: (i) that ~~*resource*~~ shares a *market control entity for physical withholding* that met the same condition in section 22.15.11.4, but (ii) that did not meet the conditions in section 22.15.~~11~~12.2.1, submitted *offers* for *operating reserve* that were, in the aggregate, lower than ~~5MW below~~5 MW less than those *resources'* aggregate *reference* ~~quantities~~quantity values.

22.15.~~14~~13   Despite section 22.15.3, a *registered market participant* for a *resource* that does not submit an *offer* for *operating reserve* of a class that it is eligible to *offer* for a *dispatch hour* in the day-ahead market or *real-time market* shall be deemed to have submitted an *offer* for *operating reserve* of 0 MW for that class in that market for the purposes of the conduct test set out in this section.

22.15.~~15~~14 If a *resource* meets more than one of the conditions in sections 22.15.11.1 and 22.15.11.2, the *IESO* shall apply the conduct test for *physical withholding* using the most restrictive conduct thresholds set out in section 22.15.~~13~~12.

Impact Test – Operating Reserve

22.15.~~16~~15   The *IESO* may apply an impact test for *physical withholding* to a *resource* that had an *offer* for *operating reserve* fail any of the conduct tests applied pursuant to section 22.15.~~13~~12. An *offer* for the *offered* class of *operating reserve* shall fail the impact test if:

22.15.~~16~~15.1   the *resource* met the condition in section 22.15.11.3 and the *resource's simulated as-offered operating reserve locational marginal price* the *offered* class of *operating reserve* is greater than the *resource's simulated reference quantity operating reserve locational marginal price* by greater than the lesser of 50% or $25/MW; or

22.15.~~16~~15.2   the *resource* met the condition in section 22.15.11.4 and the *resource*'s *simulated as-offered operating reserve locational marginal price* for the *offered* class of *operating reserve* is greater than the *resource*'s *simulated reference quantity operating reserve locational marginal price*.

22.15.~~17~~16   The *IESO* shall calculate a *resource*'s *simulated as-offered operating reserve locational marginal price* using the same inputs as those used by the relevant calculation engine to calculate that *resource*'s *operating reserve locational marginal price*.

22.15.~~18~~17   The *IESO* shall calculate a *resource*'s *simulated reference quantity operating reserve locational marginal price* by using the same inputs as those used by the relevant calculation engine to calculate the *resource's simulated as-offered operating reserve locational marginal price* and the applicable *reference quantities* and *reference levels*.

Physical Withholding - Procedural Steps and Timelines

22.15.~~19~~18   If an *energy offer* or *offer* for *operating reserve* fails an impact test for *physical withholding* applied pursuant to section 22.15.8 or 22.15.~~16~~15, the *IESO* shall issue a first notice of *physical withholding* to the relevant *market participant* communicating a finding of an *instance of physical withholding*.

22.15.~~19~~18.1   Notices issued pursuant to this section shall be issued no later than 180 days following the *dispatch day* for which the *offer* was submitted.

22.15.~~20~~19   The *IESO* shall notify the *market participant* if the *IESO* ceases its assessment of *physical withholding* following issuance of the first notice of *physical withholding*.

22.15.~~21~~20   Up to 45 days after the date of the notice specified in section 22.15.~~19~~18, the *market participant* may submit to the *IESO* a request that the *IESO* determine an *alternative reference quantity value* for the relevant *resource* during the *dispatch day* in which the *offer* was submitted that failed the impact test for *physical withholding* applied pursuant to section 22.15.8 or 22.15.~~16~~15.

22.15.~~21~~20.1   Requests submitted pursuant to this section must include documentation to support any *resource*-specific considerations that were not accounted for in the *reference quantities* in use during the *instance of physical withholding*.

22.15.~~22~~21   The *IESO* shall review the submitted supporting documentation and if upon such review the *IESO* determines that it demonstrates that a *resource* was able to supply a quantity of *energy* or *operating reserve* different than the *resource's reference quantity values* during the *instance of physical withholding*, the *IESO* shall determine an *alternative reference quantity value* for the *resource* and repeat the conduct test applied pursuant to section 22.15.5 or 22.15.~~13~~12 and impact test applied pursuant to section 22.15.8 or 22.15.~~16~~15, as applicable, using the *alternative reference quantity value* in the place of the applicable *reference quantity value.*

22.15.~~23~~22   If the conduct test and impact test repeated pursuant to section 22.15.~~22~~21 are not failed when the *alternative reference quantity value* is used, the *IESO* shall discontinue the assessment and notify the *market participant* within 90 days of receiving the supporting documentation.

22.15.~~24~~23   The *IESO* shall issue a second notice of *physical withholding* to the relevant *market participant* within 90 days of the day the *IESO* received supporting documentation pursuant to section 22.15.~~21~~20 if:

22.15.~~24~~23.1   the conduct test and impact test repeated pursuant to section 22.15.~~22~~

21 are failed; or

22.15.~~24~~23.2   upon review of the supporting documentation, the *IESO* determines that the supporting documentation does not demonstrate that a *resource* was able to supply a quantity of *energy* or *operating reserve* different than the *resource's reference quantity values* during the *instance of physical withholding*.

22.15.~~25~~24   If a *market participant* does not request that the *IESO* determine an *alternative reference quantity value* in accordance with section 22.15.~~21~~20 or notifies the *IESO* that it will not make such a request, the *IESO* shall issue a second notice of *physical withholding* within 90 days of the time period in section 22.15.~~21~~20 elapsing or receipt of such notice, as the case may be.

22.15.~~26~~25   If the *registered market participant* for a *resource* has submitted an *offer* that fails an impact test repeated pursuant to section 22.15.~~22~~21, the *IESO* shall issue a second notice of *physical withholding* to the *market participant* for the *resource* within 90 days of the time period in section 22.15.~~21~~20 elapsing.

22.15.~~26~~25.1   A second notice of *physical withholding* shall set out the *settlement* charge relating to the *instance of physical withholding* specified in the notice and, if applicable, additional information regarding the conduct test and impact test. The *settlement* charge applied shall be determined in accordance with the applicable *market manual*.

22.16   Intertie Reference Levels

22.16.1   The *IESO* shall determine daily *day-ahead market* and *real-time market intertie reference levels* for each *dispatch day* for each *market participant* for each *boundary entity resource* on which the *market participant* ~~submits~~may submit *offers* or *bids*.

22.16.1.1   The *IESO* shall determine one *intertie reference level* for each class of *operating reserve* a *market participant* is registered to *offer* on a *boundary entity resource.*

22.16.1.2   The *IESO* shall determine the *intertie reference levels* in section 22.16.1 using the information available on the day that is 14 days following the relevant *dispatch day.*

Energy Offers

22.16.8   If a *market participant* had an *energy offer* that met the conditions in section 22.16.6 scheduled in the hour-ahead run of the *pre-dispatch calculation engine* for at least one *dispatch hour* in 15 of the 90 days prior to a *dispatch day*, then its *real-time market energy offer intertie reference level* for a *boundary entity resource* for a particular *dispatch hour* on a particular *dispatch day* shall be the unweighted average of the ~~price~~highest price *offer* lamination that was scheduled contained in all *energy offers* submitted by that *market participant* for that *boundary entity resource* that met the conditions in section 22.16.6.

Energy Bids

22.16.14   If a *market participant* had an *energy bid* that met the conditions in section 22.16.12 scheduled in the hour-ahead run of the *pre-dispatch calculation engine* for at least one *dispatch hour* in 15 of the 90 days prior to a *dispatch day*,

then its *real-time market energy bid intertie reference level* for a *boundary entity resource* for a particular *dispatch hour* on a particular *dispatch day* shall be the unweighted average of the ~~price~~highest price *bid* lamination that was scheduled contained in all *energy bids* submitted by that *market participant* for that *boundary entity resource* that met the conditions in section 22.16.12.

Operating Reserve

22.16.15 When determining a *day-ahead market operating reserve offer intertie reference* ~~levels~~level for a class of *operating reserve* for a *market participant* for a *boundary entity resource*, the *IESO* shall consider all the *dispatch hours* in the 90 days prior to the *dispatch day* when:

22.16.15.1 the *market participant* had at least 1 MW of that class of *operating reserve* scheduled in at least 1 *dispatch hour* scheduled at the *boundary entity resource* in the *day-ahead schedule,* excluding any *dispatch hours* where the *IESO* manually set the schedule for the *market participant* for that *boundary entity resource*;

22.16.15.2 the positive congestion component of the *intertie border price* in the *day-ahead market* was less than or equal to $25/MW for that class of *operating reserve;* and

22.16.15.3 the *market participant's offer* for *operating reserve* for the *boundary entity resource* was priced below or equal to the *intertie border price* for that class of *operating reserve*.

22.16.16 If a *market participant* did not have an *offer* for *operating reserve* that met the conditions in section 22.16.15 scheduled in the *day-ahead schedule* for at least one *dispatch hour* in 15 of the 90 days prior to a *dispatch day*, then its *day-ahead market operating reserve offer intertie reference level* for a *boundary entity resource* for a particular *dispatch hour* on a particular *dispatch day* for a particular class of *operating reserve* shall be the *intertie border price* for that class of *operating reserve* ~~from~~in the *day-ahead market* for that *dispatch hour* in that *dispatch day*.

22.16.17   If a *market participant* had an *offer* for *operating reserve* that met the conditions in section 22.16.15 scheduled in the *day-ahead schedule* for at least one *dispatch hour* in 15 of the 90 days prior to a *dispatch day*, then its *day-ahead market operating reserve offer intertie reference level* for a *boundary entity resource* for a particular *dispatch hour* on a particular *dispatch day* for that class of *operating reserve* shall be the unweighted average of the highest price *offer* lamination that was scheduled contained in all *offers* for that class of *operating reserve* submitted by that *market participant* for that *boundary entity resource* that met the conditions in section 22.16.15.

22.16.18   When determining a *real-time market operating reserve offer intertie reference levelslevel* for a class of *operating reserve* for a *market participant* for a *boundary entity resource,* the *IESO* shall consider all the *dispatch hours* in the 90 days prior to the *dispatch day* when:

22.16.18.1 the *market participant* had at least 1 MW of that class of *operating reserve* scheduled in at least 1 *dispatch hour* scheduled at the *boundary entity resource* in the hour-ahead run of the *pre-dispatch calculation engine,* excluding any *dispatch hours* where the *IESO* manually set the schedule for the *market participant* for that *boundary entity resource*;

22.16.18.2 the positive congestion component of the *intertie border price* in the *real-time market* was less than or equal to $25/MW for that class of *operating reserve;* and

22.16.18.3 the *market participant*'s *offer* for *operating reserve* for the *boundary entity resource* was priced below or equal to the *intertie border price* for that class of *operating reserve*.

22.16.19   If a *market participant* did not have an *offer* for *operating reserve* that met the conditions in section 22.16.18 scheduled in the hour-ahead run of the *pre-dispatch calculation engine* for at least one *dispatch hour* in 15 of the 90 days prior to a *dispatch day*, then its *real-time market operating reserve offer intertie reference level* for a *boundary entity resource* for a particular *dispatch hour* on a particular *dispatch day* for a particular class of *operating reserve* shall be the *intertie border price* for that class of *operating reserve* fromin the *real-time market* for that *dispatch hour* in that *dispatch day*.

22.16.20   If a *market participant* had an *offer* for *operating reserve* that met the conditions in section 22.16.18 scheduled in the hour-ahead run of the *pre-dispatch calculation engine* for at least one *dispatch hour* in 15 of the 90 days prior to a *dispatch day*, then its *real-time market operating reserve offer intertie reference level* for a *boundary entity resource* for a particular *dispatch hour* on a particular *dispatch day* shall be the unweighted average of the highest price *offer*

lamination that was scheduled contained in all *offers* for that class of *operating reserve* submitted by that *market participant* for that *boundary entity resource* that met the conditions in section 22.16.18.

22.17 Intertie Economic Withholding on an Uncompetitive Intertie Zone

22.17.1 The *IESO* may apply the conduct tests and impact tests specified in this section 22.17 in accordance with the applicable *market manual* to assess *intertie economic withholding.*

22.17.1.1 The *IESO* shall not assess the export transactions of an *energy trader* for *intertie economic withholding* under this section 22.17 if that *energy trader* has not disclosed a *market control entity* that has been designated as the *market control entity for physical withholding* for a *dispatchable resource* that is authorized to supply *energy* or *operating reserve.*

22.17.2 The *IESO* may cease the assessment of *intertie economic withholding* at any time.

Conduct Test – Energy

22.17.4 An *energy offer* or *energy bid* shall fail the conduct test applied pursuant to section 22.17.3 if the *offer* or *bid* is greater than the lesser of ~~300% or $100/MWh above~~:

22.7.4.1 the sum of: (i) the *boundary entity resource's* applicable *intertie reference level* and (ii) the absolute value of the *boundary entity resource*'s applicable *reference level* multiplied by 300%; or

22.7.4.2 the sum of: (i) the *boundary entity resource*'s applicable *reference level* and (ii) $100/MWh.

22.17.5 A *price-quantity pair* in an *energy offer* or *energy bid* submitted by a *registered market participant* for a *boundary entity resource* that has a price component ~~lower~~less than or equal to $25/MWh shall be deemed not to have failed a conduct test applied pursuant to section 22.17.3.

Impact Test – Energy

22.17.6 The *IESO* may apply an impact test for *intertie economic withholding* in an uncompetitive *intertie zone* to any *boundary entity resource* that fails the conduct test applied pursuant to section 22.17.3.

22.17.7 An *energy offer* or *energy bid* submitted by a *registered market participant* for a *boundary entity resource* shall fail the impact test if the *boundary entity resource's simulated as-offered energy locational marginal price* is the lesser of greater than 100% or $50/MWh above the *simulated intertie reference level energy locational marginal price* in the *day-ahead market* or the lesser of greater than 100% or $50/MW above the *simulated intertie reference level energy locational marginal price* in the *real-time market,* as applicable.

Conduct Test – Operating Reserve

22.17.9 The *IESO* may apply a conduct test for *intertie economic withholding* to an *offer* for *operating reserve* submitted by a *registered market participant* for a *boundary entity resource* in an uncompetitive *intertie zone* if: (i) that *offer* for *operating reserve* was scheduled; and (ii) the *operating reserve locational marginal price* for a class of *operating reserve* in that uncompetitive *intertie zone* is greater than $15/MWh in the *day-ahead market* or greater than $15/MW in the *real-time market*, as applicable.

22.17.11 A *price-quantity pair* in an *offer* for *operating reserve* submitted by a *registered market participant* for a *boundary entity resource* that has a price component lowerless than or equal to $5/MWh in the *day-ahead market* or $5/MW in the *real-time market* shall be deemed not to have failed the conduct test applied pursuant to section 22.17.9.

Impact Test – Operating Reserve

22.17.12 The *IESO* may apply an impact test for *intertie economic withholding* in an uncompetitive *intertie zone* to any *boundary entity resource* that fails the conduct test applied pursuant to section 22.17.9.

22.17.13 A *boundary entity resource's offer* for *operating reserve* shall fail the impact test if its *simulated as-offered operating reserve locational marginal price* is greater than the lesser of 50% or $25/MWh above the *simulated intertie reference level operating reserve locational marginal price* in the *day-ahead market* or greater than the lesser of 50% or $25/MW above the *simulated intertie reference level operating reserve locational marginal price* in the *real-time market*.

22.18 Mitigation for Make-Whole Payment Impact ~~on~~in Uncompetitive ~~Interties~~Intertie Zones

Impact Test

22.18.5   The *IESO* may apply an impact test for *intertie economic withholding* to an *energy offer* or *offer* for *operating reserve* submitted by a *registered market participant* for a *boundary entity resource* that that fails the conduct test applied pursuant to section 22.18.4.

22.18.5.1   The *energy offer* or *offer* for *operating reserve* shall fail the impact test for a *dispatch hour* if the *boundary entity resource's* make-whole payment for that *dispatch hour* is ~~more~~greater than 10% higher than the make-whole payment would have been based on the *boundary entity resource's* relevant *intertie reference levels* for *offer* parameters that failed the conduct test.