Market Rules

Chapter 7
System Operations and Physical Markets

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MRA's included;

- Market Entry and Prudentials:
    - MR.461.R00
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    - MR.451.R00
    - MR.453.R00
    - MR.453.R01
    - MR.453.R02
    - MR.453.R03
    - MR.453.R04
- Market Power Mitigation:
    - MR.461.R01
    - MR.455.R00 (March 2023 update)
- Calculation Engines:
    - MR.458.R00
    - MR. 459.R00
    - MR. 460.R00
    - MR. 461.R02
- Interim Alignment:
    - MR.457.R00
    - MR.457.R01
    - MR.457.R02
    - MR.457.R03
    - MR.00461.R03
- Settlements:
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1. Introductory Rules

1.1 Purpose

1.1.1   This Chapter sets forth rules governing the

  1.1.1.1   registration of *facilities* and any associated *resources*;

  1.1.1.2   use of *boundary entities* and *boundary entities resources*;

  1.1.1.3   real-time operations of the *electricity system*, and

  1.1.1.4   ~~the~~ market-clearing and pricing process in the *real-time market* and pre-dispatch physical operations and *day-ahead market physical transactions* ~~physical markets~~.

1.2 Application

1.2.1   The rules in this Chapter apply to:

  1.2.1.1   the *IESO*;

  1.2.1.2   any person who causes or permits electricity or any *physical service* to be conveyed into, through or out of the *integrated power system*;

  1.2.1.3   any *registered market participant* that submits *dispatch data* with respect to any ~~registered facility~~*resource*; and

  1.2.1.4   *transmitters*.

1.2.2   The rules in this Chapter apply to both the 60 Hz and the 25 Hz portions of the *electricity system*.

1.2.3   In this Chapter, a reference to the term "area" in the context of *operating reserve* shall be construed as a reference to a portion of the *IESO control area* designated as such by the *IESO* and within which the *IESO* may impose limits on the amount of *ten-minute operating reserve* that can be scheduled from ~~registered facilities~~*resources* located within that portion for the purpose of meeting the total requirement for *ten-minute operating reserve* within the *IESO control area*.

1.2.4   Sections 1 and 2 of Chapter 7 apply to *physical transactions* in the *real-time market* and *day-ahead market*

1.3   Scope of the Physical Markets

1.3.1   The *IESO* shall administer two types of *physical markets*: the *real-time markets* and the *procurement markets*.

1.3.2   The *IESO* shall administer, in accordance with sections 3 to 8 the following *real-time markets* in an integrated fashion:

    1.3.2.1   a market in *energy*, measured in MWh; and

    1.3.2.2   a market in several classes of *operating reserve*, measured in MW.

    1.3.2.3   [Intentionally left blank- section deleted]

1.3.3   The *IESO* shall administer, in accordance with section 9, the following *procurement markets* to procure certain *physical services* required for *reliable* operation of the *electricity system*:

    1.3.3.1   markets for *contracted ancillary services*, including *regulation*, *reactive support service* and *voltage control service*, and *black-start capability*; and

    1.3.3.2   a market for *reliability must-run contracts*.

1.4   Co-ordination with Control Areas Outside the IESO Control Area

1.4.1   The *IESO* shall, where required or appropriate under duly constituted regional *reliability* agreements with one or more other *control areas*, and subject to any confidentiality agreements entered into with *market participants* or as part of such *reliability* agreements, share with other *control area operators* all relevant information concerning physical system operations in relation to the *electricity system*.

1.5   Delivery in Respect of Extra-provincial Intertie Transactions

1.5.1   Where *energy* or an *ancillary service* is being conveyed:

1.5.1.1   into the *IESO-controlled grid* from an *intertie zone* outside the Province of Ontario; or

1.5.1.2   out of the *IESO-controlled grid* to an *intertie zone* outside the Province of Ontario,

delivery of such *energy* or *ancillary service* to or from, as the case may be, the *boundary entity* shall, for all purposes under these *market rules*, be deemed to occur on the Ontario portion of the applicable *intertie*.

1.6   Planned Outages for Maintenance and Upgrades of IESO-Administered Markets Software, Hardware and Communication Systems

1.6.1   The *IESO* may, from time to time, undertake *planned outages* on *IESO-administered markets* software, hardware or communication systems for the purpose of maintenance and/or upgrades to those systems. These *planned outages* may result in temporary disruptions to some market activities, including but not limited to submission of *dispatch data*, scheduling, pricing, issuing of *dispatch instructions* and *IESO* report *publishing*.

1.6.2   The *IESO* shall, in respect of a *planned outage* referred to in section 1.6.1:

1.6.2.1   Notify all *market participants*, as far in advance as reasonably practicable, of the timing and duration of the *planned outage*;

1.6.2.2   Maintain normal market operations during the *planned outage* to the greatest extent practicable; and

1.6.2.3   Limit the impact and duration of the *planned outage*, and any resulting disruption to market operations to the greatest extent practicable.

1.6.3   If a *planned outage* referred to in section 1.6.1 is expected to result in a disruption to normal market operations, the *IESO* shall notify all *market participants* of the expected disruption and shall specify any required alternative procedures that will be in effect for the duration of the disruption. These alternative procedures shall be designed so as to permit normal market operations to the greatest extent practicable. These alternative procedures may include, but are not limited to:

1.6.3.1   Submission of *dispatch data* by an alternate means and/or in an alternative form pursuant to section 3.2.2; and

1.6.3.2   Establishment of *administrative prices* pursuant to section 8.4A.

1.6.4   *Market participants* shall comply with the alternative procedures specified by the *IESO* in section 1.6.3.

1.7   IESO Authorities and Obligations Regarding the Operation of the Day-Ahead Commitment Process Functions

1.7.1   The Chief Executive Officer of the *IESO* shall determine when the day-ahead commitment process shall first be used.

1.7.2   [Intentionally left blank – section deleted]

1.7.3   The *IESO* shall notify *market participants* at least five *business days* in advance of the day the day-ahead commitment process will first be used.

1.7.4   The *IESO* shall cancel the day-ahead commitment process for a given *dispatch day* when process or software failures prevent one or more hourly day-ahead commitment process runs from meeting the minimum criteria for a minimum acceptable DACP run, as defined in the applicable *market manual*.

1.7.5   In accordance with the applicable *market manual*, if the *IESO* cancels the day-ahead commitment process for a given *dispatch day*, the *IESO* shall:

- inform *market participants* of the cancellation;

- inform *market participants* as to whether the day-ahead commitment process will resume for the subsequent *dispatch day*.

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

2.1   Requirements for Operating on the Grid

2.1.1   No person shall conduct *physical transactions* in the *day-ahead market* or ~~participate~~ in the *real-time markets* or cause or permit electricity or any *physical service* to be conveyed into, through or out of the *integrated power system* unless:

        2.1.1.1   that person is ~~authorised~~ <u>authorized</u> to be a *market participant* in accordance with Chapter 2;

2.1.1.2   the *facility* to or from which the electricity or *physical service* is to be so conveyed or the *boundary entity* to which the electricity or *physical service* relates has either been registered by the *IESO* as a ~~registered facility~~resource pursuant to section 2.2 or section 2.2A, as the case may be, or is exempt from registration under section 2.1.3; and

2.1.1.3   subject to section 2.1.1A, where such ~~registered facility~~resource associated with ~~is~~ a *generation facility* that is connected electrically to a neighbouring *control area,* and the electricity or *physical service* is to be conveyed out of the *integrated power system* over a *radial intertie*:

    a.   the person complies with the requirements of Appendix 7.7;

    b.   the person has entered into a *connection agreement;*

    c.   the *IESO* has entered into an *interconnection agreement* with the *control area operator, security coordinator* or *interconnected transmitter* for the relevant *radial intertie;* and

    d.   the *interconnection agreement* referred to in section 2.1.1.3(c) supports the implementation of the requirements of Appendix 7.7;

2.1.1.4   in accordance with sections 22.1.3 and 22.6.3, that person has provided to the *IESO* all relevant materials the *IESO* may require to determine *reference levels* and *reference quantities* for that person's *resources* and the IESO has registered all applicable *reference levels* and *reference quantities* for that person's *resources*;

2.1.1.5   that person has disclosed~~,~~ all of its *market control entities* to the *IESO*:

2.1.1.6   that person has designated a *market control entity for physical withholding* in accordance with section 22.9 for each of its *resources* that is a *dispatchable generation resource, dispatchable electricity storage resource* or a *dispatchable* ~~load~~ *load*; and

2.1.1.7   that person has completed all applicable processes to register its *facilities* and any associated *resources* set out in the applicable *market manual*.

~~.~~

2.1.1A   Section 2.1.1.3 shall not apply in respect of:

2.1.1A.1   the delivery of electricity or a *physical service* out of the *integrated power system* over a *radial intertie* where such delivery is required to provide support in the case of an *emergency* in a *control area*;

2.1.1A.2   the delivery of electricity or a *physical service* out of the *integrated power system* over a *radial intertie* where such delivery is required to provide support in the case of an *outage* in a *control area*; or

2.1.1A.3   the delivery of electricity or a *physical service* out of the *integrated power system* over an *intertie* that is configured as a *radial intertie* following and as a result of a *contingency event.*

2.1.2   A *market participant* shall not submit, and the *IESO* shall not accept, any *dispatch data* with respect to a ~~*facility* or~~ resource, including a *boundary entity resource* unless:

2.1.2.1   that ~~*facility* or~~*resource, ~~boundary entity~~* has been registered ~~is a registered facility~~ for the provision of the *physical service(s)* to which the *dispatch data* relate, or, in the case of a *boundary entity resource,* the *IESO* has authorized the *market participant* to use it for the provision of the *physical service(s)* to which the *dispatch data* relate;

2.1.2.2   that *market participant* is the *registered market participant* for that ~~*registered facility*~~*resource*; and

2.1.2.3   the *dispatch data* are consistent with: (i) the registration information defining the capabilities of the ~~*registered facility*~~*resource*; (ii) the *market participant's* reasonable expectations of the current actual capabilities of the ~~*registered facility*~~*resource*; and (iii) any revision in registration information requested by the *IESO* under section 7.5.6.2 or other provision of these *market rules*.

2.1.3   Subject to sections 2.3 and 10.2.6, no person that intends to participate in the *IESO-administered markets* or to cause or permit *electricity* or any *physical service* to be conveyed into, through or out of the *integrated power system* shall be required to register ~~the~~ a *facility* to or from which the *electricity* or *physical service* is to be so conveyed as a ~~*registered*~~ *facility* and any associated *resources* registered with the *IESO* if such *facility* is embedded within a *distribution system*, a load *facility,* a *generation facility* or an *electricity storage facility* and that:

2.1.3.1   in the case of a *generation facility*, has a maximum rated *generation capacity,* net of auxiliary requirements, of less than 1 MW;

2.1.3.2   in the case of a *load facility*, has a maximum load capacity of less than 1 MW;

2.1.3.3   in the case of a *distribution system*, has a maximum load capacity of less than 1 MW; or

2.1.3.4   in the case of an *electricity storage facility*, has a maximum capacity for *energy* for each of injections and withdrawals, net of auxiliary requirements, of less than 1 MW.

2.2   ~~Registered Facilities~~ Facility and Associated Resources Registration

2.2.1   The *IESO* shall establish a process for registering a *facility* and any associated *resources* or for using a *boundary entity* *resource* ~~as a registered facility~~ and for registering a *market participant* as a *registered market participant*. Such process shall be set out in the applicable *market manual* and shall include, but not be limited to, the certifications referred to in sections 2.2.3.3 and 2.2.3.4 and the testing and inspection referred to in section 2.2.3.5.

~~2.2.1A   [Intentionally left blank – section deleted]~~

2.2.2   A ~~market participant~~ *market participant* may ~~apply~~ request to register a ~~facility~~ *facility* or any associated *resources* or to use a *boundary entity* *resource* ~~as a registered facility~~:

2.2.2.1   for the delivery or withdrawal of specific *physical services* pursuant to the provisions of this section 2.2 and, if applicable, section 21.2.

~~2.2.2.2   [Intentionally left blank – section deleted]~~

2.2.3   The *IESO* shall approve a~~n application~~ request to register ~~for registration of~~ a *facility* and any associated *resources* or to use a *boundary entity* *resource* ~~as a registered facility~~ if:

2.2.3.1   the ~~applying~~ *market participant* submits:

a.   the registration information required by this section 2.2;

b.   in the case of a *facility connected* to the *IESO-controlled grid*, a copy of the *connection agreement* pertaining to the *facility* and entered into with the applicable *transmitter*; and

c.   in the case of a *generation facility,* an *electricity storage facility*, or a ~~dispatchable~~ *load facility* associated with a *dispatchable load*

embedded within a *distribution system*, a copy of the *connection agreement* pertaining to the *facility* and entered into with the applicable *distributor*;

2.2.3.2   the *IESO* is satisfied on reasonable grounds that the *facility* is capable of operating as described in the registration information or as otherwise provided by the *market rules* in respect of the relevant *physical service*;

2.2.3.3   the ~~applying~~ *market participant* certifies to the *IESO* that all of the facilities and equipment to which its ~~application~~ request for registration relates comply with all applicable technical requirements, other than those referred to in section 6.2 of Chapter 2, set forth in these *market rules* applicable to all *market participants*, the class of *market participant* of which the ~~applying~~ *market participant* forms part and the *IESO-administered market* in which the ~~applying~~ *market participant* wishes to participate;

2.2.3.4   the ~~applying~~ *market participant* certifies to the *IESO* that it has adequate qualified employees or other personnel and organizational and other arrangements that are sufficient to enable the ~~applying~~ *market participant* to perform all of the functions and obligations applicable to *market participants*, the class of *market participant* of which the ~~applying~~ *market participant* forms part and the *IESO-administered market* in which the ~~applying~~ *market participant* wishes to participate in respect of all of the facilities, ~~and~~ equipment and any associated *resources* to which its ~~application~~ request for registration relates;

2.2.3.5   the ~~applying~~ *market participant* successfully completes such testing and permits such inspection as the *IESO* may require for the purposes of testing or inspecting whether all of the facilities and equipment to which its ~~application~~ request for registration relates meet all applicable technical requirements, other than those referred to in section 6.2 of Chapter 2, set forth in these *market rules* applicable to all *market participants*, the class of *market participant* of which the ~~applying~~ *market participant* forms part and the *IESO-administered market* in which the ~~applying~~ *market participant* wishes to participate;

2.2.3.6   the ~~applying~~ *market participant* certifies to the *IESO* in writing that all of the *facilities* and equipment to which its ~~application~~ request for registration relates complies with the requirements identified in any applicable *preliminary assessment* or *system impact assessment* associated with that *market participant's facilities* or equipment; and

2.2.3.7   the ~~applying~~ *market participant* certifies to the *IESO* that all of the *facilities*, ~~and~~ equipment and any associated *resources* to which its ~~application~~ request for registration relates does not differ materially from the configuration or technical parameters that were used by the *IESO* as the basis for which it issued any applicable approvals for such new or modified *connection* in accordance with section 6.1.14 to 6.1.18 of Chapter 4, unless the applicable *market participant* or *connection applicant* has obtained the approval of the *IESO* for the change in configuration or technical parameter in accordance with section 6.1.22 of Chapter 4.

2.2.3.8   [Intentionally left blank – section deleted]

2.2.3A   [Intentionally left blank – section deleted]

2.2.3B   [Intentionally left blank – section deleted]

2.2.4   The *market participant* designated in the registration information as the *market participant* ~~authorised~~ authorized to submit *dispatch data* with respect to a ~~registered facility~~resource shall be the *registered market participant* for that ~~registered facility~~resource. The *registered market participant* designated for a ~~registered facility~~resource may not be changed without the prior approval of the *IESO*.

2.2.5   The *IESO* shall define the form and content of information, as further specified in the applicable *market manual,* required for registration as a ~~registered~~ *facility* with associated *resources* where applicable in accordance with this ~~sections~~ 2.2.~~6 to 2.2.8~~.

2.2.6   Where the *facility* sought to be registered is within the *IESO control area*, the information required for registration as a ~~registered~~ *facility* or as an associated *resource* as the case may be, shall, subject to any lesser requirements that may be *published* by the *IESO* in respect of the information required for registration of a given class or size of *facility* or any associated *resource*, include, but not be limited to:

2.2.6.1   the identity of the owner and the operator of the *facility* and any associated *resources* ;

2.2.6.2   the identity of the *market participant* ~~authorised~~ authorized to submit *dispatch data* with respect to the ~~facility~~resource;

2.2.6.3   for a *connected facility*, information demonstrating that the *facility* has met the *connection* requirements set forth in Chapter 4;

2.2.6.4   information demonstrating that the *market participant* designated as the *registered market participant* for the *facility* and its associated *resources* has the operational control necessary to assure delivery or withdrawal of the relevant *physical services* as described in the registration information;

2.2.6.5   for a *connected facility*, the location of the *facility* and the identity of the *primary RWM* that will measure the flow of *energy* between the *facility* *resource* and the *IESO-controlled grid*;

2.2.6.6   for a *facility* embedded within a *distribution system* or within a *connected facility* within the *IESO control area* that is *connected* to the *IESO-controlled grid*, the location of that *facility*, the identity of the *primary RWM(s)* through which *energy* will flow between that *facility* and the *IESO-controlled grid* and information demonstrating that *energy* can flow to and from the identified *primary RWM*(s) with allocations and loss factors specified in the registration information;

2.2.6.7   standing technical data defining the ability of the *facility* and any associated *resouces* to deliver or withdraw each *physical service* for which registration is sought including, where relevant, the trade-off functions among *energy* and *operating reserves;*

2.2.6.8   for a *facility* *resource* that will be subject to the *IESO's dispatch instructions*, certification that the *facility* *resource* has a minimum rated *generation capacity*, net of auxiliary requirements, or a minimum *dispatchable load* capacity, of 1 MW, or for an *electricity storage facility* *resource* an ability to inject a minimum of 1 MW and withdraw a minimum of 1 MW. Individual *facilities* *generation units, electricity storage units* or *sets of load equipments* or units may be aggregated to meet this minimum capacity requirement if they meet the aggregation requirements of section 2.3; and

2.2.6.9   [Intentionally left blank – section deleted]

2.2.6.10   for any *resources* associated with a *cogeneration facility* or *enhanced combined cycle facility* choosing to be either a *dispatchable* or *self-scheduling generation* *facility* *resource*, and the *registered market participant* wishes the compliance bands used to determine whether or not the *facility* *resource* is in compliance with its *dispatch instructions* or its current schedule, information as outlined in the applicable *market manual* concerning the impact that the production or supply of the other forms of useful *energy* within the *facility* has on *energy* production. The *IESO* may audit this information, which is to be used

to determine appropriate compliance bands as outlined in section 3.3.8, at any time.

2.2.6A   A *registered market participant* for a hydroelectric *generation facility resource* may submit, in addition to any relevant documentation that the *IESO* may request, the following facility *resource* specific information as applicable:

2.2.6A.1   –*forbidden regions*; and period of steady operation.

2.2.6A.2   a *start indication value*. A *registered market participant* that elects to submit a *start indication value* shall provide one or more *start indication values* not exceeding the number of *generation units* associated with the *resource*;

2.2.6A.3   whether it intends to submit *hourly must run*;

2.2.6A.4   *forebay*, and any associated *time lags*-.

If the information regarding forbidden regions is submitted, the market participant shall respect such information when submitting dispatch data for the real-time market. If the dispatch data submitted does not respect such information the IESO shall reject the dispatch data submission for the affected resource and for the corresponding dispatch hour or dispatch hours and shall advise the submitting registered market participant accordingly.

2.2.6B   A registered market participant for a dispatchable generation facility *resource* shall submit to the IESO the minimum loading point, the minimum generation block run-time, and the minimum run-time for the generation facility *resource* if the minimum loading point for the facility *resource* is greater than zero MW and if the minimum generation block run-time for the facility *resource* is greater than one hour.

2.2.6B.1   [Intentionally left blank – section deleted]

2.2.6B.2   [Intentionally left blank – section deleted]

2.2.6B.3   [Intentionally left blank – section deleted]

2.2.6C   [Intentionally left blank – section deleted]

2.2.6D   The *IESO* may request, and the *registered market participant* for a *dispatchable generation facility resource* or a dispatchable *electricity storage facility resource* shall submit to the *IESO*, the following information for that *facility*:

- *start-up time*; and

- *minimum shut-down time*.

2.2.6E If no ~~facility~~ resource specific data is submitted to the *IESO* for ~~the~~ a *generation* ~~facility's~~ resource's *minimum loading point*, *forbidden regions*, or *period of steady operation* in accordance with sections 2.2.6A, and 2.2.6B, the *IESO* shall assign default values of zero for that data.

2.2.6F If ~~facility~~ resource specific data is submitted to the *IESO* in accordance with sections 2.2.6A, 2.2.6B or~~,~~ 2.2.6G ~~or 2.2.6J~~ the *IESO* shall respect the data as submitted in its determination of the *day-ahead schedule* in accordance with Chapter 7A, the *pre-dispatch schedule* in accordance with section 4B of Chapter 7, and the *real-time schedule* in accordance with section 4E of Chapter 7~~6 and day-ahead schedule in accordance with section 5~~.

2.2.6G In accordance with the applicable *market manuals*, a *registered market participant* that operates a ~~combined cycle facility~~ *combined cycle plant* that is composed of *generation resources* that are not aggregated under section 2.3 shall submit to the *IESO*:

    2.2.6G.1 the required data for each *resource* associated with that ~~combined cycle facility~~ *combined cycle plant*, including the steam turbine *minimum loading point*; and

    2.2.6G.2 if the ~~for those~~ *registered market participant*~~s~~ intends ~~that wish~~ to designate any *resources* associated with its ~~their~~ non-aggregated ~~combined cycle~~ *facility* ~~combined cycle plant~~ as a *pseudo-unit* ~~in the day-ahead commitment process set out in section 5.8,~~ the required data for that *pseudo-unit* including the *steam turbine percentage share* and *duct firing 10-minute operating reserve capability*.

2.2.6H [Intentionally left blank – section deleted]~~A registered market participant for a dispatchable hydroelectric generation facility shall submit to the IESO where applicable the daily cascading hydroelectric dependency for that generation facility.~~

2.2.6I Subject to section 2.2.6G, the *IESO* shall determine, in accordance with the applicable *market manual*, the *pseudo-unit* technical parameters based on the ~~facility~~ resource specific data submitted under section ~~2.2.6J~~3.

2.2.6J [Intentionally left blank – section deleted] ~~A registered market participant for a dispatchable generation facility that is not a quick-start facility may submit on a daily basis the minimum loading point, the minimum generation block run-time,~~

the maximum number of starts per day and the *minimum generation block down time*, and, for facilities designated as a *pseudo-unit* under section 2.2.6G, the combustion turbine single cycle mode, and the *IESO* shall use this data in the day-ahead commitment process set out in section 5.8.

2.2.6K   A *registered market participant* for a *dispatchable generation facility resource* shall submit to the *IESO*:

    2.2.6K.1 the *elapsed time to dispatch*; and for the *generation facility*.

    2.2.6K.2 *period of steady operation.*

2.2.7   Where To use a *boundary entity* and its associated *boundary entity resources* is sought to be registered, a valid *interconnection agreement* over the relevant *interconnection* must have been entered into prior to the approval of the applicationrequest. In addition, the information required for registration of the to use the *boundary entity resources* as a *registered facility* shall include, but not be limited to:

    2.2.7.1   identification of the *intertie RWM*(s) through which the *physical services* will be delivered to or withdrawn from the *IESO-controlled grid*, which shall determine the *intertie zone* within which the *boundary entity* is deemed to be located;

    2.2.7.2   information confirming that the *market participant* authorized to submit *dispatch data* with respect to the *boundary entity resource* holds all licences, permits or other authorizations that may be required to permit such *market participant* to deliver or withdraw the *physical services* to or from the *intertie zone* within which the *boundary entity resource* is deemed to be located;

    2.2.7.3   information demonstrating compliance with applicable requirements of all relevant *standards authorities* and completion of the necessary transmission service arrangements with affected *control areas*;

    2.2.7.4   the identity of the *market participant* authorized to submit *dispatch data* with respect to the *boundary entity resource*; and

    2.2.7.5   information defining the maximum quantities of each *physical service* that the *market participant* authorized to submit *dispatch data* in respect of the *boundary entity resource* is entitled to inject into or withdraw from the *IESO-controlled grid* in respect of the *boundary entity resource* including, where relevant, the trade-off functions among *energy* and *operating reserves*.

2.2.8   In addition to the information required by section 2.2.6 or 2.2.7, as the case may be, the registration information for a *facility resource* or *boundary entity* that will provide *operating reserves* shall include information in a form approved by the *IESO* demonstrating ~~in the case of a *facility*,~~ the ability of the *facility resource* or, ~~in the case of a *boundary entity*, the ability of the resources comprising the boundary entity,~~ to:

2.2.8.1   provide *energy* and *operating reserves* according to the trade-off functions described in, and with the response times indicated in, the registration information; and

2.2.8.2   deliver, when the *facility resource* or *boundary entity* is called upon to do so by the *IESO*, *energy* at the specified rate (in MWh/hour or MW) in accordance with its *operating reserve offer* for at least one hour.

2.2.9   A *market participant* may ~~apply~~ request to register as a *self-scheduling generation facility* any *generation facility*:

2.2.9.1   that has ~~with~~ a name-plate rating of individual components of equipment that collectively adds up to ~~of~~ 1 MW or more but is less than 10 MW;

2.2.9.2   that is a *commissioning generation facility* of any name-plate rating and that is sought to be registered pursuant to section 2.2A.1; or

2.2.9.3   that is a *cogeneration facility* or *enhanced combined cycle facility* ~~with~~ that has a name plate rating of individual components of equipment that collectively adds up to 10 MW or more provided that the *IESO* determines that there are no adverse impacts on the *reliable* operation of the *IESO-controlled grid* of the *facility* being registered as a *self-scheduling generation facility*.

2.2.9A   Except as the *IESO* may authorize under section 21.3.2, a *market participant* may ~~apply~~ request to register a *facility* and any associated *resources* as a *self-scheduling electricity storage facility* ~~only~~ if ~~it~~:

2.2.9A.1   the *facility* is comprised of individual *electricity storage units* with *electricity storage unit sizes* that collectively add up to a total ~~has an~~ *electricity storage facility size* of 1 MW or more but less than 10 MW and meets the condition of section 2.1.3.4; or

2.2.9A.2   the *facility* is a *commissioning electricity storage facility* of any capacity and that is sought to be registered pursuant to section 2.2D.

2.2.10 A self-scheduling generation facility may be registered:

- to provide *energy* and *reactive support service* and *voltage control service*; and

- as a *certified black start facility*.

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

2.2.12 A self-scheduling generation facility or a *self-scheduling electricity storage facility* whose ~~application~~ request for facility registration has been approved by the IESO is a ~~registered~~ *facility* with associated *resources* registered by the *IESO*.

2.2.13 A *market participant* may apply to register a~~n~~ *generation facility* associated with an *intermittent* ~~generator~~ *generation resource* if it has a name-plate rating of not less than 1 MW.

2.2.14 A~~n~~ *generation facility* associated with an *intermittent* ~~generator~~ *generation resource* may not be registered to provide any physical service other than energy and reactive support service and voltage control service.

2.2.15 The *IESO* shall approve an ~~application~~ request ~~for~~ under section 2.2.13 ~~registration as an intermittent generator~~ if the information required by this section 2.2 is provided and the *IESO* determines that intermittent operation of the ~~facility~~ *resource* will not have a material adverse impact on power system *security*.

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

2.2.17 For the purposes of this Chapter, a *distribution system* connected to the *IESO-controlled grid* must be a ~~registered~~ *facility* that is registered by the *IESO*.

2.2.18 The *IESO* shall develop procedures and requirements for registering a *distribution system* ~~as a registered facility~~. Such procedures shall include, but not be limited to, the certifications referred to in sections 2.2.3.3 and 2.2.3.4 and the testing and inspection referred to in section 2.2.3.5.

2.2.19 ~~A *market participant* may apply request to register a *transitional scheduling generator* if it has a nameplate rating of not less than 1MW.~~

2.2.20 ~~A transitional scheduling generator may be registered:~~

- ~~to provide *energy* and *reactive support service* and *voltage control service* and~~

- ~~as a *certified black start facility*.~~

2.2.21 ~~The *IESO* shall approve an application~~ request for registration as a *transitional scheduling generator* ~~and its associated *resources*~~ if the information required by this section 2.2 is provided, and the ~~*generator*~~ and its associated *resources* ~~is~~ are under contract with *OEFC* and will participate in the ~~*day-ahead market* and *real-time market*~~ for *energy*.

2.2.22 ~~A *transitional scheduling generator* whose application~~ request for *facility* registration has been approved by the *IESO* is a *registered facility* with associated *resources* registered by the *IESO*.

2.2.23 ~~Within one month of the coming into effect of the amendments to the contract with *OEFC* required as a result of electricity industry restructuring in Ontario in respect of a *transitional scheduling generator*, the *registered market participant* for the *transitional scheduling generator* shall change registration for the applicable *generation facility* to one of the other *generation facility* registrations.~~

2.2.24 ~~[Intentionally left blank — section deleted]~~

2.2.19~~25~~ A *market participant* for a *load resource* may request to change its *resource* type as either a *dispatchable load*, *non-dispatchable load*, or *price responsive load* as follows:

2.2.~~25~~19.1 a request to change from a *non-dispatchable load* to a *dispatchable load* shall be submitted at least six months prior to the effective date of the change;

2.2.~~25~~19.2 a request to change from a *non-dispatchable load* to a *price responsive load* shall be submitted at least one month prior to the effective date of the change; and

2.2.~~25~~19.3 a request to change from a *dispatchable load* or *price responsive load* to a *non-dispatchable load* shall be submitted at least seven *business days* prior to the effective date of the change.

2.2.~~26~~20 Once the change to a *non-dispatchable load* takes effect in accordance with subsection 2.2.25.3, the *market participant* shall not change its *resource* type back to a *dispatchable load* or a *price responsive load* in accordance with subsections

2.2.25.1 or 2.2.25.2, as the case may be, for at least 12 months from the effective date of the change.

2.2.2721 A *registered market participant* for a *generation resource* shall be eligible for the real-time generator offer guarantee or day-ahead generator offer guarantee if, as part of the registration process under this section 2.2, the *market participant* provides the *resource* specific information as further specified in Chapter 9.

2.2A   Registration of Commissioning Generation Facilities

2.2A.1   A *market participant* may apply to register a *commissioning generation facility* as a *self-scheduling 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 *real-time markets* 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 for *facility* registration of a *commissioning generation facility* as a *self-scheduling generation facility* if it is satisfied that the requirements of section 2.2 have been met. Any such registration shall expire upon completion by the *commissioning generation ~~unit~~ facility* of the final commissioning test submitted to and approved by the *IESO* pursuant to section 2.2A.4.

2.2A.3   Upon expiry of the registration referred to in section 2.2A.2, a *market participant* shall not participate in the *real-time market~~s~~* nor cause or permit electricity or any *physical service* to be conveyed into, through or out of the *integrated power system* in respect of a former *commissioning generation facility* unless such former *commissioning generation facility* has been registered as a *generation facility*, other than pursuant to this section 2.2A, in accordance with section 2.2.

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

2.2A.4.1   ensure that the *commissioning generation facility*:

a.   complies with all of the provisions of these *market rules* applicable to *self-scheduling generation facilities*; and

b.   where it will seek to be registered, other than pursuant to this section 2.2A, in accordance with section 2.2 as other than a *self-*

scheduling generation facility, complies with all of the applicable requirements of section 7.3 of Chapter 4; and

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

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 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, treat the *commissioning generation facility* as a one or more *self-scheduling generation* ~~facility~~ resources for all purposes under these *market rules* including, but not limited to, the submission of *dispatch data* and *settlement*.

2.2B   [Intentionally left blank – section deleted]~~Generation Facility Eligibility for the Real-Time Generation Cost Guarantee~~

2.2B.1   [Intentionally left blank – section deleted]~~A *registered market participant* for a generation facility shall be eligible for the guarantee of certain elements of its costs, calculated in accordance with section 4.7B of Chapter 9, provided the following criteria are met~~:

2.2B.1.1   [Intentionally left blank – section deleted]~~the *facility* is not a *quick-start facility*~~;

2.2B.1.2   [Intentionally left blank – section deleted]~~the *facility* is a *dispatchable generation facility*; and~~

2.2B.1.3   [Intentionally left blank – section deleted];

2.2B.1.4   [Intentionally left blank – section deleted]~~the *registered market participant* has submitted to the *IESO* the following data for the *generation facility*, in accordance with the applicable *market manual*, and the *IESO* accepts the data as reasonable~~:

2.2B.1.4A [Intentionally left blank – section deleted]~~the *minimum run-time*, *minimum loading point*, and *minimum generation block run-time*;~~

2.2B.1.4B [Intentionally left blank – section deleted]~~the incremental fuel costs and incremental operating and maintenance costs determined in accordance with sections 2.2B.4, 2.2B.5 and 2.2B.6; and~~

2.2B.1.4C [Intentionally left blank – section deleted]~~any other data, as reasonably requested by the *IESO* that is relevant to determine eligible costs in accordance with section 2.2B.4, from the *registered market participant*, any *affiliate*, service provider or contractual counter-party.~~

2.2B.2   [Intentionally left blank – section deleted]~~The *IESO* may, at any time, audit the data submitted in accordance with section 2.2B.1.4, and the *registered market participant* shall provide the requested audit information in the time and manner specified by the *IESO*. If, as a result of such an audit, the *IESO* determines that the audit information provided does not support the submitted data, including, without limitation, that the *IESO* does not accept the data as reasonable, the *IESO* shall recover any resulting over-payments made to the *market participant*. Notwithstanding the foregoing sentence, where the *registered market participant* has submitted data in accordance with this section 2.2B and sections 10A.1 and 11.2.1 of Chapter 1, the *IESO* shall not retroactively revise pre-approved cost values determined in accordance with section 2.2B.5 when calculating any amount to be recovered from that *registered market participant*.~~

2.2B.3   [Intentionally left blank – section deleted]~~For purposes of sections 2.2B.1.4 and 2.2B.2, the *registered market participant* shall retain supporting documentation related to cost submissions, including data that may be required by the *IESO* to determine pre-approved cost values and methodologies, in accordance with the applicable *market manual*, for a period of 7 years from the date when a cost is paid.~~

~~Submitted Eligible Costs~~

2.2B.4   [Intentionally left blank – section deleted]~~Submitted eligible costs pursuant to section 2.2B.1 shall be limited to:~~

2.2B.4.1   [Intentionally left blank – section deleted]incremental fuel costs, incremental operating and maintenance costs resulting from *wear and tear* caused by the operation of a *facility*; and

2.2B.4.2   [Intentionally left blank – section deleted]all other incremental operating and maintenance costs as set out in section 4.7B.5.2 of Chapter 9;

         from either the point of ignition or synchronization to the *IESO-controlled grid* as applicable, until the *facility* reaches its *minimum loading point*, where that *facility* has met the eligibility criteria specified in sections 2.2B.1, 5.7 and 6.3A, as specified and further detailed in the applicable *market manual.*

2.2B.5   [Intentionally left blank – section deleted]Subject to section 2.2B.6, for each cost specified in section 2.2B.4, the *IESO* shall determine pre-approved cost values and methodologies that are either universal or *facility*-specific, and calculate the submitted eligible costs in accordance with section 4.7B.5 of Chapter 9. The pre-approved cost values and methodologies shall remain in effect until revised by the *IESO*. The *IESO* shall review the pre-approved cost values and methodologies at least once every 3 years. The first review shall be completed no later than 3 years from the effective date of this section.

2.2B.6   [Intentionally left blank – section deleted]In circumstances where pre-approved cost values and methodologies are not established under section 2.2B.5, the *IESO* may at its sole discretion allow a *registered market participant* to submit the incremental fuel costs and incremental operating and maintenance costs for each *facility* under section 2.2B.1.4B, in accordance with the applicable *market manual*.

2.2C   [Intentionally left blank – section deleted]Generation Facility Eligibility for the Day-Ahead Production Cost Guarantee

2.2C.1   [Intentionally left blank – section deleted]A *registered market participant* for a *generation facility* shall be eligible for the guarantee of certain elements of the *facility's* costs, calculated in accordance with section 4.7D of Chapter 9, provided the following criteria are met:

    2.2C.1.1   [Intentionally left blank – section deleted]the *facility* is not a *quick-start facility*;

    2.2C.1.2   [Intentionally left blank – section deleted]the *facility* is a *dispatchable generation facility* with a elapsed time to *dispatch* greater than one hour;

2.2C.1.3   [Intentionally left blank – section deleted];

2.2C.1.4   [Intentionally left blank – section deleted]the *registered market participant* has, according to the timelines and in the form specified in the applicable *market manual*, submitted to the *IESO* the following information for the *generation facility*: the start-up costs; and the speed no-load costs; and

2.2C1.5   [Intentionally left blank – section deleted]the *registered market participant* has, according to the timelines and in the form specified in the applicable *market manual*, submitted to the *IESO* the following information for the *generation facility*: the *minimum loading point*; and the *minimum generation block run-time* and the *IESO* accepts all such information as reasonable.

2.2C.2   [Intentionally left blank – section deleted]

2.2D   Registration of Commissioning Electricity Storage Facilities

2.2D.1   A *market participant* may apply to register a *commissioning electricity storage facility* as a *self-scheduling 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 *real-time markets* 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 for *facility* registration of a *commissioning electricity storage facility* as a *self-scheduling electricity storage facility* if it is satisfied that the requirements of section 2.2 have been met. Any such registration shall expire upon completion by the *commissioning electricity storage unit facility* of the final commissioning test submitted to and approved by the *IESO* pursuant to section 2.2D.4.

2.2D.3   Upon expiry of the registration referred to in section 2.2D.2, a *market participant* shall not participate in the *real-time markets* nor cause or permit electricity or any *physical service* to be conveyed into, through or out of the *integrated power system* in respect of a former *commissioning electricity storage facility* unless such former *commissioning electricity storage facility* has been registered as an *electricity storage facility*, other than pursuant to this section 2.2D, in accordance with section 2.2.

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 facilities*; and

    b.   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 facility*, complies with all of the applicable requirements of section 7.3 of Chapter 4; 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 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, treat the *commissioning electricity storage facility* as <u>one or more</u> ~~a~~ *self-scheduling electricity storage* ~~facility~~ <u>resources</u> for all purposes under these *market rules* including, but not limited to, the submission of *dispatch data* and *settlement*.

2.3   Aggregated Generation Units, Electricity Storage Units, or Sets of Load Equipments as ResourcesRegistered Facilities

2.3.1   A *market participant* may apply request to the *IESO* to aggregate several *resources* associated with either *generation units, electricity storage units* or sets of *load equipments, respectively facilities* for one or more of the following the purposes (i) participating in the *day-ahead market; or* (ii) of delivering or withdrawing one or more *physical services* in the *real-time energy market,* or the *procurement markets* or both. Upon *IESO* approval, the aggregated *facilities resources* associated with either *generation units, electricity storage units* or loads sets of *load equipment* shall, except as specifically stated in the registration information or the *IESO*'s approval of the aggregation, be treated as a single *registered facility* for the provision or withdrawal of the approved *physical services resource*:

    2.3.1.1   either for the provision or withdrawal of the approved *physical services* by the *registered market participant* for purposes of the submission of *dispatch data*; and

    2.3.1.2   by the *IESO*, for purposes of the scheduling and *dispatch* processes described in this Chapter .

2.3.1A   [Intentionally left blank – section deleted]

    2.3.1A.1   [Intentionally left blank – section deleted]

    2.3.1A.2   [Intentionally left blank – section deleted]

2.3.2   The *IESO* shall approve an application request for the aggregation of *resources* associated with either *generation units, electricity storage units* or sets of *loads* equipment *facilities* into a single *registered facility resource* unless:

    2.3.2.1   the registration information for the *resources* associated with either *generation units, electricity storage units* or sets of *loads equipment facilities* proposed to be aggregated fails to satisfy the conditions of section 2.2;

    2.3.2.2   the registration information fails to demonstrate one or more of the following in respect of the *resources* associated with either *generation units, electricity storage units* or sets of *loads equipmentfacilities* proposed to be aggregated;

    a.   that they are all located within the *IESO control area*;

    b.   subject to section 2.3.2A, that they are all *connected* to the *IESO-controlled grid* at the same *connection point*;

    c.   that the *resource* is ~~y are all~~ under the operational control of a single *market participant* and that such *market participant* is authorized to submit *dispatch data* for ~~all of them~~it;

    d.   that operational communication between each of them and the *IESO* meets all applicable standards and protocols; or

    e.   that they all have relevant metering systems to be used for *settlements* purposes that satisfy the requirements of Chapter 6; or

2.3.2.3   one or more of the ~~*facilities*~~ *resources* associated with *generation units*, *electricity storage units* or sets of *load equipment* ~~s~~ proposed to be aggregated is or includes ~~a *generation unit*, an *electricity storage unit*, or a *load facility*~~ a *resource*-:

    a.   whose *offer* or *bid* information or whose in service or out of service status affects the numerical value of operating *security limits* in any manner;

    b.   whose *offer* or *bid* information or whose in service or out of service status is information required by the *IESO* for conducting detailed *security* and resource adequacy assessment;

    c.   whose *offer* or *bid* information or whose in service or out of service status is information required to be submitted to the *market assessment unit* or the *market surveillance panel* in furtherance of their respective functions and obligations under the *Electricity Act, 1998*, the *Ontario Energy Board Act, 1998* and these *market rules*; or

    d.   whose *offer* or *bid* information, or whose -in--service or out--of-service status or other information is required by *applicable law*, by ~~license~~licence, by the *Ontario Energy Board* or by a *standards authority* to be submitted to or obtained by the *IESO*.

2.3.2.4   the ~~applying~~ *market participant* fails to provide the certification referred to in section 2.2.3.3 in respect of any of the *facilities*;

2.3.2.5   the ~~applying~~ *market participant* fails to provide the certification referred to in section 2.2.3.4 in respect of any of the *facilities*; or

2.3.2.6   the ~~applying~~ *market participant* fails to successfully complete the testing or to permit the inspection referred to in section 2.2.3.5 in respect of any of the *facilities.*

2.3.2A   Notwithstanding section 2.3.2.2b, the *IESO* may approve a~~n~~ ~~application~~ request for the aggregation of ~~*facilities*~~ *resources* associated with either *generation units, electricity storage units* or sets of *loads* equipment into a single ~~*registered facility*~~*resource* that are not all *connected* to the *IESO-controlled grid* at the same *connection point*, provided that, in the sole judgement of the *IESO*, they can be represented as a single point of injection or withdrawal without compromising the *reliability* of the *IESO-controlled grid*. Aggregation for the purposes of calculating *transmission service charges* is specified in the then current *Ontario Energy Board* Transmission Rate Order.

2.3.3   If a proposed aggregation of ~~*facilities*~~ *resources* meets one or more of the above conditions, the *IESO:*

2.3.3.1   shall provide to the *market participant* whose application is denied the reasons for such denial.

2.3.3.2   [Intentionally left blank]

2.3.3.3   [Intentionally left blank]

2.3.4   Approval of the aggregation of ~~*facilities*~~ *resources* shall be withdrawn by the *IESO* where, for any reason, one or more of the aggregation *facilities* *resources* commences to meet any one or more of the conditions described in section 2.3.2. The *IESO* shall give notice of the withdrawal to the *market participant* authorized to submit *dispatch data* in respect of the aggregated ~~*facilities*~~ *resources* and shall cease to treat those ~~*facilities*~~ *resources* as a single ~~*registered facility*~~*resource* as of the date and time specified in the notice for such purpose. The date and time so specified shall not be less than 2 days from the date and time at which the notice of withdrawal is given to the *market participant*. If the *market participant* subsequently wishes to thereafter re-aggregate the ~~*facilities*~~*resources*, it shall be required to re-apply to the *IESO* for approval of the aggregation in accordance with section 2.3.1.

2.3.5   A *market participant* authorized to submit *dispatch data* for aggregated ~~*facilities*~~ *resources* may give notice to the *IESO* that it no longer wishes to aggregate those *resources*~~facilities~~. The *IESO* shall acknowledge receipt of the *market participant's* notice and shall cease to treat those *resources*~~facilities~~ as a single ~~*registered facility*~~*resource* as of the date and time specified in the acknowledgement of receipt for that purpose. The date and time so specified shall be as soon as reasonably practicable following the date of receipt by the *IESO* of

the *market participant's* notice. If the *market participant* subsequently wishes to re-aggregate the *~~facilities~~resources*, it shall be required to ~~re-apply~~submit a new request to the *IESO* for approval of the aggregation in accordance with section 2.3.1.

2.4   De-registration of Facilities

2.4.1   A *market participant* that wishes to de-register a *~~registered~~ facility* and any associated *resources* that have been registered in accordance with this section 2, other than a *boundary entity resource*, which is being removed from service shall file with the *IESO* a notice of request to de-register in such form as may be specified by the *IESO;* provided, however, that a *market participant* shall not be entitled to file such a notice if it is no longer the beneficial owner of the *~~registered~~ facility*.

2.4.2   Within ten *business days* of the date of receipt of the notice referred to in section 2.4.1, the *IESO* shall notify the *market participant* and the *transmitter* to whose *transmission system* the *~~registered~~ facility* is *connected* as to whether the *IESO* requires a technical assessment of the impact of the removal from service of the *registered facility* on the *reliability* of the *IESO-controlled grid* and, if so, of the expected date of completion of such assessment. Such date shall not be more than 45 days from the date of issuance by the *IESO* of such notice or such later date as may be agreed between the *IESO* and the *market participant*.

2.4.3   Where the notice issued by the *IESO* pursuant to section 2.4.2 indicates that the *IESO* does not require a technical assessment or where the *IESO* conducts a technical assessment and concludes the removal from service of the *~~registered~~ facility* will not or is not likely to have an unacceptable impact on the *reliability* of the *IESO-controlled grid*, the *market participant* shall file with the *IESO* a notice setting forth the date upon which the *market participant* wishes the *IESO* to de-register the *~~registered~~ facility*. Such date shall not be less than five *business days* from the date of receipt by the *market participant* of the notice issued by the *IESO* pursuant to section 2.4.2 and, as applicable, shall be subject to the date on which the *~~registered~~ facility* has been *disconnected* as confirmed by the relevant *transmitter* to the *IESO*.

2.4.4   Where section 2.4.3 applies, the *IESO* shall:

2.4.4.1   if the *~~registered~~ facility* is not *connected* to the *IESO-controlled grid*, de-register the *~~registered~~ facility* promptly upon completion of the technical assessment if applicable, or as of the date specified in the notice filed by the *market participant* pursuant to section 2.4.3, whichever is the later, and shall so notify the *market participant*, the

metering service provider for the metering installation that relates to the registered facility, and any market participant within which the registered facility is embedded; or

2.4.4.2   if the registered facility is connected to the IESO-controlled grid:

   a.   issue to the relevant transmitter a disconnection order directing the relevant transmitter to disconnect the registered facility from the IESO-controlled grid on the date specified in the disconnection order which shall be no earlier than the date specified in the notice filed by the market participant pursuant to section 2.4.3; and

   b.   de-register the registered facility as of the date on which the relevant transmitter confirms to the IESO that the registered facility has been disconnected from the IESO-controlled grid.

and shall notify the market participant accordingly.

2.4.5   Where the IESO conducts the technical assessment referred to in section 2.4.2 and concludes that the removal from service of the registered facility will or is likely to have an unacceptable impact on the reliability of the IESO-controlled grid, the IESO and the market participant shall commence the process described in sections 9.6 and 9.7 and in section 4.8 of Chapter 5 with a view to concluding a reliability must-run contract for that registered facility. The registered facility shall not be removed from service during the course of such process.

2.4.6   [Intentionally left blank – section deleted]

   2.4.6.1   [Intentionally left blank – section deleted]

   2.4.6.2   [Intentionally left blank – section deleted]

2.4.7   A transmitter that receives a disconnection order from the IESO pursuant to section 2.4.4.2(a) shall:

   2.4.7.1   subject only to section 3.4.1.5 of Chapter 5 and to the completion of any operating and decommissioning procedures contemplated in the connection agreement applicable to the registered facility, disconnect the registered facility from the IESO-controlled grid on the date and at the time specified in the disconnection order; and

   2.4.7.2   promptly inform the IESO once the registered facility has been disconnected from the IESO-controlled grid.

Planned Retirements of Generation and Electricity Storage Facilities

2.4.8   Each *generator* shall provide the *IESO* not less than six months advance notice of
the commencement of the planned retirement of any one of its *generation
facilities* and any associated *resources* that have been registered in accordance
with this section 2~~that are *registered facilities*~~, including notification of any plans
the *generator* may have to construct replacement *facilities* for those being retired.

2.4.9   Each *electricity storage participant* shall provide the *IESO* not less than six
months advance notice of the commencement of the planned retirement of any
one of its *electricity storage facilities* and associated *resources* that have been
registered in accordance with this section 2, ~~that are *registered facilities*~~,
including notification of any plans the *electricity storage participant* may have to
construct replacement *facilities* for those being retired.

2.5   Transfer of Registration of Facilities

2.5.1   A *market participant* that wishes to transfer the registration of a ~~*registered*~~ *facility*
and any associated *resources* that has been registered in accordance with this
section 2, ~~other than a *boundary entity*,~~ as a result of the proposed transfer of the
~~*registered*~~ *facility* to another person by sale, assignment, lease, transfer of control
or other means of disposition shall, not less than 10 *business days* prior to the date
on which the transfer is proposed to take effect, file with the *IESO* and the
relevant *transmitter* or *distributor*, a notice of request to transfer the registration
of the ~~*registered*~~ *facility* in such form as may be specified by the *IESO*. Such
notice shall specify:

2.5.1.1   the identity of the transferee and whether the transferee is or intends to
be a *market participant*; and

2.5.1.2   the date upon which the transfer is proposed to take effect,

and shall be accompanied by a written declaration by the proposed transferee that
it is willing and able to assume control of the ~~*registered*~~ *facility* and any
associated *resources* and to comply with all provisions of these *market rules* and
of any *reliability must-run contract* or *contracted ancillary services* contract
applicable to such ~~*registered*~~ *facility*.

2.5.2   If the proposed transferee satisfies or is capable of satisfying the requirements of
section 2.2, the *IESO* shall approve a request to transfer the registration of a
~~*registered*~~ *facility* and any associated *resources* unless the proposed transferee is a
suspended market participant or is otherwise ineligible under these *market rules*
to be a *market participant*.

2.5.3   Where the *IESO* approves a request to transfer the registration of a ~~registered~~ *facility*, the *IESO* shall transfer the registration of the ~~registered~~ *facility* to the proposed transferee:

      2.5.3.1   on the date referred to in section 2.5.1.2, provided that the proposed transferee was a *market participant* at the time of filing of the notice referred to in section 2.5.1 and remains a *market participant* on such date; or

      2.5.3.2   on such later date as may reasonably be required to permit the *IESO* to effect the transfer following the later of the date of authorization of the proposed transferee as a *market participant* and the date on which the proposed transferee meets the requirements of section 2.2.

2.5.4   Upon completion of the transfer of the ~~registered~~ *facility*, the proposed transferee will have to post with the *IESO prudential support* or *capacity prudential support* as applicable, equal to the proposed transferee's *prudential support obligation* or *capacity prudential support obligation*. Until the proposed transferee has done so, the transferring *market participant* shall continue to be liable for the obligations of the proposed transferee in the *IESO-administered markets*. Such obligations shall include, without limitation, the cost of electricity withdrawn from the *IESO-controlled grid* by the proposed transferee and related charges as determined by the *IESO* in accordance with Chapter 9. The *prudential support obligation* and/or *capacity prudential support obligation* as applicable of the transferring *market participant* shall include all such amounts whether or not the transferring *market participant* has complied with the provisions of this section 2.5.

3. Data Submissions for the Real-Time Markets

3.1 Applicability of this Section

3.1.1   A *registered market participant* that intends one or more of its *registered facilities* to be eligible for *dispatch* by the *IESO* for a given *dispatch hour* of a *dispatch day* shall submit to the *IESO dispatch data* for each such *registered facility* for such *dispatch hour* in accordance with this section 3.

3.1.2   *Dispatch data* that are revised after initial submission as allowed under the provisions of this section 3 must satisfy all of the requirements that apply to initial *dispatch data* and shall be *dispatch data*.

3.1.3   [Intentionally left blank – section deleted]

3.2   The Data Submission Process

3.2.1   Each *registered market participant* shall submit its *dispatch data* to the *IESO* through the *electronic information system* or, when not available, by such alternative means and/or in such alternative simplified form as may be specified by the *IESO* pursuant to section 3.2.2.3.

3.2.2   The *IESO* shall:

    3.2.2.1   stamp all *dispatch data* with the time that it was received by the *IESO*;

    3.2.2.2   within five minutes, confirm receipt of all such *dispatch data* through the *electronic information system*; and

    3.2.2.3   specify alternative means and/or an alternative simplified form of submitting and confirming *dispatch data* when the *electronic information system* is unavailable.

3.2.3   The *IESO* shall reject any *dispatch data* that does not comply with the rules set forth in this section 3 and shall provide to the *registered market participant* submitting such rejected *dispatch data* the reasons for such rejection.

3.2.4   A *registered market participant* that does not receive from the *IESO* confirmation of receipt of *dispatch data* in accordance with section 3.2.2.2 shall immediately contact the *IESO* by telephone or facsimile seeking confirmation of receipt.

3.2.5   A *registered market participant* shall, if requested by the *IESO*, resubmit *dispatch data* by such means as may be specified by the *IESO* in the request.

3.3   Dispatch Data Submissions

3.3.1   Subject to sections 3.3.9 and 3.3A, a *registered market participant* that submits or is required to submit *dispatch data* for the initial *pre-dispatch schedule,* shall submit initial *dispatch data* for each *dispatch hour* of the *dispatch day* after 06:00 EST but before 10:00 EST of each *pre-dispatch day.* Such initial *dispatch data* may thereafter be revised as permitted by this section 3.3.

3.3.2   Subject to section 3.3A.6, the *IESO* shall use the initial *dispatch data* submitted by *registered market participants* to determine and *publish* the initial *pre-dispatch schedule* in accordance with section 5.

3.3.3   Subject to section 3.3A.8, a *registered market participant* may submit revised *dispatch data* with respect to any *dispatch hour* without restriction until 2 hours prior to the beginning of that *dispatch hour*.

3.3.4   [Intentionally left blank – section deleted]

3.3.4A   [Intentionally left blank – section deleted]

Replacement Energy Offers

3.3.4B   A registered market participant for a hydroelectric generation facility, a combined cycle generation facility, an enhanced combined cycle facility or a cogeneration facility that experiences a forced outage may submit revised dispatch data for a related generation facility, 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:

- The submission of revised *dispatch data* takes place no later than one hour after the *generation facility* experiences the *forced outage* and is limited to the MW amount on *forced outage*.

- The *registered market participant* whose *generation facility* 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 facility* for the next available *dispatch hour* and of its intention to provide replacement *energy* from the related *generation facility.*

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

- The related *generation facility* and the *generation facility* experiencing the *forced outage* have the same *registered market participant*.

- The related *generation facility* and the *generation facility* experiencing the *forced outage* have the same *metered market participant*.

Related *generation facilities* are *generation facilities* that, in the case of a hydroelectric *generation facility*, can utilize the water of the *generation facility* experiencing the *forced outage* without delay. In the case of combined cycle *facilities, enhanced combined cycle facilities* or *cogeneration facilities,* related *generation facilities* are *generation facilities* that can make up the loss in steam

production to the steam turbine unit that would otherwise have been produced by the gas turbine unit experiencing the *forced outage.*

3.3.4C   In the period after the notification and before the market tools process the revised *dispatch data,* the *IESO* shall accept replacement *energy* from the related *generation facility*, provided there is no adverse impact on the *reliability* of the *IESO-controlled grid.* The replacement *energy* delivered shall be limited to the amount of *energy* originally scheduled for the *generating facility* experiencing the *forced outage.* The *market participant* may choose to provide replacement *energy* from a related *generation facility* without submitting revised *dispatch data* for the current *dispatch hour* or, if within 10 minutes of the next *dispatch hour*, the current and subsequent *dispatch hour*.

3.3.5   Except as permitted by sections 3.3.4B, 3.3.8, 3.3.9.2, 3.3.11, and 21.6 no *registered market participant* may, without the approval of the *IESO*, submit revised *dispatch data* with respect to any *dispatch hour* within 2 hours of that *dispatch hour*.

IESO Approvals of Revised Dispatch Data

3.3.6   Where pursuant to section 3.3.5, the approval of the *IESO* is required for the submission of revised *dispatch data*, the *IESO* shall, unless the change in quantity poses risks in relation to the *reliability* or *security* of the *electricity system*, approve the submission of revised *dispatch data* where:

         3.3.6.1   [Intentionally left blank – section deleted]

         3.3.6.2   [Intentionally left blank – section deleted]

         3.3.6.3   the *registered market participant* indicates, at the time of the sub-mission of the revised *dispatch data*, that the revision is required in order to reflect a proposed change in the operational status of the *registered facility* designed solely to prevent the *registered facility* from operating in a manner that would endanger the safety of any person, damage equipment, or violate any *applicable law.*

     The *IESO* may refer such changes or revision of *dispatch data* to the *market surveillance panel*.

3.3.7   *Dispatch data* submitted during the *dispatch day* to which it applies need refer only to the remaining *dispatch hours* of that *dispatch day*.

3.3.8   Notwithstanding any other provision of this section 3.3 and with the exception of testing specified in section 6.6 of Chapter 5, a *registered market participant* shall

as soon as practical submit to the *IESO* revised *dispatch data* for any *registered facility* in respect of which it is the *registered market participant* if, for any *dispatch hour* in the current *pre-dispatch schedule,* the quantity of any *physical service* scheduled for that *registered facility* differs from the quantity the *registered market participant* reasonably expects to be delivered or withdrawn by more than the greater of:

(i)   2 percent;

(ii)   such absolute amount as may be determined by the *IESO* based on considerations of *reliability* and *facility* specific characteristics;

(iii) in the case of a *cogeneration facility* that is either a *dispatchable* or *self-scheduling generation facility*, such amount based on the impact that the production of the other forms of useful energy within the *facility* has on *energy* production based on the information outlined in section 2.2.6.10, and the *IESO*; and

(iv) in the case of an *enhanced combined cycle facility* that is either a *dispatchable* or *self-scheduling generation facility*, such amount based on the impact that the recovery of waste heat from an industrial process/processes within the *facility* has on *energy* production based on the information outlined in section 2.2.6.10;

and the *IESO*:

3.3.8.1   shall, unless the change in quantity poses risks in relation to the *reliability* or *security* of the *electricity system*, include such change as an input in respect of any subsequent *market schedules* determined following receipt of the change; and

3.3.8.2   may refer such changes or revision of *dispatch data* to the *market surveillance panel*.

Standing Dispatch Data

3.3.9   If the dispatch data for a registered facility for a given trading day of a trading week will not change from trading week to trading week, the registered market participant for that registered facility may, as and for its dispatch data described in section 3.3.1, submit standing dispatch data for that registered facility. Such standing dispatch data shall:

3.3.9.1   define the *dispatch data* for each *dispatch hour* of each *dispatch day*;

3.3.9.1A   in respect of each *dispatch day* for which it is in effect, be deemed for the purposes of this section 3.3 and section 22 to be initial *dispatch data*, submitted at 06:00 EST on the *pre-dispatch day*; and

3.3.9.2   remain in effect until the expiration date specified in the standing *dispatch data* unless earlier withdrawn or earlier revised by the *registered market participant*:

a.   as standing *dispatch data* prior to 06:00 EST on the *pre-dispatch day*; or

b.   in accordance with sections 3.3.3 to 3.3.8.

IESO Authorities to Direct Submission or Revision of Dispatch Data

3.3.10   Notwithstanding sections 3.3.3, 3.3.4, 3.3.4B, 3.3.5 and 3.3.8, where the *IESO* determines, on the basis of the initial *pre-dispatch schedule* or any subsequent *pre-dispatch schedule* determined in accordance with section 5, that a revision to *dispatch data* will not allow it to maintain the *reliability* of the *IESO-controlled grid*, the *IESO* may, subject to sections 3.3.15 and 3.3.16:

3.3.10.1   refuse to accept a revision to the quantity element of *dispatch data* submitted by a *registered market participant*; or

3.3.10.2   direct a *registered market participant* to submit or to resubmit a revision to the quantity element of its *dispatch data*, or both. The *IESO* shall notify the *registered market participant* of a refusal referred to in section 3.3.10.1 and shall include in any direction issued pursuant to section 3.3.10.2 a description of the revised *dispatch data* to be submitted or resubmitted by the *registered market participant*.

3.3.10A   A *registered market participant* in respect of a *transitional scheduling generator* may treat a direction referred to in section 3.3.10.2 that means an increase in the quantity element of its *dispatch data* as a request and shall confirm with the *IESO* its intention to comply or not comply with the request issued. If the *registered market participant* indicates its intentions are not to comply with the direction, the *registered market participant* shall provide the reasons for non-compliance to the *IESO*.

3.3.11   A *registered market participant* to which a direction has been issued pursuant to section 3.3.10.2 shall submit revised *dispatch data* to the *IESO* in accordance with the terms of the direction within 2 hours of the time of receipt of the direction.

3.3.12   If the *IESO* determines, on the basis of the initial *pre-dispatch schedule* or any subsequent *pre-dispatch schedule* determined in accordance with section 5, that it

requires the supply of *energy, ancillary services*, other than *contracted ancillary services*, or both from additional *registered facilities* in order to maintain the *reliability* of the *IESO-controlled grid*, the *IESO* shall determine if there are additional *registered facilities* that have not submitted *dispatch data* and that can, to the *IESO's* knowledge, be made available within the time required in order to help maintain the *reliability* of the *IESO-controlled grid*.

3.3.13   Subject to sections 3.3.14 to 3.3.16, the *IESO* may direct the *registered market participant* for an additional *registered facility* identified pursuant to section 3.3.12 to submit *dispatch data*, and shall include in such direction a description of the *dispatch data* to be submitted by the *registered market participant*.

3.3.14   A *registered market participant* to which a direction is issued pursuant to section 3.3.13 shall submit *dispatch data* to the *IESO* in accordance with the terms of the direction within 2 hours of the time of receipt of the direction.

3.3.15   The *IESO* shall not issue a direction pursuant to section 3.3.10 or 3.3.13 for the purposes of addressing a lack of overall *adequacy* of the *IESO-controlled grid*.

3.3.16   Where a *registered facility* to which a direction issued pursuant to section 3.3.10.2 or 3.3.13 relates has a *reliability must-run contract* with the *IESO*, any such direction shall, subject to the time period for the submission of *dispatch data* referred to in sections 3.3.11 and 3.3.14, be consistent with the terms of such *reliability must-run contract*.

3.3.17   Nothing in sections 3.3.10 to 3.3.16 shall preclude the application of the provisions of sections 7.3.2.3 or of Appendix 7.6 in respect of *dispatch data* that is revised or submitted in accordance with sections 3.3.10 to 3.3.16.

3.3.18   A *registered market participant* may, for any one or more of its *registered facilities* that is a *dispatchable load*, identify all or a portion of the consumption at such *registered facilities* as *non-dispatchable load* by submitting *dispatch data* in accordance with the applicable *market manual*.

3.3A   Dispatch Data Submissions for the Day-Ahead Commitment Process

3.3A.1   Subject to section 1.7, defining when the day-ahead commitment process shall function, this section 3.3A shall be in effect.

3.3A.2   Subject to the standing *dispatch data* provisions of section 3.3.9, each *registered market participant* that intends its *dispatchable generation facility*, including a

generation facility that intends to operate in *segregated mode of operation* in real-time, *dispatchable load facility*, dispatchable *electricity storage facility*, or *hourly demand response* resource to be eligible for *dispatch* by the *IESO* for a given *dispatch hour* of a *dispatch day* shall, after 06:00 EST but before 10:00 EST of the *pre-dispatch day,* submit *dispatch data* for those *dispatch hours* of the *dispatch* day including, where applicable, the daily *energy* limit for the *facility* for the *dispatch day*. The *registered market participant* may then only revise such initial *dispatch data* as permitted by this section 3.3A.

3.3A.3   If a *registered market participant* for a *dispatchable generation facility* or a dispatchable *electricity storage facility* does not provide *dispatch data* in accordance with section 3.3A.2 the *facility* shall not operate in real-time without the approval of the *IESO* under section 3.3A.12.

3.3A.4   A *registered market participant* for a *dispatchable load facility* may, in the *dispatch data* submitted under section 3.3A.2, identify all or a portion of the consumption at such *registered facility* as *non-dispatchable load* in accordance with the applicable *market manual*.

3.3A.5   A *registered market participant* for a *boundary entity* may submit, between 6:00 EST and 10:00 EST of the *pre-dispatch day,* an import *offer* or export *bid* for the next *dispatch day* with a valid NERC tag identifier. If the import *offer* is included in the *schedule of record* determined under section 5.8, the *registered market participant* will receive the day-ahead *intertie* offer guarantee determined under section 3.8A of Chapter 9.

3.3A.6   R*egistered market participants* that submitted *offers* or *bids* in accordance with either section 3.3A.2 or section 3.3A.5 shall require *IESO* approval to modify those *offers* or *bids* between 10:00 EST and 14:00 EST except for *registered market participants* for:

a. *dispatchable* hydroelectric *generation facilities* which submitted a *daily cascading hydroelectric dependency* in accordance with section 2.2.6K and which are designated by the *IESO* as eligible *energy* limited resources, and

b. physical generation units associated with a *pseudo-unit* designated in accordance with section 2.2.6G.

3.3A.7   [Intentionally left blank – section deleted]

Market Participant Revisions to Dispatch Data

3.3A.8   Subject to sections 3.3A.9, 3.3A.10 and 3.3A.14, after 14:00 EST a *registered market participant* may submit revised *dispatch data* with respect to any *dispatch hour* without restriction until 2 hours prior to the beginning of that *dispatch hour*.

3.3A.9   Subject to sections 3.3A.10 and 3.3A.14, a *registered market participant* for a *dispatchable generation facility* or a dispatchable *electricity storage facility* who did submit *dispatch data* under section 3.3A.2 may revise its *offer* in real-time provided the revised *dispatch data* does not increase the number of hours offered or the offered quantity in any hour relative to the *dispatch data* submitted under section 3.3A.2.   Revised *offers* which represent increases to the number of hours offered or increases to the offered quantity relative to the *dispatch data* submitted under section 3.3A.2 will require *IESO* approval. Changes to daily *energy* limits will not require *IESO* approval.

3.3A.10   A *registered market participant* for a *dispatchable generation facility* who was deemed to have accepted the day-ahead production cost guarantee in accordance with section 5.8.4 shall not increase the *offer* price associated with the *minimum loading point* of the *facility*.

3.3A.11   *A registered market participant* for a *dispatchable load facility* that declared its intent for all or a portion of its consumption to be non-*dispatchable* under sections 3.3A.2 and 3.3A.4 will require *IESO* approval to increase its declared *bid* quantity and *bid* that consumption in real-time as *dispatchable load*.

3.3A.12   The *IESO* shall approve increases to declared availability of a *dispatchable facility* if that *generation facility, electricity storage facility* or *dispatchable load facility* returns from outage earlier than planned, or if the *IESO* has solicited additional *offers* and *bids*, or if such increases will avoid an *emergency operating state* or *high-risk operating state*, or as permitted under section 3.3.6.3.

3.3A.13   A *registered market participant* for a *boundary entity* who is eligible to receive a day-ahead *intertie offer* guarantee for an import transaction in accordance with section 3.3A.5 shall not revise the submitted *dispatch data* to link that import transaction to an export transaction as described in section 3.5.8.2 of Chapter 7. If the *IESO* determines that the *dispatch data* was revised by the *registered market participant* in the manner described above, the *IESO* shall recover from the *registered market participant* any day-ahead *intertie offer* guarantee payment for that import transaction and shall redistribute the payment in accordance with chapter 9, section 4.8.2.11.

3.3A.14   A *registered market participant* for a *dispatchable generation facility* who was deemed to have accepted the day-ahead production cost guarantee in accordance

with section 5.8.4 shall be subject to a withdrawal charge as per section 3.8F of Chapter 9 if the *registered market participant* withdraws the *offer* for the *facility.*

3.4   The Form of Dispatch Data

3.4.1   *Dispatch data* shall relate to a specified *dispatch hour* of the *dispatch day* and to a specified *registered facility*, shall comply with the applicable provisions of this section and sections 3.5 to 3.9 and shall take one of the following forms:

    3.4.1.1   for a *dispatchable generation facility*, or a dispatchable *electricity storage facility* proposing to inject *energy* an *offer* to provide a *physical service* to the appropriate *real-time market*. *Offers* accepted result in sales in the *real-time market* only to the extent that, for the *registered market participant* submitting such *offers*, the total value of the *physical services* provided to the *real-time markets* is greater than the total value of the *physical bilateral contract quantities* notified to the *IESO* in respect of that *registered market participant* pursuant to Chapter 8;

    3.4.1.1.1   for a *dispatchable generation facility* that is classified as v*ariable generation,* an offer to provide a *physical service* to the appropriate *real-time market* reflecting its *generation facility's* full capacity available for production, determined in accordance with the applicable *market manual.*

    3.4.1.2   for a *dispatchable load facility*, or a dispatchable *electricity storage facility* proposing to withdraw *energy* a *bid* to take *energy* from the *energy market*. *Bids* accepted result in purchases in the *real-time market* only to the extent that, for the *registered market participant* submitting such *bids*, the total value of the *physical services* taken from the *real-time markets* is greater than the total value of *physical bilateral contract quantities* notified to the *IESO* in respect of that *registered market participant* pursuant to Chapter 8;

    3.4.1.2A   [Intentionally left blank – section deleted]

    3.4.1.3   for a self-scheduling generation facility or a *self-scheduling electricity storage facility*, a self-schedule for the provision of energy to the energy market. Energy actually provided by a *self-scheduling facility* results in sales in the real-time market only to the extent that, for the registered market participant designated for that *self-scheduling facility*, the total value of energy provided to the real-time market is greater than the total value of physical bilateral contract quantities

notified to the IESO in respect of that registered market participant pursuant to Chapter 8;

3.4.1.4   for an *intermittent generator*, a forecast of *energy* expected to be provided to the *energy market*. *Energy* actually provided by an *intermittent generator* results in sales in the *real-time market* only to the extent that, for the *registered market participant* designated for such *intermittent generator*, the total value of *energy* provided to the *real-time market* is greater than the total value of *physical bilateral contract quantities* notified to the *IESO* by that *registered market participant* pursuant to Chapter 8;

3.4.1.4A   for a *transitional scheduling generator*, a forecast schedule for the provision of *energy* to the *energy market*; and

3.4.1.4B   [Intentionally left blank – section deleted]

3.4.1.5   [Intentionally left blank – section deleted]

3.4.1.6   for a *capacity market participant* with an *hourly demand response resource*, a *demand response energy bid* to reduce its *energy* consumption during a specified *availability window* and *obligation period* in accordance with the applicable *market manual*.

3.4.2   Each *transmitter* shall submit to the *IESO* information on the status of its *transmission system* as described in section 3.9.

3.4.3   Each *offer* or *bid* for any *physical service* shall contain prices, each with an associated quantity. A price and the associated quantity in an *offer* or *bid* is a *price-quantity pair* and shall comply with sections 3.5 and 3.6 and the following:

3.4.3.1   the quantity in any *price-quantity pair*, other than in the first *price-quantity pair*, shall be a cumulative quantity representing the maximum quantity the *registered market participant* is offering to sell or bidding to buy, respectively, at the associated price in the *price-quantity pair*;

3.4.3.1A   [Intentionally left blank – section deleted]

3.4.3.2   in any *offer*, the price in each *price-quantity pair* must not decrease as the associated quantity increases; and

3.4.3.3   in any *bid*, the price in each *price-quantity pair* must not increase as the associated quantity increases.

3.4.4   The *market price* of *energy*, in $/MWh, at and below which the *IESO* may instruct
          a *generation facility* to reduce its *energy* output to zero shall be:

          3.4.4.1   [Intentionally left blank]

          3.4.4.2   in the case of a *generation facility* other than a *self-scheduling
                      generation facility* or an *intermittent generator*, the lowest price in any
                      price-quantity pair submitted with respect to such *facility*.

          Such price may be zero or negative but may not be less than negative *MMCP*.

3.4.4A   Every submission of *dispatch data* with respect to a *self-scheduling generation
          facility* or an *intermittent generator* shall specify a price, in $/MWh, at and below
          which the applicable *registered market participant* reasonably expects to reduce
          the *energy* output of such *self-scheduling generation facility* or *intermittent
          generator* to zero. Such price may be zero or negative but may not be less than
          negative *MMCP*.

3.4.4B   The *market price* of *energy*, in $/MWh, at and below which the *IESO* may instruct
          an *electricity storage facility* to reduce its injections of *energy* to zero shall be:

          3.4.4B.1   in the case of an *electricity storage facility* other than a *self-scheduling
                      electricity storage facility* the lowest price in any *price-quantity pair*
                      submitted with respect to such *facility*.

          Such price may be zero or negative but may not be less than negative *MMCP*.

3.4.4C   Every submission of *dispatch data* with respect to a *self-scheduling electricity
          storage facility* shall specify a price, in $/MWh, at and below which the
          applicable *registered market participant* reasonably expects to reduce the
          injections of *energy* from *self-scheduling electricity storage facility* to zero. Such
          price may be zero or negative but may not be less than negative *MMCP*.

3.4.5   Every submission of *dispatch data* with respect to a *dispatchable load facility* or a
          dispatchable *electricity storage facility* proposing to withdraw *energy* shall
          specify a *market price* of *energy*, in $/MWh, at and above which the *IESO* may
          instruct the *facility* to reduce its *energy* withdrawals to zero. Such price shall not
          be greater than *MMCP*.

3.5   Energy Offers and Energy Bids

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

3.5.2   All *energy offers* and *energy bids* shall be submitted using such forms as may be specified by the *IESO*, which forms shall require, at a minimum, provision of all of the information specified in Appendices 7.1 and 7.2, respectively, except where the *IESO* specifies an alternative means and/or an alternative simplified form pursuant to section 3.2.2.3.

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

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

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

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

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

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

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

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

3.5.5   Each *energy offer* or *energy bid* shall contain up to 5 sets of ramp quantity and ramp up/ramp down values for each *dispatch hour*. The ramp quantity in each such set shall be the maximum MW quantity at which the corresponding ramp rate values apply, shall be expressed in MW to one decimal place and shall be greater than 0.0 MW. The ramp up and ramp down values in each such set shall be expressed in MW/minute to one decimal place and shall be greater than 0.0 MW/min. The laminations corresponding to such sets may be different from those of the *price-quantity pairs* contained in each *energy bid* or *energy offer*.

3.5.6   The largest quantity in any *energy offer* or *energy bid* for any *dispatch hour* must be at least 1.0 MWh but shall not exceed the lesser of:

     3.5.6.1   the maximum output of *energy* in an hour indicated in the registration information for the relevant *registered facility*;

     3.5.6.2   the maximum quantity of *energy* that can be supplied (for an *energy offer*) or taken (for an *energy bid*) in that *dispatch hour* by the *registered facility*, as estimated by the *registered market participant* for that *registered facility*; or

     3.5.6.3   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:

        3.5.6.3.1   the capacity of any radial line connecting the *registered facility* to the *connection point*;

        3.5.6.3.2   the maximum injection or withdrawal as specified in the *connection agreement* applicable to the *registered facility*; or

        3.5.6.3.3   the maximum injection or withdrawal otherwise permitted by the relevant *transmitter*.

3.5.6A   Where one or more *electricity storage facilities* and one or more other *generation facilities* are all:

     3.5.6A.1   connected at the same *connection point*;

     3.5.6A.2   registered to the same *registered market participant*, and

     3.5.6A.3   none of the *facilities* are providing contracted *ancillary services* or participating in the *operating reserve market*;

section 3.5.6 shall not apply. Instead, the largest quantity in any *energy offer* or *energy bid* for any *dispatch hour* for each *facility* must be at least 1.0 MWh but shall not exceed the lesser of:

3.5.6A.4   the maximum output of *energy* in an hour indicated in the registration information for the relevant *registered facility*;

3.5.6A.5   the maximum quantity of *energy* that can be supplied (for an *energy offer*) or taken (for an *energy bid*) in that *dispatch hour* by the *registered facility*, as estimated by the *registered market participant* for that *registered facility*; or

3.5.6A.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:

       3.5.6A.6.1 the capacity of any radial line connecting the *registered facility* to the *connection point*; or

       3.5.6A.6.2 the maximum injection or withdrawal as specified in the *connection agreements* applicable to the *registered facilities* or to the maximum injection or withdrawal otherwise permitted by the relevant transmitter, calculated as the total net injections and withdrawals for all *generation facilities* and *electricity storage facilities* registered to the same *registered market participant* at the same *connection point*.;

3.5.6B Where one or more *electricity storage facilities* and one or more other *generation facilities* are all:

       3.5.6B.1 connected at the same *connection point*;

       3.5.6B.2 registered to the same *registered market participant*, and

       3.5.6B.3 any of the *facilities* are providing *contracted ancillary services* or participating in the *operating reserve market*;

       sections 3.5.6 and 3.5.6A shall not apply. Instead, the largest quantity in any *energy offer* or *energy bid* for any *dispatch hour* for each *facility* must be at least 1.0 MWh but shall not exceed the lesser of:

       3.5.6B.4 the maximum output of *energy* in an hour indicated in the registration information for the relevant *registered facility*;

3.5.6B.5 the maximum quantity of *energy* that can be supplied (for an *energy offer*) or taken (for an *energy bid*) in that *dispatch hour* by the *registered facility*, as estimated by the *registered market participant* for that *registered facility*; or

3.5.6B.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:

3.5.6B.6.1 the capacity of any radial line connecting the *registered facility* to the *connection point*; or

3.5.6B.6.2 the maximum injection or withdrawal as specified in the *connection agreement* applicable to the *registered facility* or the maximum injection or withdrawal otherwise permitted by the relevant transmitter, and the sum of all *energy offers* or the sum of all *energy bids* from all *facilities* shall not exceed these limits.

3.5.7 A *registered market participant offering energy* from a specified *registered facility* may submit *dispatch data* specifying a maximum amount of *energy* that can be scheduled by the *IESO* for that *registered facility* over a *dispatch day*. Such a limit shall be used only in the *pre-dispatch schedule* described in section 5, and only for the purpose of providing information that the *registered market participant* may use as a basis to revise its *energy offers* in subsequent submissions.

3.5.8 All wheeling through transactions shall consist of:

3.5.8.1 an individual *energy* offer from a *boundary entity* injecting *energy* into the *IESO-controlled grid* and an *energy* bid from a *boundary entity* withdrawing *energy* from the *IESO-controlled grid*; or

3.5.8.2 an individual *energy offer* from a *boundary entity* injecting *energy* into the *IESO-controlled grid* and an *energy bid* from a *boundary entity* withdrawing *energy* from the *IESO-controlled grid,* and an identification of the desire for these to be linked, in accordance with the applicable *market manual*. The *IESO* shall assess so identified *offers* separately from their associated *bids*. The *IESO* shall schedule and *dispatch* the linked *offers* and *bids* such that both are equal to the lower of the *offer* or *bid* that would otherwise be scheduled and *dispatched*.

3.5.9 An *energy bid* submitted by a *registered market participant* for a *boundary entity* in respect of the withdrawal from the *IESO-controlled grid* of *energy* destined for

an *intertie zone* in the United States of America shall constitute a declaration by a *registered market participant* for the *boundary entity* of an intention to export *energy* in the circumstances described in paragraphs 1(b) to 1(d) of Part V of Schedule VI of the *Excise Tax Act* (Canada).

3.6   Operating Reserve Offers

3.6.1   A *registered market participant* may not submit, for any *registered facility*, more than one *offer* to provide each class of operating reserve in any *dispatch hour*.

3.6.2   Each *offer* to provide *operating reserve* must contain at least 2 and may contain up to 5 *price-quantity pairs* for each class of *operating reserve* for each *dispatch hour*. The price in each such *price-quantity pair* shall be not more than the *Maximum Operating Reserve Price* or *MORP* and not less than zero and shall be expressed in dollars and whole cents per MW. The quantity in each such *price-quantity pair* shall:

3.6.2.1   in the case of a *registered facility* other than a *boundary entity*, be expressed in MW to one decimal place and shall not be less than 0.0 MW; or

3.6.2.2   in the case of a *registered facility* that is a *boundary entity*, be expressed in whole MW and shall not be less than 0 MW.

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

3.6.3   Each *offer* to provide *operating reserve* shall be accompanied by a corresponding *energy offer* or *energy bid* that covers the same MW range.

3.6.4   *Offers* to supply *operating reserve* shall be submitted in such form as may be specified by the *IESO*, which form shall require, at a minimum, provision of all of the information specified in Appendix 7.3, except where the *IESO* specifies an alternative means and/or an alternative simplified form pursuant to section 3.2.2.3.

3.7   Self-Scheduling Generators

3.7.1   A registered market participant for a self-scheduling generation facility shall submit dispatch data indicating the amount of energy that the registered market participant reasonably expects to be provided by that self-scheduling generation facility in each dispatch hour. Such dispatch data shall:

3.7.1.1   be submitted to the *IESO* in such form as may be specified by the *IESO*, including provision of the applicable information specified in Appendix 7.1; and

3.7.1.2   comply with section 3.4.4A.

3.7A   Self-Scheduling Electricity Storage

3.7A.1   A registered market participant for a self-scheduling electricity storage facility shall submit dispatch data indicating the amount of energy that the registered market participant reasonably expects to be injected by that self-scheduling electricity storage facility in each dispatch hour. Such dispatch data shall:

     3.7A.1.1   be submitted to the *IESO* in such form as may be specified by the *IESO*, including provision of the applicable information specified in Appendix 7.1; and

     3.7A.1.2   comply with section 3.4.4C

3.7A.2   Subject to section 1.7 defining when the day-ahead commitment process shall function, a *registered market participant* for a *registered facility* that is a *self-scheduling electricity storage facility* shall submit *dispatch data* after 6:00 EST but before 10:00 EST of the *pre-dispatch day* in accordance with section 3.7A.1.

3.7.2   A *registered market participant* for a self-scheduling *cogeneration facility* or self-scheduling *enhanced combined cycle facility* shall ensure its *facility* operates in accordance with its *dispatch data* within the tolerances for updating *dispatch data* outlined in section 3.3.8.

3.7.3   Subject to section 1.7 defining when the day-ahead commitment process shall function, a *registered market participant* for a *registered facility* that is a *self-scheduling generation facility* shall submit *dispatch data* after 6:00 EST but before 10:00 EST of the *pre-dispatch day* in accordance with section 3.7.1.

3.8   Intermittent Generators

3.8.1   A *registered market participant* for an *intermittent generator* shall submit *dispatch data* indicating its best forecast of the amount of *energy* that the *intermittent generator* will inject in each *dispatch hour*. Such *dispatch data* shall:

     3.8.1.1   be submitted to the *IESO* in such form as may be specified by the *IESO*, including provision of the applicable information specified in Appendix 7.1; and

3.8.1.2   comply with section 3.4.4A.

3.8.2   Subject to section 1.7 defining when the day-ahead commitment process shall function, a *registered market participant* for a *registered facility* that is an *intermittent generator* shall submit *dispatch data* after 6:00 EST but before 10:00 EST of the *pre-dispatch day* indicating its best forecast of the amount of energy that the *intermittent generator* will inject in each *dispatch hour* of the next *dispatch day* in accordance with section 3.8.1.

3.8A   Transitional Scheduling Generators

3.8A.1   A registered market participant for a registered facility that is a transitional scheduling generator shall submit dispatch data indicating its forecast of the amount of energy that the transitional scheduling generator will inject in each dispatch hour of the dispatch day. Such dispatch data shall be submitted to the IESO for the initial pre-dispatch schedule in accordance with section 3.3.1 and in such form as may be specified by the IESO.

3.8A.2   Subject to section 1.7 defining when the day-ahead commitment process shall function, a *registered market participant* for a *registered facility* that is a *transitional scheduling generator* shall submit *dispatch data* after 6:00 EST but before 10:00 EST of the *pre-dispatch day* indicating its forecast of the amount of *energy* that the *transitional scheduling generator* will inject in each *dispatch hour* of the next *dispatch day* in accordance with section 3.8A.1.

3.9   Transmission System Information

3.9.1   Each *transmitter* whose *transmission system* is part of the *IESO-controlled grid* shall provide the *IESO* with the *transmission system* information described in Appendix 7.4 in such form as the *IESO* may specify.

3.9.2   Each *transmitter* referred to in section 3.9.1 shall update the information described in Appendix 7.4 so that it is current at:

3.9.2.1   15:00 EST on the day which is two days prior to the relevant *dispatch day*;

3.9.2.2   05:00 EST on the *pre-dispatch day*;

3.9.2.3   10:00 EST on the *pre-dispatch day*; and

3.9.2.4   any time subsequent to 10:00 EST on the *pre-dispatch day* up to the beginning of the relevant *dispatch hour* if there is a material change in the information required by this section.

4. The Dispatch Algorithm

4.1 Purpose of the Dispatch Algorithm

4.1.1 The *IESO* shall determine the various schedules and prices required by this Chapter to be developed by it using a *dispatch algorithm* based on the mathematical techniques of constrained optimisation. The form and use of this *dispatch algorithm* are summarised in this section 4 and detailed in Appendix 7.5.

4.2 Uses of the Dispatch Algorithm

4.2.1 The *IESO* may use different numerical values in, or different computerised versions of, the *dispatch algorithm* for each of the several purposes described in this Chapter, but shall keep the objective, mathematical formulation and solution procedures the same, except as specifically noted.

4.2.2 The *IESO* shall, as far as practical, use the outputs of the *dispatch algorithm* to determine the *dispatch instructions* that guide actual physical operations of the *electricity system*. However, because any *dispatch algorithm* is only an approximation of a complex physical reality and may sometimes malfunction, the *IESO* may modify or override the results of the *dispatch algorithm* when issuing *dispatch instructions* pursuant to section 7.

4.2.3 The *IESO* shall no less than once in each calendar month, *publish* a report listing and giving reasons for all significant differences between *dispatch instructions* issued and the results of the *dispatch algorithm*.

4.2.4 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 *dispatch algorithm* 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 related *dispatch* processes and 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 May 1, 2004.

4.3 The Optimisation Objective

4.3.1 The *dispatch algorithm* shall have as its mathematical objective function maximising the economic gain from trade among *market participants* as defined in section 4.3.2.

4.3.2   The economic gain from trade shall be defined as the difference between the value of the electricity produced (as indicated by the *energy demand* from *non-dispatchable loads* and the *energy bids* from *dispatchable loads*) and the cost of producing that electricity (as indicated by the *offers* to supply the *energy* and *operating reserves* necessary to *reliably* deliver that electricity to loads).

4.3.3   Maximising the economic gain from trade will determine quantities and prices that "clear the market," in the sense that, given the market-clearing prices and the *dispatch data*, no *market participant* would be economically better off (in terms of the *dispatch data* it submitted itself) producing or withdrawing more or less than the market-clearing quantity of any *physical service*.

4.4   Inputs to the Dispatch Algorithm

4.4.1   The *IESO* shall use as inputs to the *dispatch algorithm* the data and information outlined in section 4.4 and described in more detail in Appendix 7.5.

4.4.1A   [Intentionally left blank]

4.4.2   The cost to suppliers of *energy* and *operating reserves* and the value to *dispatchable loads* of delivered electricity shall be based on the most recent valid *offers* and *bids* (including standing *dispatch data*) submitted by *registered market participants* with respect to *dispatchable generation facilities*, dispatchable *electricity storage facilities* and *dispatchable load facilities*.

4.4.3   Subject to section 4.4.3A, the price-insensitive load to be met shall be the sum of:

4.4.3.1   the net energy injections (injections minus withdrawals) by all non-dispatchable load facilities, self-scheduling generation facilities, *self-scheduling electricity storage facilities* and intermittent generators and transitional scheduling generators; and

4.4.3.2   any net amount by which the actual net injections (injections minus withdrawals) by all *dispatchable generation facilities*, dispatchable *electricity storage facilities* and *dispatchable load facilities* is less than the net amount implied by the *IESO's dispatch instructions* to such *facilities*.

4.4.3A   Until such time that locational pricing is implemented in the *IESO-administered markets*, the price-insensitive load to be met shall be determined solely on the basis of the net *energy* injections referred to in section 4.4.3.1.

4.4.4   Limits on *intertie* flows between the *integrated power system* and neighbouring *transmission systems* shall be based on:

4.4.4.1   a simple model that assumes that each *intertie meter* is *connected* to an isolated *intertie zone* by a single transmission line;

4.4.4.2   the *IESO's* best estimate of the maximum flow on the single transmission line to each *intertie zone*, given the status of the neighbouring *transmission systems* and expected or actual unscheduled flows (including as unscheduled flows any flows planned by the *IESO* to balance interchange accounts with other *control area operators*). Where the *IESO* has determined that transmission constraints on the *IESO-controlled grid* or on the single transmission line connected to an *intertie zone* limit the flows of *energy* from the *IESO-controlled grid* to or from an *intertie zone,* the *IESO's* best estimate of the maximum flow may include consideration of the amount of *energy* that can be moved or transferred reliably between that *intertie zone* and the *IESO-controlled grid;* and

4.4.4.3   a net *interchange schedule* limit to represent the *integrated power system's* ability to respond to hourly *interchange schedule* deviations and maintain the *reliability* of the *IESO-controlled grid*.

4.4.5   Constraints on the use of the *IESO-controlled grid* shall be determined on the basis of such system *security* requirements as the *IESO* may determine necessary to maintain *reliable* system operations, which requirements shall include, at a minimum, the following:

4.4.5.1   the largest applicable *contingency events* and any increments above these required to satisfy applicable *reliability standards*;

4.4.5.2   *security* constraints on identified *facilities*;

4.4.5.3   minimum requirements for each class of *operating reserve*;

4.4.5.4   the *IESO's* commitments to neighbouring *transmission systems* for *operating reserves* and *regulation*;

4.4.5.5   the availability and need for contracted *ancillary services* and *reliability must-run resources*; and

4.4.5.6   *reliability* constraints associated with *interchange schedules* as referred to in section 4.4.4.3.

4.4.6   The following basic parameters of the *dispatch algorithm* shall be as specified from time to time by the *IESO Board:*

4.4.6.1   the *maximum market clearing price* or *MMCP* that defines the
           maximum allowable price for *energy*, and the negative of which
           defines the minimum allowable price for *energy;*

4.4.6.1A   the *maximum operating reserve price* or *MORP* that defines the
           maximum allowable price for any class of *operating reserve*; and

4.4.6.2   the penalty functions for the violation of *dispatch algorithm*
           constraints.

If the output of the *dispatch algorithm* fails to satisfy *non-dispatchable demand* or
the *operating reserve requirements* for any class of *operating reserve* then,
subject to section 8.2.2, the penalty functions referred to in section 4.4.6.2 may
influence the calculation of *market prices* for *energy* and *operating reserve* in a
similar fashion to *offers* and *bids.*

4.4.7   *Interchange schedule data* shall be input as a constant value for the given
         dispatch hour unless otherwise specified by the *IESO* and shall be derived in
         accordance with the outputs of the *dispatch algorithm* for each *dispatch hour* as
         determined under section 4.6.

4.5   The Constrained and Unconstrained IESO-Controlled Grids

4.5.1   The *dispatch algorithm* shall be used to determine both operating schedules that
         reflect the realities of the *integrated power system* and uniform prices within the
         IESO control area that ignore *transmission system* constraints. Thus, the *dispatch
         algorithm* shall be capable of using the following two different models for the
         integrated power system:

4.5.1.1   an *unconstrained IESO-controlled grid model*, which, other than as set
           out in Section 4.4.4 of Chapter 7 and Section 7.5.1 of Appendix 7.5,
           ignores transmission and other *security* constraints on the *IESO-
           controlled grid* and assumes, in effect, that all *physical services* are
           provided and consumed at a single, undesignated location *connected* to
           several isolated *intertie zones* by single transmission lines; and

4.5.1.2   a *constrained IESO-controlled grid model*, which includes a full (but
           necessarily approximate) mathematical representation of the *integrated
           power system*, with *interconnections* modelled as single transmission
           lines to isolated *intertie zones* or as proportionately allocated to *intertie
           zones.*

4.6 Outputs of the Dispatch Algorithm

4.6.1 The *IESO* shall use the *dispatch algorithm* to determine the quantities and prices summarised in this section 4.6 and detailed in Appendix 7.5.

4.6.2 The *dispatch algorithm* shall be used with the *constrained IESO-controlled grid model* to determine, prior to each *dispatch hour* and to each *dispatch interval,* operating schedules and their associated costs and shadow prices. The principal outputs, for each *dispatch hour* or *dispatch interval,* as the case may be, shall be the following:

4.6.2.1 the amounts of *energy* (in MW or MWh/hour) and of each class of *operating reserve* (in MW) scheduled to be provided to the *integrated power system* by each *registered facility*;

4.6.2.2 the amounts of *energy* (in MW or MWh/hour) scheduled to be withdrawn from the *integrated power system* by each *registered facility*;

4.6.2.3 the deemed total cost, as defined by the prices in *offers*, of the total amounts of *energy* and *operating reserve* scheduled to be provided by *registered facilities*;

4.6.2.4 the deemed total cost, as defined by the prices in *energy bids*, the *MMCP* and the penalty functions in the *dispatch algorithm*, of any *dispatchable load* reductions, any failure to meet *non-dispatchable loads* and any constraint violations;

4.6.2.5 power flows and *energy* losses on transmission lines;

4.6.2.6 the prices of providing *energy* at each set of transmission nodes identified by the *IESO* for this purpose and, subject to section 4.6.2B, the prices of each class of *operating reserve* in each reserve area identified by the *IESO* for this purpose.

4.6.2A [Intentionally left blank]

4.6.2B Until the date that is the first day of the fourth calendar month following the *market commencement date,* calculated from the first day of the calendar month immediately following the month in which the *market commencement date* occurs, the prices of each class of *operating reserve* in each reserve area referred to in section 4.6.2.6 shall not be included as a principal output of the *dispatch algorithm*.

4.6.3   The *dispatch algorithm* shall be used with the *unconstrained IESO-controlled grid model* to determine, prior to each *dispatch hour* and at several times after each *dispatch interval*, *market schedules* and the corresponding uniform prices within the *IESO control area*. The principal outputs of this process are the following:

4.6.3.1   the *market schedule* indicating the amounts of *energy* (in MW or MWh/hour) and of each class of *operating reserve* (in MW) that would be provided to the *integrated power system* by each *registered facility* if transmission were totally unconstrained on the *IESO-controlled grid*;

4.6.3.2   the amounts of *energy* (in MW or MWh/hour) that would be withdrawn from the *integrated power system* by each *registered facility* if transmission were totally unconstrained on the *IESO-controlled grid;*

4.6.3.3   the deemed total cost, as defined by the prices in *offers*, of the total amounts of *energy* and *operating reserve* in the *market schedule*;

4.6.3.4   the deemed total cost, as defined by the prices in *energy bids*, the *MMCP* and the penalty functions in the *dispatch algorithm*, of any *dispatchable load* reductions, any failure to meet *non-dispatchable loads*, and any constraint violations that would occur if transmission were totally unconstrained on the *IESO-controlled grid*; and

4.6.3.5   the prices of providing *energy* and each class of *operating reserve* at any point within the *IESO control area* if transmission were totally unconstrained on the *IESO-controlled grid.* As provided in Chapter 9, the unconstrained prices for each *dispatch interval* shall be used for *settlement* purposes, except for *non-dispatchable loads*, who shall pay a uniform *hourly Ontario energy price* (HOEP) determined as described in section 8.3.1.

4.6.4   The *dispatch algorithm* shall be used with the constrained *IESO-controlled grid model* to determine, prior to each *dispatch hour*, *interchange schedules* and their associated costs. The *interchange schedule* for each *dispatch hour* shall be constant for the *dispatch hour* and used as inputs into the *dispatch algorithm* in accordance with section 4.4.

5.   The Pre-dispatch Scheduling Process

5.1   Purpose and Timing of Pre-dispatch Schedules

5.1.1   The *IESO* shall determine *pre-dispatch schedules* in order to provide itself and *market participants* with advance information and projections necessary to plan the physical operation of the *electricity system*.

5.1.2   The *IESO* shall determine an initial *pre-dispatch schedule* for the 24 *dispatch hour*s of each *dispatch day* no later than 16:00 EST on the *pre-dispatch day*.

5.1.3   The *IESO* shall prepare a revised *pre-dispatch schedule* for each *dispatch day* whenever the *IESO* determines that changed circumstances have made the previous *pre-dispatch schedule* materially incorrect. A revised *pre-dispatch schedule* shall be determined only for *dispatch hours* following the changes that make it necessary.

5.1.4   Each time the *IESO* determines a *pre-dispatch schedule*, it shall also determine the associated projected *market prices* for *energy* and *operating reserve* and the associated projected *market schedule*.

5.1.5   The *IESO* shall *publish* and release to *market participants* each *pre-dispatch schedule* as provided in section 5.5. The most recently *published pre-dispatch schedule* shall supersede all previous *pre-dispatch schedules* for the same *dispatch hours*.

5.2   Information Used to Determine Pre-dispatch Schedules

5.2.1   The *IESO* shall use the following information for determining and updating the *pre-dispatch schedule* in accordance with section 5.3, using in each case the most current valid information:

    5.2.1.1   *dispatch data* submitted by *registered market participants*;

    5.2.1.2   the IESO's own forecasts of non-dispatchable load, and of generation by intermittent generators, transitional scheduling generators and self-scheduling generation facilities with name-plate ratings of less than 10 MW and *self-scheduling electricity storage facilities* with an *electricity storage facility size* of less than 10 MW;

    5.2.1.3   the *transmission system* information provided by each *transmitter* pursuant to section 3.9;

5.2.1.4   the amount and location of *contracted ancillary services* under contract to the *IESO*;

5.2.1.5   the expected initial loading of each generator, *electricity storage facility* and *dispatchable load*, as determined based on the most current *pre-dispatch schedule* or, if applicable, *real-time schedule*; and

5.2.1.6   such other available information as the *IESO* determines appropriate including the *interchange schedule data* which are a result of the applicable *interchange schedule* protocol as defined in the applicable *market manual* and which may result in setting an upper limit for *energy* quantities scheduled in subsequent *pre-dispatch schedules*.

5.3   Determining the Pre-dispatch Schedule

5.3.1   The *IESO* shall use the information described in section 5.2 and the *dispatch algorithm* to determine a *pre-dispatch schedule* as follows:

5.3.1.1   the constrained *IESO-controlled grid* model shall be used;

5.3.1.2   the parameters defining the condition of the *integrated power system*, and any unscheduled flows between the *integrated power system* and neighbouring *control areas or* neighbouring *transmission systems*, shall be represented at their expected values in each *dispatch hour* of the *dispatch day*;

5.3.1.3   a *pre-dispatch schedule* shall be determined for each of the 24 *dispatch hours* of the *dispatch day* in sequence, with each *dispatch hour* assumed to be independent of the others except that the loading of each generator, *electricity storage facility* and *dispatchable load* for each *dispatch hour* shall be set equal to its value at the end of the preceding *dispatch hour*; and

5.3.1.4   for a *registered facility* that has specified a daily *energy* limit pursuant to section 3.5.7, hourly production amounts shall be cumulated until the first *dispatch hour* in which the *energy* limit is reached or exceeded, and the *energy* production of that *registered facility* shall be set to zero for all subsequent *dispatch hours* in that *dispatch day.*

5.3.2   If conditions or projections change materially during the *pre-dispatch day* or the *dispatch day*, the *IESO* shall use the *dispatch algorithm* with revised inputs reflecting the changes in conditions or projections to determine a revised *pre-dispatch schedule* for the remaining *dispatch hours* in the *dispatch day*.

5.4 Projected Market Schedules and Market Prices

5.4.1 Subject to section 5.4.2, the *IESO* shall, immediately after determining any *pre-dispatch schedule*, determine projected *market schedules* and projected *market prices* for each of the *dispatch hours* in that *pre-dispatch schedule*. For this purpose, the *IESO* shall use the same information and data used for determining the *pre-dispatch schedule* for those *dispatch hours*, except that:

5.4.1.1 the unconstrained *IESO-controlled grid* model shall be used;

5.4.1.2 the initial conditions to be used for any *dispatch hour* in the *market schedule* shall be the final conditions of the *market schedule* for the preceding *dispatch hour*;

5.4.1.3 the total demand (including losses) to be satisfied within a *dispatch hour* in the *market schedule* shall be the same as the total demand identified in the *pre-dispatch schedule* for that *dispatch hour*; and

5.4.1.4 total system *energy* losses determined in the *pre-dispatch schedule* shall be represented as an increase in *non-dispatchable load* within the *IESO control area.*

5.4.2 Where the transmission transfer capability of an interconnection is zero for a given dispatch hour by reason of the outage of that interconnection, the projected market prices for energy and operating reserve for the intertie zone associated with such interconnection shall be equal to the projected uniform market prices for energy and operating reserve for the IESO control area for that dispatch hour.

5.4.3 The *IESO* may use other available information for the purposes of determining *market schedules* including *interchange schedule data* which is the outcome of those protocols identified in section 5.2.1.6 which may result in the setting of an upper limit for *energy* quantities scheduled in subsequent *market schedules*.

5.5 Release of Pre-dispatch Schedule Information

5.5.1 The *IESO* shall release the initial *pre-dispatch schedule* and associated projections of *market schedules* and shall publish *market prices* by 16:00 EST of each *pre-dispatch day*, and shall release any revised *pre-dispatch schedules* and projections of *market schedules* and shall publish *market prices* as soon as practical after they are determined. The information to be released to *market participants* is described in this section 5.5.

5.5.2 For each registered facility that is a boundary entity, a dispatchable load facility, a dispatchable generation facility, a dispatchable *electricity storage facility*, or an

hourly demand response resource in respect of which a valid bid or offer for at least one dispatch hour of the applicable dispatch day has been submitted, the IESO shall release the following information only to the registered market participant for that registered facility:

5.5.2.1   the *pre-dispatch schedule* for that *registered facility*;

5.5.2.2   the projected market schedule for that *registered facility*; and

5.5.2.3   [Intentionally left blank]

5.5.2.4   any requirement of that *registered facility* to submit an *offer* or *bid* under a *reliability must-run contract* and the expected scheduled use of that *registered facility* under *contracted ancillary service* contracts.

5.5.3   The *IESO* shall release to all *market participants* the following information for each *dispatch hour*:

5.5.3.1   total system load and total system losses;

5.5.3.2   area *operating reserve* requirements;

5.5.3.3   [Intentionally left blank]

5.5.3.4   projected hourly *energy* shortfalls;

5.5.3.5   aggregate *reliability must-run resources* being directed to submit *offers* or *bids*;

5.5.3.6   any area *operating reserve* shortfalls;

5.5.3.7   a list of the network constraints and *security* constraints that affect the *pre-dispatch schedule*;

5.5.3.8   [Intentionally left blank – section deleted]

5.5.3.9   the projected uniform market prices of *energy* and *operating reserves* in the *IESO control area*; and

5.5.3.10   the projected market prices of energy and operating reserves in each intertie zone outside the *IESO control area*.

5.5.3A   Until the date that is the first day of the fourth calendar month following the *market commencement date*, calculated from the first day of the calendar month immediately following the month in which the *market commencement date*

occurs, the *IESO* shall not be required to release the prices of each class of *operating reserve* referred to in section 5.5.3B.2.

5.5.3B   Where the *IESO* determines and releases a *pre-dispatch schedule*, the *IESO* shall include in such *pre-dispatch schedule*, for information purposes only:

    5.5.3B.1   the projected *energy prices* at each set of transmission nodes identified by the *IESO* for this purpose; and

    5.5.3B.2   subject to section 5.5.3A, the projected prices of each class of *operating reserve* in each reserve area identified by the *IESO* for this purpose,

for the *dispatch hour* immediately following the hour in which such *pre-dispatch schedule* is determined and released.

5.5.4   If the *IESO* determines that release of specific types of information in the *pre-dispatch schedule* may facilitate anti-competitive behaviour, the *IESO* may limit the release of such information through an *urgent amendment* to these *market rules*. The *IESO* shall advise the *market surveillance panel* of the matter. The *IESO Board* may request the advice of the *market surveillance panel* of the need or otherwise for the *urgent amendment* to remain in effect.

5.6   [Intentionally left blank – section deleted]

5.6.1   [Intentionally left blank – section deleted]

5.6.2   [Intentionally left blank – section deleted]

5.7   Pre-Dispatch Scheduling of Generation Facilities Eligible for the Generation Cost Guarantee

5.7.1   A *generation facility* shall be eligible on a voluntary basis for the generation cost guarantee on a *per-start* basis for a given *dispatch hour*, provided that:

    5.7.1.1   the criteria specified in section 2.2B have been met:

    5.7.1.2   subject to section 5.7.2, the *offer* price in the submitted *price-quantity pair* corresponding to the *minimum loading point* for that *generation facility* for all hours of the *minimum generation block run-time* must be the same until after the *IESO* has constrained on the *generation facility* as specified in section 6.3A.2;

5.7.1.3   the *generation facility* is scheduled in any *pre-dispatch schedule* determined within 3 hours ahead of the *dispatch hour:*

a.   for the *dispatch hour*; and

b.   for at least half of *minimum generation block run-time*, rounded up, at *minimum loading point* or higher, during the period from *dispatch hour* until the earlier of:

- the end of the period representing *minimum generation block run-time*; or

- the end of the period representing *minimum run-time*;

Any schedule resulting from either a constraint associated with a day-ahead commitment or a manual constraint applied by the *IESO* at the *generator's* request shall be excluded from the eligibility test in this section 5.7.1.3;

5.7.1.4   the *registered market participant* for the *generation facility* does not increase the *offer* prices in its submitted *price-quantity pairs* corresponding to the *generation facility's minimum loading point* for the *minimum generation block run-time* after notifying the *IESO* of its intention to synchronize under section 5.7.1.6 or after the *IESO* has applied a manual constraint under section 6.3A.4;

5.7.1.5   the *generation facility* is not already synchronized at the time of the publication of the applicable *pre-dispatch schedule* referred to in section 5.7.1.3;

5.7.1.6   the *registered market participant* for the *generation facility* notifies the *IESO* of its intention to synchronize and then run for at least the *minimum generation block run-time* in accordance with applicable *market manual*; and

5.7.1.7   at the time of notification of intention to synchronize made in accordance with section 5.7.1.4, the *registered market participant* for the *generation facility* also notifies the *IESO* of its intention to qualify for the generation cost guarantee.

5.7.2   The *offer* price corresponding to *minimum loading point* in the *minimum generation block run-time* hours which contain a constraint associated with a day-ahead commitment will be excluded from the eligibility test in section 5.7.1.2.

5.8   The Day-Ahead Commitment Scheduling Process

5.8.1   Starting from 10:00 EST the *IESO* may in accordance with Appendix 7.5A determine the *schedule of record*.

5.8.2   Where the *IESO* determines the *schedule of record* in accordance with Section 5.8.1, it will be released by the *IESO* no later than 15:00 EST in accordance with the applicable *market manual*.

5.8.3   [Intentionally left blank – section deleted]

5.8.4   A *registered market participant* whose *facility* is eligible under section 2.2C for the day-ahead production cost guarantee and whose *facility* is included in the *schedule of record* is deemed to have accepted the guarantee for its *facility*.

5.8.5   Subject to sections 5.8.4 and 5.8.6, the *IESO* shall ensure that the scheduled output for a *facility* will meet or exceed its *minimum loading point* for all hours that it was included in the *schedule of record* in future iterations of the *pre-dispatch schedule* and in the *real-time schedule*.

5.8.6   The *IESO* may, to maintain the reliable operation of the *IESO-controlled grid*, require a *generation facility* that was included in the *schedule of record* to either de-synchronize from the *IESO-controlled grid* or to not synchronize to the *IESO-controlled grid*.

5.8.7   When determining the *schedule of record* applicable to the first hour of the next *dispatch day*, the *IESO* may disregard the net *intertie* scheduling limit.

5.8.8   [Intentionally left blank – section deleted]

6.   The Real-Time Scheduling Process

6.1   Purpose and Timing of Real-Time Schedules

6.1.1   The *IESO* shall determine *real-time schedules* and use these as the primary determinant of the *dispatch instructions* the *IESO* issues to *market participants* regarding physical operation of *registered facilities* other than *boundary entities*.

6.1.2   The *IESO* shall determine, for *registered facilities* other than *boundary entities*, a *real-time schedule* for every *dispatch interval* two minutes before the *dispatch interval* to which it applies.

6.1.3   The *IESO* shall determine, for *registered facilities* that are *boundary entities*, a *real-time schedule* consisting of an *interchange schedule* for each *dispatch hour* using the outcome of the *pre-dispatch schedule* determined as at the preceding *dispatch hour* and modified as required by the *IESO*.

6.2   Information Used to Determine Real-Time Schedules

6.2.1   The *IESO* shall determine each *real-time schedule* in accordance with section 6.3 using the same type of information used for determining *pre-dispatch schedules* as described in section 5.2, updated to reflect the most recent valid *dispatch data* submitted by *registered market participants*, real-time system measurements, and the most recent projections of forecast data and other information pertaining to the *electricity system* which relates to future periods of time, as are available to the *IESO*.

6.3   Determining the Real-Time Schedule

6.3.1   The *IESO* shall use the information described in section 6.2 and the *dispatch algorithm* to determine a *real-time schedule* for each *dispatch interval* as follows:

6.3.1.1   the constrained *IESO-controlled grid* model shall be used;

6.3.1.2   *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;

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

6.3.1.4   the output level of each generator, and each *electricity storage facility*, and the withdrawal levels of each *dispatchable load, non-dispatchable load,* and *electricity storage facility* at the beginning of the *dispatch interval* shall be set at the *IESO's* best estimate of their actual values, as determined from real-time system data or the *real-time schedule* for the preceding *dispatch interval*; and

6.3.1.5   no daily *energy* limit specified for a *registered facility* pursuant to section 3.5.7 shall be taken into account in determining *real-time schedules*.

6.3A Real-Time Scheduling of Generation Facilities Eligible for the Generation Cost Guarantee

6.3A.1 After the *registered market participant* for a *generation facility* eligible for the generation cost guarantee notifies the *IESO* of its intent to synchronize pursuant to section 5.7 of Chapter 7, that *generation facility* shall synchronize, unless otherwise agreed to by the *IESO*, before the end of the specified *dispatch hour* and, subject to section 6.3A.3, run until the end of the *minimum generation block run-time*.

6.3A.2 The *IESO* shall, unless there is an adverse impact on the *reliable* operation of the *IESO-controlled grid*, if necessary to respect the *minimum generation block run-time* submitted by the *market participant* for the *generation facility*, constrain on the *facility* at its *minimum loading point* for the specified *minimum generation block run-time*.

6.3A.3 If the *IESO*, for reasons of *reliability*, constrains off the *generation facility* such that the *generation facility* has to de-synchronize before the end of its *minimum generation block run-time*, the *generation facility* shall remain eligible for the generation cost guarantee.

6.3A.4 In consultation with the *registered market participant*, the *IESO* may, for *reliability* reasons, during the time period from the release of the *pre-dispatch schedule* until the *dispatch hour*, manually apply a constraint to a *generation facility* that submitted *offers* into the *pre-dispatch schedule* to ensure that the output from that *generation facility* is scheduled for at least its *minimum generation block run time*. If the *IESO* applies that manual constraint, the *generator* will be deemed to have accepted the generation cost guarantee provided that:

- the criteria specified in sections 5.7.1.1 and 5.7.1.4 are satisfied; and

- the *generation facility* is not synchronized at the time the manual constraint is applied.

6.3B Real-Time Scheduling of Generation Facilities Eligible for the Day-Ahead Production Cost Guarantee

6.3B.1 If the *IESO*, for reasons of reliability, requires a *generation facility* that was eligible for the day-ahead production cost guarantee under section 2.2C to either de-synchronize from the *IESO-controlled grid* or to not synchronize to the *IESO-controlled grid* such that the *generation facility* does not comply with its *schedule*

of record, the *generation facility* shall remain eligible for the day-ahead production cost guarantee. The *registered market participant* for the *generation facility* may also apply to the *IESO* for additional compensation under section 4.7E.1 of Chapter 9.

6.3B.2   If a *generation facility* that was eligible for the day-ahead production cost guarantee under section 2.2C does not close its breaker by the start of the first interval of the first hour of its *schedule of record* due to reasons not specified in sections 6.3B.1or 6.3B.3 then the *generation facility* shall not remain eligible for the day-ahead production cost guarantee associated with that start determined in accordance with section 5.8 nor shall the *registered market participant* for the *generation facility* be eligible to apply to the *IESO* for additional compensation under section 4.7E.1 of Chapter 9.

6.3B.3   If a *generation facility* that was eligible for the day-ahead production cost guarantee under section 2.2C does not comply with its *schedule of record* due to reasons specified in section 1.2.3 of Chapter 5 then the *facility* shall remain eligible for a pro-rated day-ahead production cost guarantee determined in accordance with section 4.7D of Chapter 9.

6.3B.4   If the *registered market participant* for a *generation facility* that was eligible for the day-ahead production cost guarantee under section 2.2C does not comply with its *schedule of record* by withdrawing the *dispatch data* for the *generation facility* the *facility* may not remain eligible for a day-ahead production cost guarantee and may be subject to a withdrawal charge as determined in accordance with section 3.8F of Chapter 9.

6.4   Market Schedules and Market Prices

6.4.1   Subject to section 8.4A the *IESO* shall, within five minutes after the end of each *dispatch interval*, use the *dispatch algorithm* to determine a *market schedule* and *market prices* for that *dispatch interval* based on the most recent *real-time schedule* for such *dispatch interval*.

6.4.2   Subject to section 8.4A for the purpose of determining the *market schedule* and *market prices* for any *dispatch interval*, the *IESO* shall use the same information and data used for determining the *real-time schedule* for that *dispatch interval,* except that:

6.4.2.1   the unconstrained *IESO-controlled grid* model shall be used;

6.4.2.2   subject to section 3.1.2 of Appendix 7.5, the initial conditions to be used for any *dispatch interval* in the *market schedule* shall be the final conditions of the *market schedule* for the preceding *dispatch interval*;

6.4.2.3   the total demand (including losses) to be satisfied within a *dispatch interval* in the *market schedule* shall be set at the *IESO's* best estimate of its actual value, as determined from real-time system data;

6.4.2.4   total system *energy* losses determined in the *real-time schedule* shall be represented as an increase in *non-dispatchable load* within the *IESO control area*;

6.4.2.5   any *registered facility* in respect of which a *forced outage* has been detected during a *dispatch interval* shall be recognized by an adjustment to the input data;

6.4.2.6   subject to section 6.4.2A, the estimated deviations between scheduled quantities and actual quantities shall be represented as a change in *non-dispatchable load* in the *IESO control area*;

6.4.2.7   subject to section 6.4.2A, the *market schedule* shall reflect dispatch adjustments computed using scheduled injections from the *constrained schedule*, outlined in Appendix 7.5;

6.4.2.8   in accordance with section 4.13.1 of Appendix 7.5, the *market schedule* may use different trading period length to that of the *real-time schedule*;

6.4.2.9   in accordance with section 2.11.2 of Appendix 7.5, the *market schedule* may use a different ramp rate for *operating reserve* to that of the *real-time schedule;*

6.4.2.9A   for a *variable generator* that is a *registered market participant,* if the *registered facility* is issued a *dispatch instruction* by the *IESO* in accordance with section 7.1*,* the quantity of *energy* scheduled for injection in the *market schedule* for the applicable *dispatch intervals* shall be limited to reflect the least of the maximum MW *energy* level associated with *energy offers* submitted for the *registered facility,* the *registered facility's* full capacity less submitted *outages, and the* forecast of *energy* produced by the *forecasting entity* for the *registered facility*; and

6.4.2.9B   for a *variable generator* that is a *registered market participant,* if the *registered facility* is issued a *release notification* by the *IESO* in accordance with section 7.1, which remains in effect for any *dispatch interval*, the quantity of *energy* scheduled for injection in the *market schedule* for the applicable *dispatch intervals* shall be limited to reflect the least of the maximum MW *energy* level associated with *energy*

offers submitted for the *registered facility*, the *registered facility's* full capacity less submitted *outages*, and the instantaneous *energy* output of the *registered facility,* as represented by its *operating result* for that *facility,* recorded at the end of each applicable *dispatch interval* as referred to in this section.

6.4.2A   Until such time that locational pricing is implemented in the *IESO-administered markets*, in determining the *market schedule* and *market prices* for any *dispatch interval,* the *IESO* shall not have regard to the estimated deviations referred to in section 6.4.2.6 or to the dispatch adjustments referred to in section 6.4.2.7.

6.4.3   The *IESO* shall determine for *registered facilities* that are *boundary entities* a *market schedule* for each *dispatch hour* using the outcome of the projected *market schedule* determined as at the preceding *dispatch ho*ur and modified as required by the *IESO.*

6.5   Publication of Real-Time Schedule Information

6.5.1   For each *registered facility* that is a *dispatchable load facility* or a *dispatchable generation facility* in respect of which a valid *bid* or *offer* has been submitted for the applicable *dispatch hour*, the *IESO* shall, as soon as practical but no later than the start of the *dispatch interval* to which it relates, release the following information for each such *registered facility* only to the *registered market participant* for that *registered facility*:

6.5.1.1   the real-time schedule for that *registered facility*; and

6.5.1.2   [Intentionally left blank]

6.5.1.3   the scheduled use of that *registered facility* under *contracted ancillary service* contracts.

6.5.1.4   [Intentionally left blank]

6.5.1A   Subject to section 8.4A, for each *registered facility* that is a *dispatchable load facility* or a *dispatchable generation facility* in respect of which a valid *bid* or *offer* has been submitted for the applicable *dispatch hour*, the *IESO* shall, within one hour after each *dispatch hour*, release to each *registered market participant* the *market schedule* for their *registered facilities* for each *dispatch interval* of that *dispatch hour.*

6.5.2   Subject to section 8.4A the *IESO* shall, in the five minute period after the end of each *dispatch interval*, release to all *market participants* the uniform *market prices* of *energy* and *operating reserves* related to that *dispatch interval*.

6.5.3   The *IESO* shall, within one hour after each *dispatch hour,* release to all *market participants* the following information for each *dispatch interval* of that *dispatch hour*:

6.5.3.1   total system load and total system losses;

6.5.3.2   area *operating reserve* requirements;

6.5.3.3   for information purposes only, *energy* prices at each set of transmission nodes identified by the *IESO* for this purpose, decomposed as far as practical into an *energy* component, a loss component and a component for all other transmission and system constraints and, subject to section 6.5.3A, the prices of each class of *operating reserve* in each reserve area identified by the *IESO* for this purpose;

6.5.3.4   [Intentionally left blank]

6.5.3.5   [Intentionally left blank]

6.5.3.6   any area *operating reserve* shortfalls; and

6.5.3.7   a list of network and *security* constraints that affected the *real-time schedule*.

6.5.3A   Until the date that is the first day of the fourth calendar month following the *market commencement date*, calculated from the first day of the calendar month immediately following the month in which the *market commencement date* occurs, the *IESO* shall not be required to release the prices of each class of *operating reserve* referred to in section 6.5.3.3.

6.5.4   Subject to section 8.4A, for each *registered facility* that is a *boundary entity* in respect of which the *dispatch instructions* for a given *dispatch hour* provides for the *dispatch* of more than 0 MW or for a reduction to 0 MW relative to the previous *dispatch hour*, the *IESO* shall*,* as soon as practical and consistent with relevant *reliability standards,* but no later than the start of the *dispatch hour* to which it relates, release the following information for each such *registered facility* only to the *registered market participant* for that *registered facility:*

6.5.4.1   the interchange schedule for that *registered facility*;

6.5.4.2   [Intentionally left blank]

6.5.4.3   any request of that *registered facility* to submit an offer or bid under a *reliability must-run contract* and the scheduled use of that *registered facility* under contracted *ancillary service* contracts; and

6.5.4.4   the projected market schedule for that *registered facility*.

7.   IESO Dispatch Instructions

7.1   Purpose and Timing of Dispatch Instructions

7.1.1   The *IESO* shall determine *dispatch instructions* for each *registered facility* as described in this section 7, as the primary means of co-ordinating the real-time operation of the *electricity system*.

7.1.1A   The *IESO* shall only issue *dispatch instructions* for a *physical service* to a *registered facility* other than a *boundary entity* for a given *dispatch interval* when there is a change in the quantity of a *physical service* to be scheduled from that *registered facility* during that *dispatch interval* relative to the last *dispatch instruction* issued to the *registered facility* and with which the *registered market participant* has confirmed compliance in accordance with section 7.1.2 and 7.1.2A.

7.1.1B   Where the *IESO*:

7.1.1B.1   is not required to issue a *dispatch instruction* at a *registered facility* other than a *boundary entity* for a given *dispatch interval* by virtue of section 7.1.1A; or

7.1.1B.2   for any reason fails to issue a dispatch instruction to a *registered facility* other than a *boundary entity* for a given *dispatch interval*,

subject to section 7.1.1B1, the last *dispatch instruction* issued to the *registered facility* and with which the *registered market participant* has confirmed compliance in accordance with sections 7.1.2 and 7.1.2A shall, for all purposes under these *market rules* but subject to section 7.1.4 and 7.4.3, be deemed to be the *dispatch instruction* issued for that *dispatch interval* for that *registered facility*.

7.1.1B1   For a *variable generator* that is a *registered market participant*, section 7.1.1B shall apply until the *registered facility* is issued a *release notification*.

7.1.1C   Notwithstanding the identification of a portion of the consumption at a *registered facility* under section 3.3.18 as *non-dispatchable load,* the *IESO* shall issue *dispatch instructions* in accordance with the applicable *market manual* to that *registered facility* including that portion that has been identified pursuant to section 3.3.18 as *non-dispatchable load*.

7.1.2   Subject to section 7.1.1A, the *IESO* shall issue *dispatch instructions* for each *registered facility*, other than a *boundary entity*, for which a *dispatch instruction* is required no later than the start of each *dispatch interval* or, where section 7.1.4 or 7.4.3 applies, within a *dispatch interval*. The *IESO* shall:

       7.1.2.1   [Intentionally left blank]

       7.1.2.2   issue such *dispatch instructions* using the systems and protocols defined in the applicable *market manual*; and

       7.1.2.3   record and time-stamp all such *dispatch instructions*, store such records for at least seven years and make such records available for purposes of audit and dispute resolution in accordance with these *market rules*.

7.1.2A   Each registered market participant shall:

       7.1.2A.1   acknowledge receipt of; and

       7.1.2A.2   confirm its intention to comply or not to comply with,

       each *dispatch instruction* issued to it in accordance with section 7.1.2 in respect of each of its *registered facilities*, other than a *boundary entity*, using the systems and protocols defined in the applicable *market manual* and within the time required by such *market manual*.

7.1.2A1   The *IESO* shall issue a *release notification* to a *variable generator* that is a *registered market participant* if the *registered facility* is not required to be at or below forecasted output. Each *variable generator* shall acknowledge receipt of each *release notification* using the systems and protocols defined in the applicable *market manual* and within the time required by such *market manual*.

7.1.2B   Confirmation by a *registered market participant* of its intention not to comply with a *dispatch instruction* pursuant to section 7.1.2A shall constitute non-compliance with the *dispatch instruction* by the *registered market participant* for all purposes under these *market rules*, including but not limited to section 7.5.

7.1.2C   Where a *registered market participant* has for a *registered facility* that is a *dispatchable load* identified pursuant to section 3.3.18 all or a portion of that *registered facility's* consumption as *non-dispatchable load* and the *IESO* has issued a *dispatch instruction* requiring a reduction of such non-dispatchable consumption pursuant to section 7.1.1C, the *registered market participant* shall confirm its intention not to comply with each such *dispatch instruction* in accordance with section 7.1.2A and the applicable *market manual*.

7.1.2D   Confirmation by a *registered market participant* of its intention not to comply with a *dispatch instruction* pursuant to section 7.1.2C shall not constitute non-compliance with the *dispatch instruction* by the *registered market participant* for all purposes under these *market rules*, including but not limited to section 7.5.

7.1.3   The *IESO* shall issue *dispatch instructions*, in the form of *interchange schedules*, for each *registered facility* that is a *boundary entity*, for which a *dispatch instruction* is required prior to each *dispatch hour*. The *IESO* shall:

7.1.3.1   [Intentionally left blank]

7.1.3.2   issue such *dispatch instructions* using the systems and protocols defined in the applicable *market manual*; and

7.1.3.3   record and time-stamp all such *dispatch instructions,* store such records for at least seven years and make such records available for purposes of audit and dispute resolution in accordance with these *market rules*.

7.1.3A   Each *registered market participant* shall acknowledge receipt of each *dispatch instruction* issued in accordance with section 7.1.3 in respect of each of its *registered facilities* that is a *boundary entity* using the systems and protocols defined in the applicable *market manual* and within the time required by such *market manual*.

7.1.3B   [Intentionally left blank – section deleted]

7.1.3B.1   [Intentionally left blank – section deleted]

7.1.3B.2   [Intentionally left blank – section deleted]

7.1.3C   [Intentionally left blank – section deleted]

7.1.4   The *IESO* may issue *dispatch instructions* within the *dispatch interval*, instructing any *registered facility* with a valid *energy offer* or *bid*, to increase or decrease *energy* production or consumption as specified in its *offers* or *bids* for *energy*.

When a *dispatch instruction* is issued within a *dispatch interval* pursuant to this section 7.1.4, the last *dispatch instruction* for *energy* or each class of *operating reserve,* as the case may be, shall be the sole *dispatch instruction* used for *settlement* purposes for that *dispatch interval.*

7.1.5 Where a *contingency event* is occurring or has occurred, the *IESO* may temporarily cease issuing *dispatch instructions* in the manner otherwise required by section 7.1.2. In such cases, *registered market participants* shall comply with section 7.3.3 or 7.4.3, as the case may be.

7.1.6 The *IESO* shall, on a best efforts basis, determine and issue *dispatch* advisories for each *registered dispatchable facility*, for information purposes only. *Dispatch* advisories are determined and issued every 5 minutes to each *registered dispatchable facility* to provide an indication of potential future *dispatch instructions* and *operating reserve* schedules.

7.2 Information Used to Determine Dispatch Instructions

7.2.1 The *IESO* shall use its best endeavours to ensure that the *dispatch instructions* issued with respect to each *registered facility*, that is not a *boundary entity*, for each *dispatch interval* closely approximate the most recent *real-time schedule* for that *registered facility* and *dispatch interval*. The *IESO* may, however, issue *dispatch instructions* that depart from the *real-time schedule* if:

7.2.1.1 the *security* and *adequacy* of the system would be endangered by implementing the most recent *real-time schedule*;

7.2.1.2 the *dispatch algorithm* has failed, or has produced a *real-time schedule* that is clearly and materially in error;

7.2.1.3 material changes subsequent to determination of the most recent *real-time schedule*, such as failure of an element of a *transmission system* or failure of a *registered facility* to follow *dispatch instructions*, have occurred; or

7.2.1.4 the operation of all or part of the *IESO-administered markets* has been suspended pursuant to section 13.

7.2.2 If the *IESO* anticipates that an over-generation or an under-generation condition may occur, it shall issue advisory notices in accordance with section 12.1 but shall continue using the procedures described in sections 5 and 6 to determine *pre-dispatch schedules*, *real-time schedules* and the associated projected and *market prices* and *market schedules*.

7.2.3   If the *IESO* determines prior to issuing *dispatch instructions* that the market responses to the projected or *market prices* will be sufficient to eliminate the over-generation or under-generation condition, the *IESO* shall take no *emergency* action and shall issue advisory notices so indicating.

7.2.4   If the *IESO* determines prior to issuing *dispatch instructions* that market responses will not eliminate the over-generation or under-generation condition, it shall declare an *emergency operating state* to resolve the conditions in accordance with section 7.7.

7.2.5   The *IESO* shall use its best endeavours to ensure that the *dispatch instructions* issued with respect to each *registered facility*, that is a *boundary entity*, for each *dispatch hour* reflect the *pre-dispatch schedule* for that *dispatch hour* as determined in accordance with section 6.1.3 of Chapter 7. The *IESO* may, however, issue *dispatch instructions* that depart from the *pre-dispatch schedule* if:

      7.2.5.1   the *security* and *adequacy* of the system would be endangered by implementing the *pre-dispatch schedule*;

      7.2.5.2   the *dispatch algorithm* has failed, or has produced a *pre-dispatch schedule* that is clearly and materially in error;

      7.2.5.3   material changes subsequent to determination of the *pre-dispatch schedule*, such as failure of an element of a *transmission system* or failure of a *registered facility* to follow *dispatch instructions*, have occurred; or

      7.2.5.4   the operation of all or part of the *IESO-administered markets* has been suspended pursuant to section 13; or

      7.2.5.5   an external *control area operator* calls a *called capacity export* in accordance with section 20.

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 *registered facility* that is a not a *boundary entity* 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; 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 same which derives from the application of these *market rules*.

7.3.2   The dispatch instructions for any registered facility that is not a boundary entity shall:

7.3.2.1   be consistent with the current operating status of that *registered facility* and with any operational constraints described in the most recent *dispatch data* submitted by the *registered market participant* for that *registered facility*;

7.3.2.2   be used by the *IESO* for the purpose of declaring the *registered facility* as non-conforming in accordance with section 7.5.4; and

7.3.2.3   subject to Appendix 7.6, be used in the *IESO settlement process* for determining any *settlement amounts* for congestion management pursuant to section 3.5 of Chapter 9.

7.3.3   [Intentionally left blank – section deleted]

7.3.4   The IESO shall issue dispatch instructions for each dispatch hour to each registered facility that is a boundary entity, indicating for that dispatch hour:

7.3.4.1   the rate at which *energy* is to be injected into or withdrawn from the *IESO-controlled grid* (in minutes) from the specified *intertie zone*, which rate shall be consistent with all relevant *reliability standards*;

7.3.4.2   the amount of each class of *operating reserve* that is scheduled and the ramp rates associated with the *energy* if called on; and

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

7.3.5   The dispatch instructions for any registered facility that is a boundary entity shall:

7.3.5.1   be consistent with the current *dispatch data* for that *registered facility* and with any *interconnection* limitations associated with the *registered facility*; and

7.3.5.2   be used in the *IESO settlement process* for determining any *settlement amounts* for congestion management pursuant to section 3.5 of Chapter 9.

7.3.6   [Intentionally left blank – section deleted]

7.4   IESO Dispatch of Operating Reserve

7.4.1   The *IESO* shall:

7.4.1.1   subject to section 7.1.1A, issue to each *registered facility*, other than a *boundary entity*, which has made an *offer* for the delivery of *operating reserve* for a particular *dispatch hour*, *dispatch instructions* for each *dispatch interval* consistent with the results of the *dispatch algorithm* and the procedures detailed in sections 6.2 to 6.4, instructing the *registered market participant* responsible for that *registered facility* as to the quantity of *operating reserve* that is to be provided by that *registered facility* in that *dispatch interval*; and

7.4.1.2   issue to each *registered facility,* that is a *boundary entity,* which has made an *offer* for the delivery of *operating reserve* for a particular *dispatch hour*, *dispatch instructions* for that *dispatch hour* consistent with the results of the *dispatch algorithm* and the procedures detailed in sections 6.1 to 6.4, instructing the *registered market participant* responsible for that *registered facility* as to the quantity of *operating reserve* to be provided by that *registered facility* in that *dispatch hour*.

7.4.2   Each *registered facility* to which section 7.4.1 applies shall maintain unused *generation capacity, electricity storage capacity,* or load reduction capacity during that *dispatch interval*, consistent with the *dispatch instructions* issued to it under these *market rules*, so as to be able to increase *energy* production or reduce *energy* withdrawal as soon as possible upon being instructed to do so by the *IESO* pursuant to section 7.4.3.

7.4.2.1   A *market participant* shall be subject to non-accessibility charges if it fails to maintain unused *generation capacity, electricity storage capacity,* or load reduction capacity equal to or greater than its total amount of scheduled *operating reserve* during any *interval* in which it is scheduled to provide *operating reserve* but is not *dispatched* to increase *energy generation* or reduce energy withdrawal pursuant to

section 7.4.3. The *market participant* may also be subject to compliance actions in accordance with section 6 of Chapter 3.

7.4.3   Where a *contingency event* has occurred or is occurring, the *IESO* may issue *dispatch instructions* within the *dispatch interval*, instructing a *registered facility*, other than a *boundary entity*, providing *operating reserve* to begin increasing *energy* production or reducing *energy* withdrawal as specified in its *offers* of *operating reserve*. *Dispatch instructions* issued in respect of a *registered facility* that is a *boundary entity* providing *operating reserve* shall be such as to ensure that the *energy* associated with each *offer* of *operating reserve* is scheduled by the *IESO* in a manner consistent with all relevant *reliability standards* for activation of *operating reserve* and as agreed upon by the entity scheduling the resulting *energy* transfer.

7.4.4   The *IESO* shall, when *dispatching registered facilities* providing *operating reserve* to produce *energy* pursuant to section 7.4.3, call first on the *registered facility* in each area that has offered the lowest price (in $/MWh) for *energy* produced from scheduled *operating reserve* in that area. If such *registered facility* is instructed to produce *energy* but does not do so as rapidly as instructed, or if the *IESO* needs additional *energy* from *operating reserve* in that area, the *IESO* shall call upon the *registered facility* offering the next-lowest price for *energy* from *operating reserve*. If the *IESO* determines that calling upon *registered facilities* in strict order of increasing price of *energy* would mean that it would be unable to respond in a timely fashion to a contingency for which the *IESO* would issue a *dispatch instruction* pursuant to section 7.4.3, the *IESO* may call upon *registered facilities* out of such strict order but shall as far as is practical call *registered facilities* to reflect the intent of this section 7.4.4.

7.4.5   When *operating reserves* are activated as a result of a *contingency event*, the otherwise applicable *ten-minute operating reserve* requirements shall be reduced by a corresponding amount and shall subsequently be recovered to pre-contingency levels in a manner consistent with sections 4.5.10 and 4.5.21 of Chapter 5.

7.4.6   A *registered facility* that failed to maintain unused *generation* (or load reduction) *capacity* equal to or greater than their total amount of scheduled *operating reserve* is not entitled to any inappropriate congestion management *settlement* credits determined in accordance with section 3.5.2 of Chapter 9. The *IESO* may withhold or recover such congestion management *settlement* credits and shall redistribute any recovered payments in accordance with section 4.8.2 of Chapter 9.

7.5   Compliance with Dispatch Instructions

7.5.1   Each *registered market participant* shall ensure that each of its *registered facilities* complies with *dispatch instructions* issued to it under these *market rules*. Without limiting the generality of section 6.2 of Chapter 3, non-compliance with *dispatch instructions* other than for the reasons referred to in section 7.5.3 shall be a breach of the *market rules* and may be sanctioned in accordance with section 6.2 of Chapter 3 and with this section 7.5.

7.5.2   A *registered market participant* that expects its *registered facility*, other than a *boundary entity*, to operate in a manner that, for any reason, differs materially from the *dispatch instructions* issued to it in accordance with these *market rules* shall so notify the *IESO* as soon as possible. The *IESO* shall issue guidelines defining when a difference is material and how notice shall be provided for the purposes of this section 7.5.2 and of section 7.5.3.

7.5.3   Compliance with a *dispatch instruction* for a *registered facility* other than a *boundary entity* is not required if such compliance would endanger the safety of any person, damage equipment, or violate any *applicable law*. A *market participant* that departs from *dispatch instructions* for any such reason shall so notify the *IESO* in accordance with section 7.5.2.

7.5.4   If failure by a *registered facility*, other than a *boundary entity*, to comply with a *dispatch instruction* endangers *electricity system reliability*, the *IESO* shall declare the *registered facility* to be non-conforming and shall take any actions allowed by sections 7.5.5 to 7.5.7 or any other provisions of these *market rules* which the *IESO* determines appropriate.

7.5.4A   [Intentionally left blank – section deleted]

7.5.5   Subject to section 7.5.5A, if a *registered facility* other than a *boundary entity* produces or withdraws more or less *energy* in a *dispatch interval* than implied by a valid *dispatch instruction* issued by the *IESO*, the *IESO* shall, for pricing and *settlement* purposes:

7.5.5.1   treat the difference in *energy* production or withdrawal as a change in *non-dispatchable load* at its location , in accordance with sections 4.4.3.2, and 6.4.2.6; and

7.5.5.2   use any trade-off curves between *energy* and *operating reserves* in the *dispatch data* for that *registered facility* to determine an appropriate adjustment in the quantity of *operating reserve* of each class supplied by the *registered facility*.

7.5.5A   Section 7.5.5 shall not apply until such time that locational pricing is implemented in the *IESO-administered markets*.

7.5.6   If the *IESO* declares a *registered facility* other than a *boundary entity* to be non-conforming under section 7.5.4:

7.5.6.1   the *IESO* shall require the *registered market participant* for that *registered facility* to explain the reason for the non-compliance and shall record the response;

7.5.6.2   if the *IESO* determines that the *registered facility* is physically incapable of implementing the *dispatch instructions*, the *IESO* may require revision in the registration information for the non-conforming *registered facility*; and

7.5.6.3   if the *IESO* is not satisfied that the *registered facility* will respond to future *dispatch instructions*, the *IESO* may direct the *registered facility* to follow, as closely as practicable, an output or withdrawal profile specified by the *IESO*, and shall thereafter represent the *registered facility* as a *self-scheduling generation facility, self- scheduling electricity storage facility* or *non-dispatchable load* having the specified profile until the non-conforming *registered facility* satisfies the *IESO* that it has remedied the conditions causing the non-conformance.

7.5.7   Until the *registered market participant* for a non-conforming *registered facility* responds to the requirements of this section 7.5 to the satisfaction of the *IESO*, such *registered facility* shall continue to be designated as non-conforming, and such failure to respond on the part of that *registered market participant* may be referred by the *IESO* to the *market surveillance panel* at any time.

7.5.8   The *IESO* shall assume that a *registered facility* that is a *boundary entity* will comply fully with all *dispatch instructions* for *energy* or *operating reserves* upon confirmation of the relevant *interchange schedule* with the appropriate scheduling entity.

7.5.8A   A *registered market participant* associated with a *registered facility* that is a *boundary entity* shall, other than for the bona fide and legitimate reasons referred to in section 7.5.8B, schedule *energy* and *operating reserve*, in accordance with section 6.1.3, with the appropriate scheduling entity, or scheduling entities as the case may be.

7.5.8B   The *IESO* may take actions pursuant to section 6.6.10A of Chapter 3 and shall assess a real-time import or export failure charge as determined in section 3.8C of

Chapter 9 where a *registered market participant* associated with a *registered facility* that is a *boundary entity* fails to schedule *energy* or *operating reserve*, in accordance with section 6.1.3 of Chapter 7, with the appropriate scheduling entity, or scheduling entities as the case may be, according to the applicable *interchange schedule*, other than for bona fide and legitimate reasons as determined by the *IESO*. Bona fide and legitimate reasons shall include failures caused by actions and circumstances beyond the control of the *market participant* or due to *IESO* or external scheduling entity error or action, including those reasons specified in the applicable *market manual*.

7.5.9   In addition to any other sanction or consequence provided for in these *market rules*, the *IESO* may disqualify from future participation in the *operating reserve market* any *registered facility* that consistently fails to increase *energy* generation or reduce *energy* withdrawal when called upon in accordance with Chapter 7.

7.6   Dispatch Scheduling Errors

7.6.1   A *dispatch scheduling error* shall be deemed to have occurred if either:

    7.6.1.1   an *arbitrator* determines that the *IESO* has made a *dispatch scheduling error*; or

    7.6.1.2   the *IESO* declares that it has made a *dispatch scheduling error*, on its own initiative, including pursuant to section 6.9 of Chapter 9, or further to a *notice of disagreement* filed or other *settlement* dispute initiated by a *market participant* pursuant to section 6.8, or 6.10 of Chapter 9.

7.6.2   When a *dispatch scheduling error* has occurred, the *IESO* shall not adjust *market prices* but shall, subject to section 7.6.3 and notwithstanding section 13.1.2 of Chapter 1, be strictly liable to compensate a *market participant* for damages suffered by the *market participant* as a result of the *dispatch scheduling error,* assessed in accordance with section 13.1.4 of Chapter 1.

7.6.3   A *market participant* that wishes to claim compensation pursuant to section 7.6.2 shall:

    7.6.3.1   where the *dispatch scheduling error* was determined to have been made pursuant to section 7.6.1.1, request the *arbitrator* to determine the *market participant's* entitlement to and amount of, if any, such compensation; and

    7.6.3.2   where the *dispatch scheduling error* was determined to have been made pursuant to section 7.6.1.2, request that the *IESO* determine the

market participant's entitlement to and amount of, if any, such compensation,

with the amount, if any, in either case being determined in accordance with section 7.6.4.

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 section 13.1.4 of Chapter 1 and shall exclude such amount as may be required to account for any congestion management *settlement* credit triggered by the relevant *dispatch scheduling error* and already credited to the *market participant.*

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 section 2 of Chapter 3 and shall, if the good faith negotiations referred to in section 2.4 of that Chapter 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.

7.7 Additional IESO Powers in Emergency and High-Risk Conditions

7.7.1 During real-time operations, the *IESO* is responsible for declaring an *emergency operating state* or a *high-risk operating state* under circumstances described in sections 2.3 and 2.4 of Chapter 5.

7.7.2 The *IESO*'s primary responsibility in an *emergency operating state* or a *high-risk operating state* is to preserve system *reliability*, with a secondary responsibility to restore normal system conditions and operation of the *IESO-administered markets* as soon as practicable.

7.7.3 Where an *emergency operating state* or a *high-risk operating state* has been declared, the *IESO* may implement any of the actions detailed in sections 2.3, 2.4, 5.8 and 5.9 of Chapter 5.

7.7.4 The *IESO* may determine any additional compensation payable in respect of *physical services* acquired during an *emergency operating state* or a *high-risk operating state*.

7.8   Publication of Real-Time Dispatch Information

7.8.1   The *IESO* shall, within one hour after each *dispatch hour*, *publish* information concerning system results and events during that *dispatch hour*. This information shall include, but is not limited to:

7.8.1.1   total load met;

7.8.1.2   transmission capacity between the *IESO-controlled grid* and each *intertie zone*;

7.8.1.3   subject to section 7.8.2, any *outages* of transmission *facilities*;

7.8.1.4   total *operating reserve* scheduled, and total *energy* called from such *operating reserve*, by area;

7.8.1.5   the market prices for each *dispatch interval*; and

7.8.1.6   the uniform *hourly Ontario energy price* (HOEP) determined in accordance with section 8.3.1.

7.8.2   Until the date that is the first day of the fourth calendar month following the *market commencement date,* calculated from the first day of the calendar month immediately following the month in which the *market commencement date* occurs, the *IESO* shall not *publish* information concerning *outages* of transmission *facilities* referred to in section 7.8.1.3.

8.   Determining Market Prices

8.1   Purpose and Timing of Determining Market Prices

8.1.1   The *IESO* shall use the procedures in this section 8 to determine the uniform *market prices* in the *IESO control area* and the *intertie zone* prices for *energy* and *operating reserve* that are used for the market *settlement process* pursuant to the provisions of Chapter 9.

8.1.1A   The *IESO* shall determine the *intertie congestion price* associated with each *intertie zone* for each *dispatch hour* based on the *pre-dispatch schedule* referred to in section 6.1.3.

8.1.2 Subject to section 8.4A, the *IESO* shall determine and *publish market prices* for *energy* and *operating reserve* in accordance with sections 8.2 and 8.3 within five minutes after the end of each *dispatch interval*, as provided in section 6.4.

    8.1.2.1   [Intentionally left blank]

    8.1.2.2   [Intentionally left blank]

    8.1.2.3   [Intentionally left blank]

8.1.3 [Intentionally left blank]

8.2 Ex-post Prices for Each Dispatch Interval

8.2.1 The *IESO* shall determine *market prices* for *energy* and *operating reserve* for each *dispatch interval*, using the *dispatch algorithm* as follows:

    8.2.1.1   the data and information described in section 4.4 shall be used as inputs, using the most recent valid *dispatch data* submitted by *registered market participants* and the most accurate system data and *metering data* for that *dispatch interval* that is available at the time the *market prices* are being determined;

    8.2.1.2   the unconstrained *IESO-controlled grid* model shall be used;

    8.2.1.3   the operating status of each *registered facility*, in the *dispatch algorithm* at the start of each *dispatch interval* shall be set equal to the operating status in the *market schedule* determined for the end of the preceding *dispatch interval* for that *registered facility* and, subject to section 8.2.3, recognizing by the adjustment to the input data any *registered facility* in respect of which a *forced outage* has occurred or of which the *interchange schedule* has been curtailed due to constraints external to the *IESO control area* during that *dispatch interval*;

    8.2.1.4   the *dispatch algorithm* shall be run to determine *the market schedules* that maximise the economic gains from trade under the assumptions made pursuant to this section 8.2.1; and

    8.2.1.5   subject to section 8.2.2, the marginal costs from the *dispatch algorithm* for *energy* and each class of *operating reserve*, in the *IESO control area* and in each *intertie zone*, shall be the *market prices* for that *dispatch interval*.

8.2.2   The prices produced as part of the output of the market scheduling and pricing process described in Appendix 7.5 for a pricing run shall not necessarily be the prices that are used for *settlement* purposes. Without limiting the generality of the foregoing, the following prices shall be used for *settlement* purposes:

    8.2.2.1   the *energy* price for an *intertie zone* adjoining the *IESO control area* shall for *settlement* purposes, and subject to sections 8.2.2.4 to 8.2.2.7, equal the uniform Ontario *energy* price modified by the difference between the *intertie zone energy* price and the uniform Ontario *energy* price determined in the projected *market schedule*;

    8.2.2.2   the *operating reserve* price for each class of *operating reserve* supplied from within the *IESO control area* shall for *settlement* purposes, and subject to sections 8.2.2.4 to 8.2.2.7, be formed:

        a. from the shadow prices associated with the *operating reserve* requirements within the *IESO control area* during *dispatch intervals* when such requirements can be met; or

        b. from the greater of the highest priced *offer* associated with the scheduled *operating reserve* or the *energy* prices for the *dispatch interval* during which the *operating reserve* requirements within the *IESO control area* cannot be met;

    8.2.2.3   the *operating reserve* price for each class of *operating reserve* in an *intertie zone* adjoining the *IESO control area* shall for *settlement* purposes, and subject to section 8.2.2.4 to 8.2.2.7, equal the corresponding uniform *operating reserve* price for the *IESO control area* for that class of *operating reserve* modified by the difference between the corresponding *operating reserve* price for the *intertie zone* and the uniform *operating reserve* price for the *IESO control area* determined in the projected *market schedule*;

    8.2.2.4   any *energy* price produced which exceeds *MMCP* shall be set equal to *MMCP* for *settlement* purposes;

    8.2.2.5   any *energy* price produced which is less than negative *MMCP* shall be set equal to negative *MMCP* for *settlement* purposes;

    8.2.2.6   any price for *operating reserve* produced which exceeds *MORP* shall be set equal to *MORP* for *settlement* purposes; and

    8.2.2.7   any price for *operating reserve* produced which is negative will be set equal to zero for *settlement* purposes.

8.2.3   In the calculation of *market prices*, the *IESO* shall:

8.2.3.1   in the manner specified in section 8.2.1.3, adjust the input data at the start of a *dispatch interval* of a *registered facility* in respect of which a *forced outage* or *interchange schedule* curtailment due to constraints external to the *IESO control area* has occurred during the preceding or an earlier *dispatch interval*; and

8.2.3.2   make the adjustment referred to in section 8.2.1.3 in respect of such *registered facility* only to the extent that the input data can be adjusted having regard to the timing of the *forced outage* or *interchange schedule* curtailment due to constraints external to the *IESO control area* and the *IESO's* procedures for updating input data.

8.3   Uniform Ex-post Prices for Each Hour

8.3.1   The *IESO* shall determine, for each *dispatch hour,* a uniform *hourly Ontario energy price* (HOEP) in accordance with the formulation described as HOEP$_h$ in section 3.1.3 of Chapter 9.

8.4   [Intentionally left blank]

8.4A   Administrative Pricing and Corresponding Schedules – Revised

8.4A.1   This section 8.4A applies only in respect of the establishment of *administrative prices* for the *real-time energy market* and the *operating reserve market.*

8.4A.2   The *IESO* shall establish *administrative prices* and, where applicable, corresponding *market schedules* when:

8.4A.2.1   the *energy market* or the *operating reserve market* has been suspended in accordance with section 13;

8.4A.2.2   the *IESO* is unable to *publish* an *energy market price* or *operating reserve market price* in accordance with section 8.1.2 due to a failure in or *planned outage* of the software, hardware or communications systems that supports the operation of the *dispatch algorithm*;

8.4A.2.3   the *IESO* determines, pursuant to guidelines approved by the *IESO Board* relating to price error materiality and acceptable causal events, that a *published energy market price* or *operating reserve market price*

is incorrect due to incorrect inputs which affected the outcome of the *dispatch algorithm*;

and all such *administrative prices* shall be the *energy market price* and the *operating reserve market price* for the applicable *dispatch interval* for all purposes under these *market rules*.

8.4A.3   Where the *IESO* establishes *administrative prices* pursuant to section 8.4A.2 it shall do so within two *business days* of the event causing *market prices* to be administered. The *IESO* shall inform *market participants* as soon as practicable whenever a *published market price* is an *administrative price*.

Administration of Prices Due to Failures or Planned Outages of Market Systems, Publication of Incorrect Prices or Implementation of an Emergency Control Action

8.4A.4   In circumstances where *administrative prices* are required under sections 8.4A.2.2, or 8.4A.2.3 the *IESO* shall establish *administrative prices* and corresponding *market schedules* that would, to the extent practical, reflect the *market prices* and corresponding *market schedules* that would have otherwise been produced by the *real-time markets*, but for the event causing *market prices* to be administered.

8.4A.5   Where the *IESO* establishes *administrative prices* pursuant to sections 8.4A.2.2, or 8.4A.2.3 in respect of one or more *dispatch intervals*, it shall use the best available *dispatch data* for *energy* or *operating reserve*, as the case may be, pertaining to the *dispatch interval* to which the *administrative price* is to be applied and the *market prices* and corresponding *market schedule* for that *dispatch interval* shall be as the *IESO* determines appropriate consistent with the principle stated in section 8.4A.4, and shall be the *market price* and corresponding *market schedule* from:

   8.4A.5.1   the closest preceding *dispatch interval* that has not been administered, up to a maximum of 24 *dispatch intervals*;

   8.4A.5.2   the closest subsequent *dispatch interval* that has not been administered, up to a maximum of 24 *dispatch intervals*; or

   8.4A.5.3   a combination of the closest preceding and closest subsequent *dispatch intervals* that have not been administered, provided that neither the preceding nor subsequent *dispatch intervals* are selected for more than 24 *dispatch intervals* and are applied in a continuous manner such that the *administrative price* chosen from the preceding *dispatch interval*

shall apply until changed to the *administrative price* selected from the subsequent *dispatch interval*.

8.4A.6 Where the *IESO* establishes an *administrative price* pursuant to sections 8.4A.2.2, or 8.4A.2.3 the *IESO* shall, if the need for *administrative prices* extends beyond 48 *dispatch intervals*, establish *administrative prices* for the remaining *dispatch intervals* of the event causing *market prices* to be administered within the *IESO control area* and the *intertie zones,* using an average *HOEP* for the *energy market* and the hourly average of the *operating reserve* prices for the applicable *dispatch intervals* for the *operating reserve markets*, determined from the corresponding hour or hours from each of the 4 most recent *business days* or non-*business days*, as the case may be, excluding those hours from any day in which *administrative pricing* has been established under this section. Prices for the excluded hours shall be replaced by prices that have not been administered under this section from the corresponding hours of the most recent earlier *business days* or non-*business days*, as the case may be.

8.4A.7 Where the *IESO* establishes an *administrative price* for a *dispatch interval* pursuant to section 8.4A.6, there shall be no congestion management *settlement* credit payments made under section 3.5.2 of Chapter 9 for that *dispatch interval*.

Administration of Prices Due to Market Suspension

8.4A.8 Where the *IESO* establishes *administrative prices* during a market suspension pursuant to section 8.4A.2.1, it shall establish the *administrative price* as one of the following, as the *IESO* determines appropriate:

8.4A.8.1 where *market operations* have been suspended for reasons other than a failure in the software that generates *market prices* and operations of the *IESO-controlled grid* are based to some extent on market-based information and signals, a *market price* calculated using that software; or

8.4A.8.2 where operations of the *IESO-controlled grid* are being conducted without regard to the market, for the *IESO control area* and the *intertie zones,* an average *HOEP* for the *energy market* and the hourly average of the *operating reserve* prices for the applicable *dispatch intervals* for the *operating reserve markets*, determined from the corresponding hour or hours from each of the 4 most recent *business days* or non-*business days*, as the case may be, excluding those hours from any day in which *administrative pricing* has been established under this section, and there shall be no congestion management *settlement* credit payments made under section 3.5.2 of Chapter 9 for the period of *market suspension*. Prices for the excluded hours shall be replaced by

prices that have not been administered under this section from the corresponding hours of the most recent earlier *business days* or non-*business days*, as the case may be.

Additional Compensation for Complying with Dispatch Instructions

8.4A.9   Where the *IESO* has established an *administrative price* pursuant to sections 8.4A.6 and 8.4A.8.2 and subject to any materiality limits published in the applicable *market manual*,

8.4A.9.1   a *market participant* with a *generation facility* that has complied with *dispatch instructions* issued by the *IESO* shall be entitled to additional compensation determined under section 8.4A.10;

8.4A.9.2   a *market participant* with a *dispatchable load facility* shall be entitled to additional compensation on those consumption amounts where their *bid* price is less than the *administrative price,* equal to the difference between its applicable *bid* price and the *administrative price* multiplied by those consumption amounts if:

- the *market participant's bid* price, for the level of consumption to which it was dispatched, is less than the *administrative price;*

- the *market participant* has complied with *dispatch instructions* issued by the *IESO*; and

- the *market participant* issues to the *IESO* a *notice of disagreement* in accordance with section 6.8 of Chapter 9;

8.4A.9.3   a *market participant* with an *electricity storage facility* that injected *energy* into the *electricity system* shall be entitled to additional compensation on those injection amounts where its *offer* price is greater than the *administrative price*, equal to the difference between its applicable *offer* price and the *administrative price* multiplied by those injection amounts if;

- the *market participant's offer* price, for the level of injection to which it was dispatched, is greater than the *administrative price;*

- for the *dispatch hour,* where both *energy offers* and *bids* are submitted for the same *electricity storage facility*, these *energy offers* and *bids* were submitted in accordance with section 21.4.2 of this Chapter;

- the market participant has complied with the dispatch instruction for the dispatch interval to which the administrative price applies; and

- the *market participant* issues to the *IESO* a *notice of disagreement* in accordance with section 6.8 of Chapter 9; and

8.4A.9.4　a *market participant* with an *electricity storage facility* that withdrew *energy* from the *electricity system* shall be entitled to additional compensation on those withdrawal amounts where its *bid* price is less than the *administrative price*, equal to the difference between its applicable *bid* price and the *administrative price* multiplied by those consumption amounts if:

- the *market participant's bid* price, for the level of withdraws to which it was dispatched, is less than the *administrative price;*

- for the *dispatch hour,* where both *energy offers* and *bids* are submitted for the same *electricity storage facility*, these *energy offers* and *bids* were submitted in accordance with section 21.4.2 of this Chapter;

- the market participant has complied with the dispatch instruction for the dispatch interval to which the administrative price applies; and

- the *market participant* issues to the *IESO* a *notice of disagreement* in accordance with section 6.8 of Chapter 9;

and the *IESO* shall recover any such compensation amounts in accordance with section 4.8 of Chapter 9.

8.4A.9A　If the *energy market* is suspended and no *bid* prices are available to make the determination in section 8.4A.9.2 that a *bid* price is less than the *administrative price*, a *market participant* with a *dispatchable load facility* shall provide to the *IESO* evidence that its average historical *bid* price is less than the *administrative price*. Average historical *bid* prices shall be determined for each interval from the corresponding interval from each of the four most recent *business days* or non-*business days*, as the case may be, prior to the event that gave rise to the *administrative price*.

8.4A.9B　If the *energy market* is suspended and no *offer* prices are available to make the determination in section 8.4A.9.3 that an *offer* price is greater than the *administrative price*, a *market participant* with an *electricity storage facility* shall

provide to the *IESO* evidence that its average historical *offer* price is greater than the *administrative price*. Average historical *offer* prices shall be determined for each interval from the corresponding interval from each of the four most recent *business days* or non-*business days*, as the case may be, prior to the event that gave rise to the *administrative price*.

8.4A.9C   If the *energy market* is suspended and no *bid* prices are available to make the determination in section 8.4A.9.4 that a *bid* price is less than the *administrative price*, a *market participant* with an *electricity storage facility* shall provide to the *IESO* evidence that its average historical *bid* price is less than the *administrative price*. Average historical *bid* prices shall be determined for each interval from the corresponding interval from each of the four most recent *business days* or non-*business days*, as the case may be, prior to the event that gave rise to the *administrative price*.

Dispatchable Generator, Electricity Storage Facility while Injecting, and Import:

Compensation = (-1) * OP(EMPh $_{m,t^*}$, AQEI $_{k,h}$ $_{m,t^*}$, BE)

Where:

t^* = *metering interval* of administrative price period

EMP_h $^{m,t^*}$ is the administrative price in the metering interval t^* of settlement hour h

OP is the profit function as described in Chapter 9, Section 3.5.2

Dispatchable Load, Electricity Storage Facility while Withdrawing and Export:

Compensation = OP(EMP$_h$ $^{m,t^*}$, AQEW $_{k,h}$ $^{m,t^*}$, BL)

Where:

t^* = *metering interval* of administrative price period

EMP_h $^{m,t^*}$ is the administrative price in the metering interval t^* of settlement hour h

OP is the profit function as described in Chapter 9, Section 3.5.2

8.4A.10　　The compensation referred to in section 8.4A.9.1 shall be calculated as the aggregate of:

8.4A.10.1　the fuel costs or, where applicable, the other costs referred to in section 8.4A.11, and the variable operating and maintenance costs incurred by the *market participant* in complying with the *dispatch instructions* issued by the *IESO,* which fuel costs or other costs and variable operating and maintenance costs shall be subject to verification and audit by the *IESO*; and

8.4A.10.2　subject to section 8.4A.11, an amount equal to 10% of the amount determined pursuant to section 8.4A.10.1*,*

less the amount of the *administrative price* already paid or payable to the *market participant* under sections 8.4A.6 and 8.4A.8.2.

8.4A.11　　Where the compensation referred to in sections 8.4A.9.1 relates to a *generation facility* that is energy limited by design or by bona fide contractual commitments, the *IESO* may accept, in lieu of the costs referred to in section 8.4A.10.1, such assessment of the expected future value or the opportunity costs of the fuel or water consumed:

8.4A.11.1　during the period while *administrative prices* were in effect; and

8.4A.11.2　in order to comply with the *dispatch instruction* issued by the *IESO*;

as the *IESO* considers reasonable. Where such value or costs are submitted in lieu of the costs referred to in section 8.4A.10.1, no amount shall be payable pursuant to section 8.4A.10.2 if, in the *IESO's* opinion, such value or costs include or adequately cover such amount.

Settlement Amount Adjustments Resulting from Administration of Prices Due to Failures or Planned Outages of Market Systems or Due to Publication of Incorrect Prices

8.4A.13　　Where the *IESO* has established an *administrative price* pursuant to section 8.4A.5, a *market participant* may, subject to any materiality limits published in the applicable *market manual*, be eligible for an adjustment to its *settlement amounts* if:

8.4A.13.1   that *market participant* has been assessed a negative hourly congestion management *settlement* credit pursuant to section 3.5 of Chapter 9 for any of the applicable *dispatch intervals*;

8.4A.13.2   no *intertie* offer guarantee that would offset that negative hourly congestion management *settlement* credit has been assessed for that *market participant* pursuant to section 3.8A of Chapter 9;

8.4A.13.3   the *market schedule* determined pursuant to section 8.4A.5 is carried forward or backward to another *dispatch hour* that is the *dispatch hour* to which the negative congestion management *settlement* credit referred to in section 8.4A.13.1 applies;

8.4A.13.4   the price and/or quantity values in the *dispatch data* submitted by the *market participant* are different in the *dispatch hour* from which the *market schedule* referred to in section 8.4A.13.3 was established compared to the *dispatch data* submitted by the *market participant* for the *dispatch hour* to which the negative congestion management *settlement* credit referred to in section 8.4A.13.1 applies;

8.4A.13.5   the *market participant* complied with the *dispatch instructions* issued by the *IESO* for the applicable *dispatch intervals*;

8.4A.13.6   the negative hourly congestion management *settlement* credit referred to in section 8.4A.13.1 arose strictly due to the circumstances outlined in section 8.4A.13.3 through 8.4A.13.5; and

8.4A.13.7   the *market participant* issues to the *IESO* a *notice of disagreement* in accordance with section 6.8 of Chapter 9 providing evidence that the circumstances outlined in section 8.4A.13.1 through 8.4A.13.6 have occurred.

8.4A.14   If the *market participant*, pursuant to section 8.4A.13, has demonstrated to the satisfaction of the *IESO* that circumstances outlined in section 8.4A.13.1 through 8.4A.13.6 have occurred, the *IESO* shall, in accordance with section 6.6 of Chapter 9, adjust the *market participant's settlement amounts* by an amount to offset the negative hourly congestion management *settlement* credit referred to in section 8.4A.13.1.

8.4A.15   Where the *IESO* has established an *administrative price* pursuant to section 8.4A.5, a *market participant* may, subject to any materiality limits published in the applicable *market manual*, be eligible for additional compensation if:

8.4A.15.1 the *market participant* has been assessed an hourly net *energy market settlement* credit for a *dispatchable facility* or *boundary entity* that represents either an underpayment or overcharge, as the case may be, when comparing the *administrative price* used for determining the hourly net *energy market settlement* credit to the *market participant's* applicable *offer* or *bid* price;

8.4A.15.2 no *intertie* offer guarantee that would offset that underpayment has been assessed for that *market participant* pursuant to section 3.8A of Chapter 9;

8.4A.15.3 no hourly congestion management *settlement* credit that would offset that overcharge or underpayment has been assessed for that *market participant* pursuant to section 3.5 of chapter 9;

8.4A.15.4 the *market schedule* determined pursuant to section 8.4A.5 is carried forward or backward to another *dispatch hour* that is the *dispatch hour* to which the hourly net *energy market settlement* credit referred to in section 8.4A.15.1 applies;

8.4A.15.5 the price and/or quantity values in the *dispatch data* submitted by the *market participant* are different in the *dispatch hour* from which the *market schedule* referred to in section 8.4A.15.4 was established compared to the *dispatch data* submitted by the *market participant* for the *dispatch hour* to which the above hourly net *energy market settlement* credit applies referred to in section 8.4A.15.1;

8.4A.15.6 the *market participant* complied with the *dispatch instructions* issued by the *IESO* for the applicable *dispatch intervals*;

8.4A.15.7 the hourly net *energy market settlement* credit referred to in section 8.4A.15.1 and the resulting overcharge or underpayment arose strictly due to the circumstances outlined in section 8.4A.15.4 through 8.4A.15.6; and

8.4A.15.8 the *market participant* issues to the *IESO* a *notice of disagreement* in accordance with section 6.8 of Chapter 9 providing evidence that the circumstances outlined in section 8.4A.15.1 through 8.4A.15.7 have occurred.

8.4A.16 If the *market participant*, pursuant to section 8.4A.15 has demonstrated to the satisfaction of the *IESO* that circumstances outlined in section 8.4A.15.1 through 8.4A.15.7 have occurred, the *IESO* shall, in accordance with section 6.8 of Chapter 9, adjust the *market participant's settlement amounts* by the following

amount to offset the overcharge or underpayment, referred to in section 8.4A.15.1, as the case may be.

Dispatchable Generator and Import:

$$\text{Compensation} = (-1) * OP(\dot{EMP}_h{}^{m,t^*}, AQEI_{k,h}{}^{m,t^*}, BE)$$

> **Where**:
>
> > t^* = *metering interval* of administrative price period
> >
> > $EMP_h{}^{m,t^*}$ is the administrative price in the metering interval t^* of settlement hour h
> >
> > OP is the profit function as described in Chapter 9, Section 3.5.2

Dispatchable Load and Export:

$$\text{Compensation} = OP(EMP_h{}^{m,t^*}, AQEW_{k,h}{}^{m,t^*}, BL)$$

> **Where**:
>
> > t^* = *metering interval* of administrative price period
> >
> > $EMP_h{}^{m,t^*}$ is the administrative price in the metering interval t^* of settlement hour h
> >
> > OP is the profit function as described in Chapter 9, Section 3.5.2

Conditions to Cease the Administration of Prices

8.4A.17   The *IESO* shall cease to apply *administrative prices*:

8.4A.17.1 where section 8.4A.2.1 applies, from the commencement of the first *dispatch interval* in the *dispatch hour* referred to in section 13.7.1.2;

8.4A.17.2 where section 8.4A.2.2 applies due to a failure in software, hardware or communications systems, from the commencement of the first *dispatch interval* after the failure referred to in that section has been rectified;

8.4A.17.3   where section 8.4A.2.2 applies due to a *planned outage* of software, hardware or communications systems, from the commencement of the first *dispatch interval* after the *planned outage* referred to in that section has been completed; and

8.4A.17.4   where section 8.4A.2.3 applies, from the commencement of the first *dispatch interval* after the incorrect inputs referred to in that section have been corrected.

9.   IESO Procurement Markets

9.1   Introduction

9.1.1   The *IESO* shall procure, primarily through contracts, certain *physical services* that are needed to maintain *reliable* system operations but that are not offered in the *real-time markets*. The *IESO* may also enter into contracts allowing it to direct the operations of specific *generation facilities, electricity storage facilities* or *load facilities* that are critical to system *reliability* under certain conditions. This section 9 describes such *physical services* and the manner in which the *IESO* shall procure them.

9.2   Definition of Contracted Ancillary Services

9.2.1   Subject to sections 9.4 and 9.5.2, the *IESO* shall procure *contracted ancillary services* through contracts between the *IESO* and *ancillary service providers* that are *registered market participants* who have demonstrated the ability to provide such *contracted ancillary services* from *registered facilities* in accordance with the performance standards and other applicable requirements of section 4 of Chapter 5. *Contracted ancillary services* shall meet all applicable standards set forth in section 4 of Chapter 5 and shall be procured such as to enable the *IESO* to meet its obligations thereunder.

9.2.2   The principal *contracted ancillary services* that the *IESO* will procure pursuant to section 9.2.1 are:

9.2.2.1   *regulation*: this *ancillary service* allows total system generation to match total system load (plus losses) minute-by-minute or even second-by-second as required on an electricity grid;

9.2.2.2   *voltage control* and *reactive support*: this *ancillary service* involves the control and maintenance of prescribed voltages at specific

locations, using defined reactive capacity, *energy* and manoeuvrability to support system operations. *Reactive support* is provided by *generation units, electricity storage units* as well as by synchronous condensers, capacitors and other electrostatic equipment that is often owned and operated by *transmitters*; and

9.2.2.3   *black start capability*: this *ancillary service* involves *generation facilities* that are tested and/or assessed for their ability to be a *certified black start facility*, and from which the *IESO* may direct the delivery of power without assistance from the electrical system.

9.2.2.4   [Intentionally left blank – section deleted]

9.2.3   The IESO shall procure each contracted ancillary service:

9.2.3.1   in sufficient quantities and at the appropriate locations to enable the *IESO* to meet its obligations under Chapter 5 to ensure *reliable* operation of the *electricity system*, in accordance with all applicable *reliability standards*; and

9.2.3.2   using, to the extent practicable, competitive processes appropriate to the specific technical and market characteristics of each *contracted ancillary service*, to acquire each *contracted ancillary service* at competitively determined prices.

9.3   Contracted Ancillary Service Contracts

9.3.1   The *IESO* shall enter into *contracted ancillary service* contracts with *ancillary service providers*. Such agreements shall, subject to sections 9.3.4 and 9.3.6:

9.3.1.1   [Intentionally left blank – section deleted]

9.3.1.2   compensate any *ancillary service provider* for levels of service above those required to be provided by the *connection* requirements of Chapter 4.

9.3.2   Subject to section 9.3.6, the *IESO* shall use one or a combination of the following processes to conclude *contracted ancillary service* contracts with *ancillary service providers*:

9.3.2.1   where practical, the *IESO* shall employ a competitive tendering or negotiation process to identify multiple potential *ancillary service providers* and to determine competitive prices and other terms for the *contracted ancillary service* contracts; or

9.3.2.2 the *IESO* may negotiate *contracted ancillary service* contracts with a single potential *ancillary service provider* where the *IESO* determines that this will result in reasonable prices and other terms.

9.3.3 [Intentionally left blank]

9.3.3.1 [Intentionally left blank]

9.3.3.2 [Intentionally left blank]

9.3.3.3 [Intentionally left blank]

9.3.4 The provisions of sections 9.3.1 and 9.5.1 shall be subject to any contrary provisions contained in:

9.3.4.1 any *licence*; or

9.3.4.2 the terms of any *contracted ancillary service* contract the terms of which are required by a *licence* to be, and have been, approved by the *Ontario Energy Board*.

9.3.5 Each person that:

9.3.5.1 has entered into a *contracted ancillary service* contract with the *IESO*; and

9.3.5.2 is not, at any time during the term of such *contracted ancillary service* contract, the r*egistered market participant* for that *facility*,

shall ensure that the *registered market participant* for that *facility* complies with the provisions of the *contracted ancillary service* contract.

9.3.6 Where the *IESO* and the *ancillary service provider* are unable to reach agreement upon the terms and condition of a proposed *ancillary service* contract, or an amendment to an *ancillary service* contract, the matter shall be determined by the *Ontario Energy Board*.

9.4 The Effect of Grid Connection Requirements

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

9.4.2   Subject to section 9.4.4, a *registered facility* 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 Chapter 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 *registered facility* 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 *registered facility* to provide a level of any *ancillary service* above the levels required by the *licence* applicable to that *registered facility* or any connection requirements provided for in Chapter 4 and the *registered facility* is not otherwise subject to a *contracted ancillary service* contract with the *IESO*, the *IESO* shall compensate the *registered facility* for any costs, including lost opportunity costs, incurred by the *registered facility* in complying with the *IESO*'s direction.

9.4.4   If the *IESO* directs a *registered facility* to provide *reactive support* within the range required by the *connection* requirements provided for in Chapter 4, the *IESO* shall only be required to compensate the *registered facility* to the extent that the *registered facility* 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 *registered facility* to provide *reactive support* within the range required by the *connection* requirements provided for in Chapter 4 or as stipulated in the applicable *contracted ancillary service* contract, and that *registered facility* has to reduce its active power output in order to comply with the *IESO*'s direction, that *registered facility* shall not be entitled to a congestion management *settlement* credit for that reduction in active power output.

9.5   Payment for Ancillary Services and Recovery of Costs

9.5.1   Subject to sections 9.3.4 and 9.3.6, the price payable by the *IESO* under a *contracted ancillary service* contract may cover any of the following:

     9.5.1.1   the cost of being available to provide a *contracted ancillary service* if instructed by the *IESO* to do so;

     9.5.1.2   the out-of-pocket costs and the opportunity costs of actually providing the *contracted ancillary service* when instructed by the *IESO* to do so; and

     9.5.1.3   such other compensation as the *IESO* determines to be fair and reasonable under the circumstances.

9.5.2 The *IESO* is authorised, when necessary to maintain system *reliability* or when the *IESO-controlled grid* is in an *emergency operating state* to direct a *registered facility* to provide any class of *contracted ancillary services* even though the *IESO* does not have a *contracted ancillary service* contract with that *registered facility*. When this occurs:

9.5.2.1 the *IESO* shall compensate the *registered facility* for any costs, including opportunity costs, it incurs in complying with the *IESO's* direction; and

9.5.2.2 any dispute about the compensation payable pursuant to section 9.5.2.1 shall be resolved using the dispute resolution process set forth in section 2 of Chapter 3.

9.5.3 The *IESO* shall, in accordance with section 4.2 of Chapter 9, recover from *market participants* any costs it incurs in procuring *ancillary services*.

9.6 Definition and Principles of Must-Run Contracts

9.6.1 The *IESO* may, under the conditions and in accordance with the processes specified in this section 9.6, enter into a *reliability must-run contract* with the *registered market participant* or the prospective *registered market participant* for a *reliability must-run resource*. Where the *IESO* and a *registered market participant* or prospective *registered market participant* enter into a *reliability must-run contract* with respect to a given *reliability must-run resource*, the *IESO* may direct that *reliability must-run resource* to operate in specific ways when instructed by the *IESO* to do so for reasons of *reliability*, other than for reasons of a lack of overall *adequacy* of the *IESO-controlled grid*, regardless of whether *dispatch data* has been submitted with respect to that *reliability must-run resource*. Nothing in this section shall be construed as preventing the *IESO* from taking such other action in respect of such *reliability must-run resource* as may be permitted by these *market rules* to address a concern for overall *adequacy*.

9.6.2 Subject to section 9.6.4, the *IESO* may enter into a *reliability must-run contract* based on studies performed by the *IESO* that indicate:

9.6.2.1 in accordance with section 9.6.3, that a *reliability must-run resource* is required to be available for the purposes of *reliability*, other than in situations of overall *adequacy* of the *IESO-controlled grid*; or

9.6.2.2 a *reliability must-run resource* is likely to be *dispatched* as a *constrained on facility* or a *constrained off facility* and that such a contract would avail to the mutual benefit of the parties.

9.6.3   The studies referred to in section 9.6.2.1 shall include a consideration of whether concerns regarding *reliability*, other than regarding a lack of overall *adequacy* of the *IESO-controlled grid*, can be addressed by means of the process for directing the submission of *dispatch data* or for imposing a restriction on the revision of *dispatch data* referred to in sections 3.3.10 to 3.3.17 or of the process by which the *IESO* approves *outages* pursuant to section 6 of Chapter 5.

9.6.4   The IESO shall enter into a reliability must-run contract pursuant to section 9.6.2.2 in respect of a reliability must-run resource only where the registered market participant or the prospective registered market participant for the reliability must-run resource so agrees.

9.6.5   Where:

9.6.5.1   the *IESO* would be required to reject, revoke *advance approval* of, or recall the *planned outage* of a *registered facility* pursuant to section 6 of Chapter 5 but for the availability of a *reliability must-run resource*; and

9.6.5.2   the *reliability must-run resource* referred to in section 9.6.5.1 has planned a temporary reduction in staff that would restrict or prevent operation of that other *registered facility,*

the *IESO* may enter into a *reliability must-run contract* in respect of the *reliability must-run resource* referred to in section 9.6.5.1 provided that:

9.6.5.3   staffing adequate to permit that *reliability must-run resource* to operate under the *reliability must-run contract* can be arranged by that *reliability must-run resource* within the time required; and

9.6.5.4   the conclusion of the *reliability must-run contract* referred to in section 9.6.5.3 would avoid the need for the *IESO* to reject, revoke *advance approval* of, or recall the *planned outage* referred to in section 9.6.5.1.

9.6.6   The *IESO* may call upon a *reliability must-run resource* that is subject to a *reliability must-run contract* if and only if the *IESO* determines that *market participants* will not offer sufficient *physical services* into the *real-time markets* to enable the *IESO* to maintain *reliability*, other than in respect of a lack of overall *adequacy* of the *IESO-controlled grid*.

9.6.7   Subject to section 9.6.13, the *IESO* shall use one or a combination of the following processes to conclude *reliability must-run contracts* pursuant to section 9.6.2:

9.6.7.1 where practical, the *IESO* shall employ a competitive tendering or negotiation process to identify multiple potential suppliers and to determine competitive prices and other terms for the *reliability must-run contract*; or

9.6.7.2 the *IESO* may negotiate *reliability must-run contracts* with a single potential supplier where the *IESO* determines that this will result in reasonable prices and other terms.

9.6.8 Subject to sections 9.6.11 and 9.6.13:

9.6.8.1 the *IESO* may develop standard forms of *reliability must-run contracts* for use in conjunction with sections 9.6 and 9.7,

provided that

9.6.8.2 a standard form *reliability must-run contract* developed for use in conjunction with a *reliability must-run resource* that has planned a temporary reduction in staff that would restrict or prevent its operation, including but not limited to the circumstances described in section 9.6.5, shall provide compensation only for the out-of-pocket costs including, but not limited to, the costs of providing adequate staffing, incurred solely to permit the *reliability must-run resource* to be prepared to provide *physical services* if *dispatched* to do so, but no such compensation shall be payable in respect of *dispatch intervals* when the *reliability must-run resource* is *dispatched* to provide such *physical services* and is entitled to payment therefore as a result of such dispatch.

9.6.9 Subject to sections 9.6.11 and 9.6.13, the *IESO* may include in any *reliability must-run contract,* other than a standard form *reliability must-run contract* referred to in section 9.6.8.2, the compensation provisions referred to in section 9.6.8.2 or such other compensation provisions as the *IESO* determines appropriate.

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9.6.11   The provisions of sections 9.6.8, 9.6.9 and 9.7.1 shall be subject to any contrary provisions contained in:

   9.6.11.1   any *licence*; or

   9.6.11.2   the terms of any *reliability must-run contract* the terms of which are required by a *licence* to be, and have been, approved by the *Ontario Energy Board*.

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9.6.13   Where the *IESO* and the *registered market participant* or prospective *registered market participant* are unable to reach agreement upon the terms and condition of a *proposed reliability must-run contract*, or an amendment to a *reliability must-run contract*, the matter shall be determined by the *Ontario Energy Board*.

9.7   Terms and Conditions of Must-Run Contracts

9.7.1   Subject to sections 9.6.11 and 9.6.13, the *IESO* shall include in each *reliability must-run contract* terms and conditions that address, at a minimum, the following:

   9.7.1.1   the duration of the *reliability must-run contract*, which shall not exceed 1 year;

   9.7.1.2   the situations in which the *reliability must-run resources* may be called;

   9.7.1.3   the situations under which some or all of the terms of the *reliability must-run contract* may be suspended;

   9.7.1.4   the nature and timing of any advance notice required for the *IESO* to call upon the *reliability must-run resources*;

   9.7.1.5   payment terms, including the amount and timing of any availability payment;

   9.7.1.6   agreed *dispatch data* that the *IESO* shall use to *dispatch* the *reliability must-run resource* when it is called by the *IESO* to operate in various modes under the *reliability must-run contract*, and provisions for the revision of such *dispatch data*, when necessary;

9.7.1.7   the process for amending the terms of the *reliability must-run contract*; and

9.7.1.8   any penalties payable by either party for failure to satisfy its obligations under the *reliability must-run contract*.

9.7.2   The *IESO* shall, in accordance with section 4.2 of Chapter 9, recover through charges on *market participants* the incremental costs of its *reliability must-run contracts* above any normal payments for *energy* and *operating reserves* recovered in the *real-time markets.*

9.8   Publication of Procurement Contract Information

9.8.1   The *IESO* shall treat information relating to the procurement of *contracted ancillary services* and *reliability must-run contracts* as follows:

9.8.1.1   the *IESO* shall *publish* annually the total costs of all contracted *ancillary services* subject to contracted *ancillary service* contracts and of all *reliability must-run contracts*;

9.8.1.2   the *IESO* shall *publish* annually the quantities of each *contracted ancillary service* covered under *contracted ancillary service* contracts and the quantities of each *physical service* provided under *reliability must-run contracts*, together with estimates of any additional quantities the *IESO* expects to acquire during the next 12 months;

9.8.1.3   where the *IESO* obtains *contracted ancillary services* or *reliability must-run contracts* in the absence of market power, the commercial terms of the *contracted ancillary service* contracts and of the *reliability must-run contracts* shall be treated as *confidential information*; and

9.8.1.4   where the *IESO* obtains *contracted ancillary services* or *reliability must-run contracts* in the presence of market power, as confirmed by the *market surveillance panel*, the *IESO* shall *publish* the relevant terms and conditions of the contracts, except for price which shall not be disclosed, in order to encourage competition.

9.9   Dispute Resolution

9.9.1   Subject to the *licence* of the *IESO* and of the relevant *market participant*, all disputes arising pursuant to a *contracted ancillary services* contract or a *reliability must-run contract* shall be resolved using the dispute resolution process set forth in section 2 of Chapter 3.

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11. Generator and Electricity Storage Participant Synchronization Procedures

11.1 Introduction

11.1.1   No generator or electricity storage participant:

11.1.1.1   may physically *connect* and synchronize to the *IESO-controlled grid* or de-synchronize and *disconnect* from the *IESO-controlled grid*; or

11.1.1.2   if an *embedded generator* or *embedded electricity storage participant* may physically *connect* and synchronize to the embedding *facility* or de-synchronize and *disconnect* from the embedding *facility*,

except as provided in Chapter 4 and in this section 11.

11.1.2   All *generation facilities* located within the *IESO control area* are subject to the provisions of this section 11 except for *self-scheduling generation facilities* with name-plate ratings of less than 10 MW, *intermittent generators*, any *generators* classified as *minor generation facilities* or as *small generation facilities*, *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 any *generators* exempt from the provisions of the *Electricity Act, 1998* by regulation made thereunder.

11.1.3   [Intentionally left blank]

11.1.4   All *electricity storage facilities* located within the *IESO control area* are subject to the provisions of this section 11 except for *self-scheduling electricity storage facilities* with an *electricity storage facility* size of less than 10 MW, any *electricity storage facilities* classified as *minor electricity storage facilities* or as *small electricity storage facilities*, *electricity storage 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.

11.2   Process for Synchronization

11.2.1   A *generator* or *electricity storage participant* that intends to synchronize a *generation unit* or *electricity storage unit* to the *IESO-controlled grid* or embedding *facility*, as the case may be, must notify the *IESO* at least two hours in advance of the intended synchronization time unless an under-generation advisory notice is in force, in which case the *IESO* may reduce the required notification time to that specified in the advisory notice.

11.2.2   If a *generator* or *electricity storage participant* does not advise the *IESO* at least two hours in advance of synchronization, or any shorter interval allowed by an under-generation advisory notice, the *IESO* may approve synchronization only if, in the *IESO*'s judgement, synchronization will not impair the ability of the *IESO* to maintain the *security* or *adequacy* of the *electricity system*.

11.2.3   The *IESO* shall notify the *generator* or *electricity storage participant* of the *IESO*'s acceptance or rejection of the *generation unit's* or *electricity storage unit's* synchronization plans within 5 minutes of receiving such plans. In the event that the *IESO* does not approve synchronization, the *registered market participant* responsible for the *registered facility,* of which the *generation unit* or *electricity storage unit* is a part, must revise its *dispatch data* in accordance with section 3.

11.2.4   Receipt by the *generator* or *electricity storage participant* of notification of acceptance by the *IESO* under section 11.2.3 gives the *generator* or *electricity storage participant* the right to synchronize the *generation unit* or *electricity storage unit* to the *IESO-controlled grid* or the embedding *facility*, as the case may be. This right does not preclude the *IESO* from requiring de-synchronization of a *generation unit* or *electricity storage unit* in the event of over-generation in accordance with any applicable provisions of these *market rules* relating to over-generation.

11.2.5   The exact time of 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 an *embedded generation unit* or *embedded electricity storage unit* its connection agreement, in such form as may be prescribed by the *OEB*, with the *distributor* with whom it is *connected.*

11.2.6   Each *generator* or *electricity storage participant* shall notify the *IESO* of any revisions to its synchronization plans without delay. Upon receipt of such notice, the *IESO* shall re-assess any prior acceptance of a synchronization plan and shall notify the *generator* or *electricity storage participant* accordingly.

11.3   Process for De-synchronization

11.3.1   A *generator* or *electricity storage participant* intending to de-synchronize a *generation unit* or *electricity storage unit* from the *IESO-controlled grid* or embedding *facility*, as the case may be shall notify the *IESO* one hour in advance of the intended de-synchronization time, unless an advisory notice for over-generation is in effect, in which event the *generation unit* or *electricity storage unit* may de-synchronize at will subject to the conditions of the advisory notice.

11.3.2   If a *generator* or *electricity storage participant* does not advise the *IESO* at least one hour prior to its planned de-synchronization, or any shorter interval allowed by an over-generation advisory notice, the *IESO* may approve de-synchronization only if, in the *IESO*'s judgement, the unit's de-synchronization will not impair the ability of the *IESO* to maintain the *security* or *adequacy* of the *electricity system*.

11.3.3   The *IESO* shall approve any request to de-synchronize unless:

   11.3.3.1   the *generation unit* or *electricity storage unit* is operating under the provisions of a *reliability must-run contract* and the *IESO* has directed it to operate;

   11.3.3.2   the *IESO* requires the *generation unit* or *electricity storage unit* to remain synchronized to maintain the *security* or *adequacy* of the *electricity system*; or

   11.3.3.3   an under-generation advisory notice is in force.

11.3.4   The *IESO* shall notify the *generator* or *electricity storage participant* of the *IESO*'s acceptance or rejection of the *generation unit's or electricity storage unit's* de-synchronization plans within 5 minutes of receiving such plans.

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 an *embedded generation unit,* or *embedded electricity storage unit* its connection agreement, in such form as may be prescribed by the *OEB*, with the *distributor* with whom it is *connected.*

11.3.6   Receipt by the *generator* or *electricity storage participant* of notification of acceptance by the *IESO* under section 11.3.4 gives the *generator* or *electricity storage participant* the right to commence shut-down of the *generation unit* or *electricity storage unit*.

11.3.7   Each *generator* or *electricity storage participant* shall notify the *IESO* of any revisions to its de-synchronization plans without delay. Upon receipt of such

notice, the *IESO* shall re-assess any prior acceptance of a de-synchronization plan and shall notify the *generator* or *electricity storage participant* accordingly.

12. Status Reports, Advisories, and Protocols

12.1 IESO System Status Reports and Advisory Notices

12.1.1 The *IESO* shall *publish*, in addition to the daily assessments specified in section 7.3.1.4 of Chapter 5, system status reports to:

12.1.1.1 to 12.1.1.5 [Intentionally left blank – sections deleted]

12.1.1.6 provide forecasts, with respect to each *dispatch day*, as projected for future *dispatch hours* and as estimated for the current *dispatch hour*, where appropriate, of expected hourly *demand*, *generation capacity*, *electricity storage capacity*, *energy* capability of *generation facilities*, exports and imports of *energy*, and *operating reserve* requirements, *published* at the following times:

12.1.1.6.1 05:30 EST of the *pre-dispatch day*;

12.1.1.6.2 09:00 EST of the *pre-dispatch day*;

12.1.1.6.3 after each successful run of the day-ahead commitment process, of the *pre-dispatch day*;

12.1.1.6.4 after 15:00 EST, and hourly thereafter, of the *pre-dispatch day*; and

12.1.1.6.5 hourly on the *dispatch day;*

12.1.1.7 provide forecasts of expected transmission capacity with all elements in-service, *published* daily, as soon as practicable; and

12.1.1.8 provide forecasts of expected transmission limits with *outages*, for the *dispatch day* and the two days following the *dispatch day*, *published* hourly on the *dispatch day*.

12.1.2 Where the *IESO publishes* an advisory notice, it shall do so in one of the following forms, in accordance with the applicable *market manual*:

12.1.2.1   an alert notice, which shall provide situational awareness and provide time for advanced preparations;

12.1.2.2   a warning notice, which shall indicate the actions the *IESO* intends to take if the *IESO-administered markets* do not or cannot respond sufficiently to eliminate an identified or potential problem; or

12.1.2.3   an action notice, which shall indicate the actions the *IESO* and *market participants* must take in order to eliminate an identified or potential problem.

12.1.3   The *IESO* shall *publish*, in accordance with the applicable *market manual*, advisory notices for the following reasons:

12.1.3.1   if a major change in expected *generation capacity, electricity storage capacity* or *transmission capacity* has occurred since the last system status report was issued ;

12.1.3.2   if the *IESO* expects over-generation, under-generation or shortfalls in *operating reserve* or *contracted ancillary services*, or an advisory of the total MW of *energy* being directed to submit *bids* or *offers* from the aggregate of *reliability must run resources* under *reliability must run contracts*;

12.1.3.3   if the *IESO* expects an *emergency operating state,* a *high-risk operating state* or a *conservative operating state*; and

12.1.3.4   if the *IESO* is suspending or resuming operation of all or part of the *IESO-administered markets;*

12.1.3A   The *IESO* may *publish* advisory notices in addition to those in 12.1.3, in accordance with the applicable *market manual*, for any additional reason identified by the *IESO* in which the *IESO* believes that the *publication* of an advisory notice would be in the interest of the *IESO-administered markets, market participants,* or the *IESO-controlled grid.*

12.1.4   Where applicable, the corresponding information related to the advisory notices in section 12.1.3 shall be included by the *IESO* in a subsequent *publication* of a scheduled report under section 12.1.1.

12.1.5   The reports referred to in section 12.1.1 and 12.1.3 shall be prepared by the *IESO* in such form and shall contain such information as may be specified in the applicable *market manual*.

12.2   Over-Generation and Under-Generation Advisories

12.2.1   If the *IESO* issues an over-generation system 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* from *dispatchable loads* or *electricity storage facilities* willing to increase demand in response to low prices;

12.2.1.2   allow *generators* or *electricity storage facilities* 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* within any *registered facility* in locations designated by the *IESO;* and/or

12.2.1.3   solicit and accept revised *offers* from *generators, electricity storage participants* or *wholesale sellers* that will decrease generation resources in 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* from *dispatchable loads* and *electricity storage facilities* that will reduce load in response to higher prices;

12.2.2.2   allow *generators* or *electricity storage facilities* 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* within any *registered facility* in locations designated by the *IESO*; and/or

12.2.2.3   solicit and accept additional or revised *offers* from *generators, electricity storage participants* or *wholesale sellers* that will increase

generation resources or injections of *energy* in response to higher prices, in locations designated by the *IESO*.

12.2.3   If the *IESO* issues an *operating reserve* shortfall advisory notice pursuant to section 12.1.3, the *IESO* shall, within the period specified in the advisory notice, accept additional or revised *offers* for *operating reserve*.

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. For purposes of this section 13, unless otherwise noted the term "*market operations*" shall mean the operation of all or part of the *IESO-administered markets*.

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 Chapter 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*.

13.3 Insufficient Reasons for Market Suspension

13.3.1   Notwithstanding section 13.2.4, the *IESO* may suspend *market operations* in response to an event described in that section only if the *IESO* determines that its ability to operate the *IESO-administered markets* in accordance with these *market rules* has 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 *MMCP*; 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* 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   prescribe and apply *administrative prices* in accordance with section 8.4A.8;

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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.

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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; 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 compensate *market participants* for following
these *dispatch instructions* based on *administrative prices* established in
accordance with section 8.4A.8 rather than on market-determined prices.

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13.7   Ending and Reporting on Market Suspension

13.7.1   The *IESO* shall monitor the conditions which triggered the suspension of *market
operations* and, subject to any decision or direction that the *IESO Board* may have
given pursuant to section 13.2.3, shall issue a market advisory notice declaring the
end of the suspension:

13.7.1.1   as soon as the *IESO* determines that normal *market operations* are
possible and will maintain *reliable* system operations; and

13.7.1.2   indicating the *dispatch hour* for which normal *market operations* are to
resume, providing at least one hour advance notice.

The *IESO* may, if circumstances warrant and in order to resume normal *market
operations* as soon as possible, issue a market advisory declaring the end of the
suspension prior to issuing the notice specified in section 13.2.2.

13.7.2   The *IESO* shall, immediately following the end of the suspension of *market operations*, begin a review of events leading to and occurring during the suspension. The *IESO* may require *market participants* to submit information regarding their operations immediately prior to and during the suspension and to assist the *IESO* in analysing the suspension.

13.7.3   Within 10 *business days* following the resumption of normal *market operations*, the *IESO Board* shall provide to all *market participants,* the *OEB* and relevant government authorities a preliminary report describing:

       13.7.3.1   the circumstances that triggered suspension of *market operations*;

       13.7.3.2   the steps taken by the *IESO* during the period of suspension to ensure *reliable* operations and remedy the causes of the suspension;

       13.7.3.3   the actions of *market participants* during the suspension; and

       13.7.3.4   any conclusions or recommendations for avoiding similar suspensions in the future.

13.7.4   The *IESO Board* shall provide a final report containing information in the nature of that described in section 13.7.3 to *market participants* and the public as soon as it is practicable to do so.

13.7.5   If the *IESO Board* determines that one or more corrective measures by *market participants* are warranted to avoid the recurrence of a suspension of *market operations*, the *IESO* may direct the affected *market participants* to implement the corrective measures and the affected *market participants* shall implement the corrective measures as soon as practicable.

13.7.6   A *market participant* directed by the *IESO* to implement corrective measures under section 13.7.5 may apply for compensation from the *IESO* where compliance with the *IESO's* direction results in costs or damages to the *market participant*.

13.7.7   Any disputes regarding the compensation referred to in section 13.7.6 shall be resolved using the dispute resolution process set forth in section 2 of Chapter 3.

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18. Capacity Auctions

18.1   Purpose of Capacity Auctions

18.1.1   The *capacity auctions* will acquire *auction capacity* through a competitive auction.

18.1.2   The *IESO* shall specify and *publish* a target capacity amount to be acquired in each *capacity auction*, as specified in the applicable *market manual.*

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 *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 provide 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 *commitment period*, shall be applicable to subsequent *capacity auctions* and their associated *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 years following the end of its associated *commitment period.*

18.2   Participation in Capacity Auctions

18.2.1   No person may participate in a *capacity auction* nor receive a *capacity obligation* unless that person has:

18.2.1.1   been authorized by the *IESO* as a *capacity auction participant* in accordance with section 3 of Chapter 2 and in accordance with the applicable *market manual*;

18.2.1.2   submitted to the *IESO enrolled capacity*, using forms and procedures as may be established by the *IESO* in the applicable *market manual*; and

18.2.1.3   no less than five *business days* prior to the date on which a *capacity auction* is to be conducted, provided to the *IESO* a *capacity auction deposit,* in one or both of the forms set forth in section 18.4.

18.2.2   The following provisions of the *market rules* shall not apply to a *capacity auction participant* that is authorized by the *IESO* to participate only in a *capacity auction* with an *hourly demand response resource*:

18.2.2.1   Chapters 4, 5, and 6;

18.2.2.2   Chapter 7 other than this section 18; and

18.2.2.3   Chapters 8 and 10.

18.2.3   A *capacity auction participant* who obtains a *capacity obligation* shall apply to become authorized by the *IESO* as a *capacity market participant* in accordance with section 3 of Chapter 2.

18.3   Calculation of Capacity Auction Deposits

18.3.1   Upon receipt of *enrolled capacity* in accordance with section 18.2.1.2, the *IESO* shall determine for each *capacity auction participant*, a *capacity auction deposit* for a *capacity auction* as specified in the applicable *market manual*.

18.3.2   The *IESO* shall review the *capacity auction deposit* of a *capacity transferee* upon receipt of a request for a *capacity obligation* transfer in accordance with section 18.9.1. As a result of a transfer request, the *IESO* may increase the *capacity auction deposit* of a *capacity transferee* and the *IESO* shall notify the *capacity transferee* of any such increase.

18.3.3   Where the amount of a *capacity auction deposit* provided by a *capacity auction participant* exceeds the amount required by the *IESO*, the *IESO* shall return the

excess amount to the *capacity auction participant* within five *business days* of such a request from the *capacity auction participant*. Otherwise, that amount shall be held by the *IESO* and shall form part of that *capacity auction participant's capacity auction deposit* for its participation in a subsequent *capacity auction*.

18.4   Capacity Auction Deposits

18.4.1   A *capacity auction deposit* shall be in one or both of the following forms:

18.4.1.1   an irrevocable commercial letter of credit provided by a bank named in a Schedule to the *Bank Act*, (Canada), S.C. 1991, c. 46; or

18.4.1.2   a cash deposit made with the *IESO* by or on behalf of the *capacity auction participant.*

18.4.2   Where all or part of a *capacity auction deposit* is in the form of a standby letter of credit, the following provisions shall apply:

18.4.2.1   the letter of credit shall provide that it is issued subject to either The Uniform Customs and Practice for Documentary Credits, 1993 Revision, ICE Publication No. 500 or The International Standby Practices 1998;

18.4.2.2   the *IESO* shall be named as beneficiary in the letter of credit, the letter of credit shall be irrevocable and partial draws on the letter of credit shall not be prohibited;

18.4.2.3   the only condition on the ability of the *IESO* to draw on the letter of credit shall be the delivery of a certificate by an officer of the *IESO* that a specified amount is owing by the *capacity auction participant* to the *IESO* and that, in accordance with the provisions of the *market rules*, the *IESO* is entitled to payment of that specified amount as of the date of delivery of the certificate;

18.4.2.4   the letter of credit shall either provide for automatic renewal (unless the issuing bank advises the *IESO* at least thirty days prior to the renewal date that the letter of credit will not be renewed) or be for a term of at least one (1) year. Where the *IESO* is advised that a letter of credit is not to be renewed or the term of the letter of credit is to expire, the *capacity auction participant* shall arrange for and deliver additional *capacity auction deposits* if the *capacity auction participant* intends to continue to participate in a *capacity auction*. If such additional *capacity auction deposits* are not received by the *IESO* ten

(10) *business days* before the expiry of a letter of credit, the *IESO* shall be entitled as of that time to payment of the full face amount of the letter of credit which amount, once drawn by the *IESO*, shall be treated as a *capacity auction deposit* in the form of cash; and

18.4.2.5   by including a letter of credit as part of a *capacity auction deposit*, the *capacity auction participant* represents and warrants to the *IESO* that the issuance of the letter of credit is not prohibited in any other agreement, including without limitation, a negative pledge given by or in respect of the *capacity auction participant*.

18.4.3   Notwithstanding any other provision of these *market rules*, a person that applies for authorization to participate in the *capacity auction* and that has not applied for authorization to participate, or is not participating, in any other *IESO-administered market* shall not be required to comply with any requirements for authorization other than those set forth in sections 18.2.1.1 to 18.2.1.3.

18.4.4   In the event a *capacity auction participant* has not satisfied the applicable eligibility requirements specified in sections 19.2, 19.3, 19.6, 19.8, 19.9A, or 19.10 of Chapter 7 prior to the start of the applicable *obligation period* and has not elected to buy-out the *capacity obligation* in accordance with section 4.7J.3 of Chapter 9, the *IESO* shall revoke the *capacity obligation* and the *capacity auction participant* shall, at the *IESO's* sole discretion, forfeit its *capacity auction deposit*.

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 *commitment period*. In each *capacity auction* the *IESO* shall acquire *auction capacity* for each *obligation period* as specified in the applicable *market manual*.

Demand Curve, Zonal Constraints and Pre-Auction Reports

18.5.2   The *IESO* shall, in accordance with the applicable *market manual*, *publish* a pre-auction report in advance of each *capacity auction*, including the following *capacity auction* demand curve reference points:

18.5.2.1   a *target capacity* in accordance with section 18.1.2;

18.5.2.2   a capacity auction reference price;

18.5.2.3   a maximum and minimum *capacity auction clearing price*;

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18.5.2.5 a maximum auction capacity limit at the maximum capacity auction clearing price that a capacity auction shall clear; and

18.5.2.6 a maximum *auction capacity* limit that a *capacity auction* shall clear.

18.5.3 The *IESO* shall define *capacity auction zonal constraints* for each *capacity auction* and the *IESO* shall *publish*, in the pre-auction report, those requirements as specified in the applicable *market manual*.

18.5.4 The *IESO* shall specify and *publish* in the pre-auction report the following timelines associated with a *capacity auction*:

18.5.4.1 the deadline to submit the amount of *enrolled capacity* the *capacity auction participant* is willing to provide pursuant to section 18.2.1.2;

18.5.4.2 the deadline for a *capacity auction participant* to submit a *capacity auction deposit* in accordance with section 18.2.1.3;

18.5.4.3 the dates on which a *capacity auction participant* may submit *capacity auction offers* for a *capacity auction*;

18.5.4.4 the period over which the *IESO* shall conduct the *capacity auction*; and

18.5.4.5 the date of *capacity auction* post-auction reporting in accordance with sections 18.8.1 and 18.8.2.

18.5.5 The *IESO* shall define the total *auction capacity* that may be provided by all *system-backed capacity import resources* and *generator-backed capacity import resources* in a *capacity auction* for each *obligation period.* The *IESO* shall *publish*, in the pre-auction report, these requirements as specified in the applicable *market manual*.

18.5.6 The *IESO* shall define the total *auction capacity* that may be provided by all *system-backed capacity import resources* and *generator-backed capacity import resources* on each applicable *intertie* in a *capacity auction* for each *obligation period.* The *IESO* shall *publish*, in the pre-auction report, these requirements as specified in the applicable *market manual*.

18.6 Capacity Auction Offers

18.6.1 A capacity auction offer:

18.6.1.1   may be submitted or revised by the *capacity auction participant* on the dates specified in accordance with section 18.5.4 and the applicable *market manual*;

18.6.1.2   shall only be applicable to the *obligation periods* for which a *capacity auction participant* has submitted a *capacity auction offer*, in accordance with the applicable *market manual*; and

18.6.1.3   shall be time stamped by the *IESO* when received.

18.6.2   A *capacity auction offer* shall only be submitted in respect of a given *capacity auction* if:

18.6.2.1   the *capacity auction participant* complies with the *capacity auction participant* requirements in section 18.2.1; and

18.6.2.2   the *capacity auction participant* has not been disqualified from full or partial participation in the *capacity auction* pursuant to sections 19.4.8, 19.5.4, 19.7.4, 19.9.4 or 19.11.4.

18.6.3   A *capacity auction offer* may include up to twenty *price-quantity* pairs for each *obligation period* and shall comply with the following:

18.6.3.1   the *capacity auction offer* shall be for and applicable over an entire *obligation period* associated with a *capacity auction*;

18.6.3.2   the *capacity auction offer price* in any *price-quantity pair* shall:

- be expressed in dollars and whole cents per MW-day of *auction capacity* to be provided in each hour of the *availability window* throughout the *obligation period* associated with that *capacity auction*;

- be greater than or equal to $0.00/MW-day;

- not exceed the applicable maximum *capacity auction clearing price;* and

- increase as the associated *capacity auction offer* quantity increases.

18.6.3.3   the *capacity auction offer* quantity in any *price-quantity* pair shall be expressed in MW to not more than one decimal place and the total offered quantity shall not exceed the *enrolled capacity* of the *capacity*

auction resource, determined through the submission of *auction capacity* that a *capacity auction participant* is willing to provide in accordance with section 18.2.1.2; and

18.6.3.4   the *capacity auction offer* shall indicate whether the *capacity auction participant* is willing to clear a *capacity auction* with the full amount of *auction capacity* offered in a lamination or a partial amount of the *auction capacity* offered in a lamination, in accordance with the applicable *market manual*.

18.7   Capacity Auction Clearing Prices and Quantities

18.7.1   The *IESO* shall determine a *capacity auction* demand curve to be utilized for each *obligation period* based upon the *capacity auction* parameters detailed in the pre-auction report pursuant to section 18.5 and in accordance with the applicable *market manual*.

18.7.2   The *IESO* shall, in each *capacity auction*, determine for each *obligation period* the *capacity auction clearing price* in accordance with the applicable *market manual*.

18.7.3   The IESO shall, in each capacity auction, determine for each obligation period the capacity obligation for each capacity auction participant's capacity auction resource(s) in accordance with section 18.7.5 and the applicable market manual.

18.7.4   The IESO shall, for each *capacity auction*, determine for each *obligation period* associated with the *capacity auction*:

18.7.4.1   the *capacity auction clearing prices* for each electrical zone identified in the pre-auction report; and

18.7.4.2   the zonal *capacity obligation* for each *capacity auction participant's capacity auction resource(s),*

18.7.5   If two or more *capacity auction participants* submit a *capacity auction offer* at the same price*,* for the last available quantity, the *capacity auction offer* with the earlier time stamp shall be selected as the successful *capacity auction offer*, in accordance with the applicable *market manual.*

18.8   Post-Auction Notification and Publication

18.8.1   The *IESO* shall, as soon as practicable following the conclusion of a *capacity auction*, *publish* the following in accordance with the applicable *market manual*:

18.8.1.1   the *capacity auction clearing price*;

18.8.1.2   the amount of *auction capacity* that has been acquired in each electrical zone;

18.8.1.3   those *capacity auction participants* who received a *capacity obligation* and all respective *capacity obligations*; and

18.8.1.4   the *enrolled capacity* of each *capacity auction participant.*

18.8.2   The *IESO* shall, following the conclusion of a *capacity auction*, issue post-auction reports to each *capacity auction participant* by the date specified in the pre-auction report, to detail the *capacity auction offers* that have cleared in the *capacity auction* and the associated *capacity obligations* for each *obligation period* in accordance with 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 enrolled capacity,* and its existing *capacity obligation* for the applicable *obligation period*;

18.9.1.1.1   for the purposes of 18.9.1.1, the *enrolled capacity* refers to the *enrolled capacity* received by the *capacity transferee* in the *obligation period* for which the quantity is being transferred.

18.9.1.2   the *capacity transferor* provides written confirmation to the *IESO* from the *capacity transferee* of its willingness to accept the transfer of a *capacity obligation* from the *capacity transferor*;

18.9.1.3   the *capacity obligation* transfer shall consist of the same attributes (e.g. physical or virtual), as detailed in the applicable *market manual,* as the *capacity transferor's capacity obligation*;

18.9.1.4   the quantity to be transferred is in increments of 0.1MW, and the resulting *capacity obligations* for both the *capacity transferor* and *capacity transferee* following the transfer shall be 0 MW, or greater than or equal to 1 MW; and

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      18.9.1.8   *capacity obligation* transfers must not result in the violation of any constraint as defined in the pre-auction report

18.9.1A   Where the *capacity obligation* is transferred between zones, the *capacity transferee* shall be settled based upon the *capacity auction clearing price* received by the *capacity transferor* when the *capacity obligation* first cleared the *capacity auction* in accordance with the applicable *market manual*.

18.9.2   For each transfer request that satisfies the criteria in section 18.9.1, the *IESO* shall determine the *capacity transferee's* revised *capacity auction deposit* and/or *capacity prudential support obligation*, as applicable, in accordance with section 18.3.2 and section 5B.3.3 of Chapter 2.

18.9.3   The *capacity transferee* shall provide the *IESO*, within five *business days* of receiving notification from the *IESO* or within such a longer period of time as may be agreed between the *IESO* and the *capacity transferee*, any additional *capacity auction deposit* and/or *capacity prudential support obligation* that may be required as a result of a transfer request.

18.9.4   After the revised *capacity auction deposits* and/or *capacity prudential support obligations* have been satisfied by the *capacity transferee*, the *IESO* shall notify the *capacity transferor* and *capacity transferee* of its approval or rejection, and the *IESO* shall *publish* updated post-auction reports pursuant to section 18.8.

19. Capacity Market Participants with Capacity Obligations

19.1 Purpose

19.1.1   This section details how a *capacity market participant* must satisfy a *capacity obligation* with a *capacity auction resource*.

19.1.2   Capacity auction resources eligible to satisfy a capacity obligation are:

      19.1.2.1   an *hourly demand response resource*;

19.1.2.2   a *capacity dispatchable load resource*;

19.1.2.3   a *capacity generation resource;*

19.1.2.4   a *system-backed capacity import resource*;

19.1.2.5   a *capacity storage resource*; or

19.1.2.6   a *generator-backed capacity import resource.*

19.1.3   [Intentionally left blank – section deleted]

19.2   Eligibility Requirements for Hourly Demand Response Resources

19.2.1   A *capacity market participant* is eligible to satisfy its *capacity obligation* with an *hourly demand response resource* provided that the *capacity market participant*:

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

19.2.1.2   registers its *facilities* and *demand response contributors* as applicable, to the satisfaction of the *IESO*, in accordance with the applicable *market manual*. The *capacity market participant* shall not modify, vary or amend in any material respect any of the features or specifications of any *facility* without first requesting *IESO* authorization and approval in accordance with the applicable *market manual*;

19.2.1.3   [Intentionally left blank – section deleted]

19.2.1.4   has provided *prudential support* and *capacity prudential support* in accordance with section 5 of Chapter 2.

19.2.2   The *IESO* may refuse the participation of an *hourly demand response resource* in a future *capacity auction* if the resource's participation would negatively impact the *reliable* operation of the *IESO-controlled grid*.

19.2.3   The *IESO* may remove or temporarily remove a *capacity market participant's hourly demand response resource* from its participation as a *capacity market participant* if the resource's continued participation would negatively impact the *reliable* operation of the *IESO-controlled grid*. A *capacity market participant* that is removed pursuant to this section 19.2.3 shall not receive an availability payment in accordance with section 19.4.1 for the duration of the removal.

19.2.4   The following provisions of the *market rules* shall not apply to a *capacity market participant* that is authorized by the *IESO* to participate only with an *hourly demand response resource* and is not a *wholesale consumer* that is associated with a *non-dispatchable load* or a *price responsive load*:

         19.2.4.1   Chapter 2, sections 5A and 8;

         19.2.4.2   Chapter 5, other than section 1.2.1 to 1.2.3, 2.3, 2.4, 5.8 and 5.9;

         19.2.4.3   Chapter 7 section 7; and

         19.2.4.4   Chapters 6, 8, 10.

19.2.5   ~~A *wholesale consumer*~~ Subject to section 19.2.6, *load equipment* that is associated with a *non-dispatchable load* may be registered as ~~participate as~~ a *demand response contributor* ~~to an *hourly demand response resource* to satisfy a *capacity obligation*~~, provided that the *non-dispatchable load* meets all the applicable eligibility requirements of this section 19.2, and the associated *wholesale consumer* meets all the ~~and the~~ requirements in the *market rules* that are applicable to a *wholesale consumer* ~~that is~~ associated with a *non-dispatchable load*.

19.2.6   *Load equipment* that is associated with a *dispatchable load* or *price responsive load* shall not be registered as a *demand response contributor*.

19.3   Eligibility Requirements for Capacity Dispatchable Load Resources

19.3.1   A *capacity market participant* is eligible to satisfy its *capacity obligation* with a *capacity dispatchable load resource*, provided that the *capacity market participant*:

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

         19.3.1.2   is authorized as a *wholesale consumer;*

         19.3.1.3   registers its *facilities* in accordance with the registration requirements for *wholesale consumers* that are *dispatchable loads*. The *capacity market participant* shall not modify, vary or amend in any material respect any of the features or specifications of any resource without first requesting *IESO* authorization and approval in accordance with the applicable *market manual*;

19.3.1.4   satisfies the *connection assessment* requirements in accordance with section 6 of Chapter 4, if required by the *IESO* in accordance with the *applicable market manual*;

19.3.1.5   has provided *prudential support* and *capacity prudential support* in accordance with section 5 of Chapter 2.

19.3.2   [Intentionally left blank – section deleted]

19.3.3   [Intentionally left blank – section deleted]

19.4   Energy Market Participation for Hourly Demand Response Resources

19.4.1   A *capacity market participant* with a *capacity obligation* participating with an *hourly demand response resource* shall receive an availability payment during the *obligation period* in accordance with this section and the applicable *market manual*. Availability payments may be offset by non-performance charges in accordance with section 4.7J of Chapter 9.

Standby and Activation Notices

19.4.2   If an *hourly demand response resource* has a day-ahead *schedule of record* or a *pre-dispatch schedule* less than the resource's total *bid* quantity, or if the applicable pre-dispatch shadow price for an *hourly demand response resource* is equal to or greater than the standby notice price threshold, determined by the *IESO,* for at least one hour during the *dispatch day availability window*, the *IESO* shall issue a standby notice to the applicable *capacity market participant* by 07:00 EST in accordance with the applicable *market manual*.

19.4.3   If the *IESO* does not issue a standby notice to a *capacity market participant* by 07:00 EST, the *capacity market participant* shall remove their *bids* for the *hourly demand response resource* as soon as practicable and before 9:00 EST. A capacity *market participant* that does not remove their *bids* for the *hourly demand response resource* before 9:00 EST shall comply with any corresponding activation notices issued by the *IESO* in accordance with section 19.4.5.

19.4.4   The *IESO* shall issue an activation notice to a *capacity market participant* ahead of the activation period, in accordance with the applicable *market manual* if a standby notice has been issued in accordance with section 19.4.2 or a *capacity market participant* has not removed their *bids* in accordance with section 19.4.3, and the applicable *hourly demand response resource* has a *pre-dispatch schedule*

less than the resource's total *bid* quantity for at least one hour during the *dispatch day availability window*.

19.4.5 If a *capacity market participant* receives an activation notice pursuant to section 19.4.4, the *capacity market participant* shall comply with the activation notice, unless such a reduction would endanger the safety of any person, damage equipment, or violate any *applicable law*. In such circumstances, the *capacity market participant* shall notify the *IESO* as soon as practicable.

19.4.6 A *capacity market participant* may be subject to non-performance charges, and the *IESO* may take action pursuant to sections 19.2.2 and 19.2.3 if a *capacity market participant* does not comply with an activation notice pursuant to this section 19, in accordance with the applicable *market manual*. The *capacity market participant* may also be subject to compliance actions in accordance with section 6 of Chapter 3.

19.4.7 A *capacity market participant* that expects its *hourly demand response resource* to operate in a manner that differs from the activation notice issued to it in accordance with this section 19 shall notify the *IESO* as soon as possible and in accordance with the applicable *market manual*.

19.4.8 The *IESO* may disqualify from future participation in the *capacity auction* any *capacity market participant* that fails to reduce its consumption in order to satisfy its *capacity obligation* when called upon in accordance with this section 19.

Non-performance Events for Hourly Demand Response Resources

19.4.9 In the event of a reduction in the *demand response capacity* of an *hourly demand response resource*, associated with a *capacity obligation* acquired through a *capacity auction*, the *capacity market participant* shall notify the *IESO* as per the procedures and criteria specified in the applicable *market manual*.

19.4.9A [Intentionally left blank – section deleted]

19.4.10 A *capacity market participant* shall reduce its *bid* to take into account and reflect the maximum *demand response capacity* that it reasonably expects it can provide in accordance with section 3.5.6 and due to any non-performance event related to an *hourly demand response resource* in an *obligation period*.

Activation Testing for Hourly Demand Response Resources

19.4.11 The *IESO* may, in accordance with the applicable *market manual*, direct a *capacity market participant* with a *capacity obligation* to perform activation testing for each *hourly demand response resource* up to a maximum of two test

activations per *obligation period* to verify that a *capacity obligation* can be satisfied for a duration specified in the applicable *market manual* by the *capacity market participant*.

19.4.12   If a *capacity market participant* fails activation testing performed pursuant to section 19.4.11, the *capacity market participant* shall be subject to non-performance charges in accordance with the applicable *market manual*. Failure during activation testing shall be considered a breach of the *market rules* and may result in sanctions in accordance with section 6.2 of Chapter 3.

19.4.13   The *IESO* shall provide a *capacity market participant* day-ahead notification of test activations pursuant to section 19.4.11 and the test activation shall occur within the *availability window* of an *obligation period*.

19.4.14   The test activation shall occur in accordance with the *hourly demand response resource* activation process specified in this section 19.4.

19.4.15   The *hourly demand response resource* shall be entitled to compensation for valid test activations conducted during a *commitment period* pursuant to this section 19.4 and in accordance with the applicable *market manuals*.

Activation of Hourly Demand Response Resources leading up to or during an Emergency Operating State

19.4.16   A *capacity market participant* satisfying a *capacity obligation* using an *hourly demand response resource* shall be entitled to compensation for an activation leading up to or during an *emergency operating state* pursuant to section 2.3 of Chapter 5, and in accordance with the applicable *market manuals*.

19.5   Energy Market Participation for Capacity Dispatchable Load Resources

19.5.1   A *capacity market participant* with a *capacity obligation* participating with a *capacity dispatchable load resource* shall receive an availability payment during the *obligation period*, in accordance with this section and the applicable *market manual*. Availability payments may be offset by non-performance charges in accordance with section 4.7J of Chapter 9.

Dispatch of Capacity Dispatchable Load Resources

19.5.2   The *IESO* shall schedule a *capacity dispatchable load resource* in the *real-time market* and issue a *dispatch instruction* in accordance with Chapter 7.

19.5.3   A *capacity dispatchable load resource* shall comply with *IESO dispatch instructions* in accordance with Chapter 7.

19.5.4   The *IESO* may disqualify from future participation in the *capacity auction* any *capacity market participant* that fails to reduce its consumption in order to satisfy its *capacity obligation* when called upon in accordance with this section 19.

Outage Notification Requirements for Capacity Dispatchable Load Resources

19.5.5   Each *capacity dispatchable load resource* shall comply with the *outage* notification requirements of Chapter 5.

19.5.6   A *capacity dispatchable load resource* shall reduce its *bid* to take into account and reflect the maximum *demand response capacity* that it reasonably expects it can consume in accordance with section 3.5.6.

Activation Testing for Capacity Dispatchable Load Resources

19.5.7   The *IESO* may, in accordance with the applicable *market manual*, direct a *capacity dispatchable load resource* to perform activation testing for each resource up to a maximum of two activation tests per *obligation period* to verify that a *capacity obligation* can be satisfied for a duration specified in the applicable *market manual* by the *capacity market participant*.

19.5.8   If a *capacity market participant* fails activation testing performed pursuant to section 19.5.7, the *capacity market participant* shall be subject to non-performance charges in accordance with the applicable *market manual.* Failure during activation testing shall be considered a breach of the *market rules* and may result in sanctions in accordance with section 6.2 of Chapter 3.

19.5.9   The *IESO* shall provide a *capacity dispatchable load resource* day-ahead notification of test activation and the test activation shall occur within the *availability window* of an *obligation period*.

19.5.10   The test activation shall occur in accordance with the *dispatch instructions* for a ~~*dispatchable load facility*~~ *dispatchable load* specified in this section 19.5.

19.5.11   The *capacity dispatchable load resource* shall not be entitled to compensation for any costs related to any valid test activation conducted during an *obligation period* pursuant to this section 19.5.

19.6 Eligibility Requirements for Capacity Generation Resources

19.6.1 A *capacity market participant* is eligible to satisfy its *capacity obligation* as a *capacity generation resource*, provided that the *capacity market participant*:

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

19.6.1.2 is authorized as a *generator;*

19.6.1.3 registers its *facilities* in accordance with the registration requirements applicable to *generation facilities*. The *capacity market participant* shall not modify, vary or amend in any material respect any of the features or specifications of any *facility* without first requesting *IESO* authorization and approval in accordance with the applicable *market manual;*

19.6.1.4 satisfies the *connection assessment* requirements in accordance with section 6 of Chapter 4, if required by the *IESO* in accordance with the applicable *market manual;*

19.6.1.5 has provided *prudential support* and *capacity prudential support* in accordance with section 5 of Chapter 2.

19.7 Energy Market Participation for Capacity Generation Resources

19.7.1 A *capacity market participant* satisfying its *capacity obligation* with a *capacity generation resource* shall receive an availability payment during the *obligation period*, in accordance with this section and the applicable *market manual*. Availability payments may be offset by non-performance charges in accordance with section 4.7J of Chapter 9.

Dispatch of Resources

19.7.2 The *IESO* shall schedule a *capacity generation resource* in the *energy market,* and issue *dispatch instructions* in accordance with Chapter 7.

19.7.3 A *capacity generation resource* shall comply with *IESO dispatch instructions* in accordance with Chapter 7.

19.7.4   The *IESO* may disqualify from future participation in the *capacity auction* any *capacity market participant* that fails to inject *energy* in order to satisfy its *capacity obligation* when called upon in accordance with this section 19.

Outage Notification Requirements for Capacity Generation Resources

19.7.5   Each *capacity generation resource* shall comply with the *outage* notification requirements of Chapter 5.

19.7.6   A *capacity generation resource* shall reduce its *offer* to reflect the maximum capacity that it reasonably expects it can inject in accordance with section 3.5.6.

Activation Testing for Capacity Generation Resources

19.7.7   The *IESO* may, in accordance with the applicable *market manual*, direct a *capacity market participant* to perform activation testing for each *capacity generation resource* up to a maximum of two activation tests per *obligation period* to verify that a *capacity obligation* can be satisfied for a duration specified in the applicable *market manual* by the *capacity market participant*.

19.7.8   If a *capacity market participant* fails an activation test performed pursuant to section 19.7.7, the *capacity market participant* shall be subject to non-performance charges in accordance with the applicable *market manual*. Failure during activation testing shall be considered a breach of the *market rules* and may result in sanctions in accordance with section 6.2 of Chapter 3.

19.7.9   The *IESO* shall provide a *capacity generation resource* that is not a *quick start facility* day-ahead notification of the test activation and the test activation shall occur within the *availability window* of an *obligation period*.

19.7.9A   The *IESO* shall provide a *capacity generation resource* that is a *quick start facility* notification at least one hour in advance of the dispatch hour of the test activation and the test activation shall occur within the *availability window* of an *obligation period*.

19.7.10   The test activation shall occur in accordance with the *dispatch instructions* specified in this section 19.7

19.8   Eligibility Requirements for System-Backed Capacity Import Resources

19.8.1   A *capacity market participant* is eligible to satisfy its *capacity obligation* with a *system-backed capacity import resource* provided that the *capacity market participant*:

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

19.8.1.2   is authorized as a *market participant* eligible to import *energy;*

19.8.1.3   is registered as a *boundary entity* pursuant to section 2.2.7; and

19.8.1.4   has provided *prudential support* and *capacity prudential support* in accordance with section 5 of Chapter 2.

19.9   Energy Market Participation for System-Backed Capacity Import Resources

19.9.1   A *capacity market participant* satisfying its *capacity obligation* with a *system-backed capacity import resource* shall receive an availability payment during the *obligation period*, in accordance with this section and the applicable *market manual*. Availability payments may be offset by non-performance charges in accordance with section 4.7J of Chapter 9.

Dispatch of System-Backed Capacity Import Resources

19.9.2   The *IESO* shall schedule a *system-backed capacity import resource* in the *energy market,* and issue *dispatch instructions* in accordance with Chapter 7.

19.9.3   A *system-backed capacity import resource* shall comply with *IESO dispatch instructions* in accordance with Chapter 7.

19.9.4   The *IESO* may disqualify from future participation in the *capacity auction* any *capacity market participant* that fails to schedule *energy* with the appropriate *scheduling entity* in order to satisfy its *capacity obligation* when called upon in accordance with this section 19.

Outage Notification Requirements for System-Backed Capacity Import Resources

19.9.5   A *system-backed capacity import resource* shall reduce or remove its *offer* to reflect the maximum capacity that it reasonably expects it can provide in accordance with section 3.5.6.

Activation Testing for System-Backed Capacity Import Resources

19.9.6   The *IESO* may, in accordance with the applicable *market manual*, direct a *capacity market participant* to perform activation testing for each *system-backed capacity import resource* up to a maximum of two activation tests per *obligation*

period to verify that the *energy offer* can be satisfied for a duration specified in the applicable *market manual* by the *system-backed capacity import resource*.

19.9.7 If a *capacity market participant* fails an activation test performed pursuant to section 19.9.6, the *capacity market participant* shall be subject to non-performance charges in accordance with the applicable *market manual*. Failure during activation testing shall be considered a breach of the *market rules* and may result in sanctions in accordance with section 6.2 of Chapter 3.

19.9.8 The *IESO* shall provide a *system-backed capacity import resource* notification at least two hours in advance of the dispatch hour of the test activation and the test activation shall occur within the *availability window* of an *obligation period*.

19.9.9 The test activation shall occur in accordance with the *dispatch instructions* specified in this section 19.9.

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; and*

19.9A.1.3 has provided *prudential support* and *capacity prudential support* in accordance with section 5 of Chapter 2.

19.9B Energy Market Participation for Generator-Backed Capacity Import Resources

19.9B.1 A *capacity market participant* satisfying its *capacity obligation* with a *generator-backed capacity import resource* shall receive an availability payment during the *obligation period*, in accordance with this section and the applicable *market manual*. Availability payments may be offset by non-performance charges in accordance with section 4.7J of Chapter 9.

Dispatch of Generator-Backed Capacity Import Resources

19.9B.2   The *IESO* shall schedule a *generator-backed capacity import resource* in the *energy market,* and issue *dispatch instructions* in accordance with Chapter 7.

19.9B.3   A *generator-backed capacity import resource* shall comply with *IESO dispatch instructions* in accordance with Chapter 7.

19.9B.4   The *IESO* may disqualify from future participation in the *capacity auction* any *capacity market participant* that fails to schedule *energy* with the appropriate scheduling entity in order to satisfy its *capacity obligation* when called upon in accordance with this section 19.

Outage Notification Requirements for Generator-Backed Capacity Import Resources

19.9B.5   A *generator-backed capacity import resource* shall reduce or remove its *offer* to reflect the maximum capacity that it reasonably expects it can provide in accordance with section 3.5.6.

19.9B.6   A *generator-backed capacity import resource* shall comply with the *outage* notification requirements specified in the applicable *market manual*.

Capacity Auction Testing for Generator-Backed Capacity Import Resources

19.9B.7   A *capacity market participant* satisfying its *capacity obligation* with a *generator-backed capacity import resource* must perform an activation test, in accordance with the applicable *market manual*, by scheduling an *energy* import into the *IESO-administered market* for at least one (1) hour that coincides with the timing of its scheduled four hour activation in the neighbouring *control area*, on a date that falls within the first two months of the applicable *obligation period* and by submitting data to the *IESO* to confirm the capability of the *generator-backed capacity import resource* to inject at least its *capacity obligation* into the *control area* in which it is located for four consecutive hours within the *availability window*.

19.9B.8   A *capacity market participant* that fails to submit data pursuant to section 19.9B.7 in the form specified by the *IESO,* in a timely manner shall be subject to a capacity obligation administration charge pursuant to section 4.7J.2.3 of Chapter 9.

19.9B.9   If a *capacity market participant* fails an activation test performed pursuant to section 19.9B.7, the *capacity market participant* shall be subject to non-performance charges in accordance with the applicable *market manual*. Failure

during an activation test shall be considered a breach of the *market rules* and may result in sanctions in accordance with section 6.2 of Chapter 3.

19.9B.10 The test activation shall occur in accordance with the *dispatch instructions* specified in this section 19.9B.

19.10 Eligibility Requirements for Capacity Storage Resources

19.10.1 A *capacity market participant* is eligible to satisfy its *capacity obligation* with a *capacity storage resource* provided that the *capacity market participant*:

19.10.1.1 demonstrates to the satisfaction of the *IESO* that it can satisfy the *capacity obligation*, as specified in the applicable *market manual. Capacity storage resources* must satisfy *capacity obligations* with injections of *energy* into the *IESO-controlled grid*;

19.10.1.2 is a registered *market participant* authorized as an *electricity storage participant* in accordance with the applicable *market manual;*

19.10.1.3 registers its *facilities* in accordance with the registration requirements applicable to *electricity storage facilities*. The *capacity market participant* shall not modify, vary or amend in any material respect any of the features or specifications of any *facility* without first requesting *IESO* authorization and approval in accordance with the applicable *market manual;*

19.10.1.4 satisfies the *connection assessment* requirements in accordance with section 6 of Chapter 4, if required by the *IESO* in accordance with the applicable *market manual;*

19.10.1.5 has provided *prudential support* and *capacity prudential support* in accordance with section 5 of Chapter 2.

19.11 Energy Market Participation for Capacity Storage Resources

19.11.1 A *capacity market participant* satisfying its *capacity obligation* with a *capacity storage resource* shall receive an availability payment during the *obligation period*, in accordance with this section and the applicable *market manual*.

Availability payments may be offset by non-performance charges in accordance with section 4.7J of Chapter 9.

Dispatch of Capacity Storage Resources

19.11.2   The *IESO* shall schedule a *capacity storage resource* as it would an *electricity storage facility* in the *energy market,* and issue *dispatch instructions* in accordance with Chapter 7.

19.11.3   A *capacity storage resource* shall comply with *IESO dispatch instructions* in accordance with Chapter 7.

19.11.4   The *IESO* may disqualify from future participation in the *capacity auction* any *capacity market participant* that fails to inject *energy* in order to satisfy its *capacity obligation* when called upon in accordance with this section 19.

Outage Notification Requirements for Capacity Storage Resources

19.11.5   Each *capacity storage resource* shall comply with its *outage* notification requirements as outlined in Chapter 5.

19.11.6   A *capacity storage resource* shall reduce its *offer* to reflect the maximum capacity that it reasonably expects it can inject in accordance with section 3.5.6.

Activation Testing for Capacity Storage Resources

19.11.7   The *IESO* may, in accordance with the applicable *market manual*, direct a *capacity market participant* to perform activation testing for each *capacity storage resource* up to a maximum of two activation tests per *obligation period* to verify that a *capacity obligation* can be satisfied for a duration specified in the applicable *market manual* by the *capacity market participant*.

19.11.8   If a *capacity market participant* fails an activation test performed pursuant to section 19.11.7, the *capacity market participant* shall be subject to non-performance charges in accordance with the applicable *market manual*. Failure during activation testing shall be considered a breach of the *market rules* and may result in sanctions in accordance with section 6.2 of Chapter 3.

19.11.9   The *IESO* shall provide a *capacity storage resource* notification at least one hour in advance of the dispatch hour of the test activation and the test activation shall occur within the *availability window* of an *obligation period*.

19.11.10   The test activation shall occur in accordance with the *dispatch instructions* specified in this section 19.11.

20. Capacity Exports in the IESO-Administered Market

20.1 Capacity Export Request and IESO Review

20.1.1 A *market participant* that wishes to export eligible capacity shall submit a *capacity export request* to the *IESO,* in the form, within the timelines and as further prescribed in the applicable *market manual*.

20.1.2 The *IESO* shall approve or deny *capacity export requests* based on the *IESO's* review, as prescribed in the applicable *market manual*.

20.1.3 The *IESO* may, after approving or partially approving a *capacity export request* and prior to the *market participant* committing capacity to an external *control area*, revoke an approval of a *capacity export request* in order to maintain the *reliability* of the *IESO-controlled grid*, or if the *IESO* becomes aware of any event or change in circumstances that may alter the *IESO's* approval of a *capacity export request*.

20.2 Capacity Export Commitment Process

20.2.1 A *market participant* may only commit capacity to an external *control area* in accordance with the time periods, quantities and other terms and conditions of the *IESO's* approval of the *capacity export request*.

20.2.2 A *market participant* that commits its capacity to an external *control area* shall notify the *IESO* of the commitment and any subsequent changes to the commitment in the time and manner prescribed in the applicable *market manual*.

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* 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*.

20.4   Called Capacity Export Scheduling and Dispatch

20.4.1   All export *bids* for *called capacity exports* shall be submitted in the form and within the timelines prescribed in the applicable *market manual*.

20.4.2   Notwithstanding any provision of the *market rules* that may require the *IESO* to restrict exports in order to maintain the *adequacy* of the *IESO-controlled grid*, the *IESO* may schedule and *dispatch called capacity exports* in accordance with applicable *capacity export agreements* (the relevant details of which are specified in the applicable *market manual*).

21.   Electricity Storage in the IESO-Administered Market

21.1   Purpose

21.1.1   This section 21 sets out *market rules* intended to facilitate the near-term inclusion of *electricity storage participants* in the *IESO-administered markets* and the connection of *electricity storage* ~~facilities~~ resources to the *electricity system*. A number of the provisions of this section would, based on their subject matter, ordinarily be included under different chapters or sections of the *market rules*. However, these provisions have been gathered together here under a single section for convenience of reference and until such time that *electricity storage participants* and *electricity storage* resources ~~facilities~~ are more fully integrated under these *market rules*.

21.2   Market Registration

21.2.1   ~~This section 21.2 applies for the purposes of the market registration process set out in Section 2.2 of this Chapter 7.~~

21.2.~~1~~2   An *electricity storage participant* wishing to register an *electricity storage facility* as a *self-scheduling electricity storage facility* and its associated *self-scheduling electricity storage resources* shall satisfy the applicable requirements in section 2, as further described in the applicable *market manual*:~~, shall~~:

~~21.2.2a register all *electricity storage units* associated with that *electricity storage facility* as *self-scheduling generation units* to inject electricity;~~

~~21.2.2b register all electricity storage units associated with that same *electricity storage facility* as *non-dispatchable loads* to withdraw electricity; and~~

21.2.2c Without limiting the generality of the foregoing, the *electricity storage participant* shall fulfill all other applicable requirements for market registration relating to *self-scheduling generation facilities* and *non-dispatchable loads, including* those requirements set out in Appendix 4.24 of Chapter 4 (IESO Monitoring Requirements: Electricity Storage Facilities) and Appendix 4.25 of Chapter 4 (Monitoring Requirements: Electricity Storage Performance Standards)".

21.2.23 Subject to the *market rules* governing participation in the *energy* markets and the provision of *ancillary services* to the *IESO,* a *self-scheduling electricity storage resource* or its associated *electricity storage units facility* may only be registered to participate in the *energy market* and to provide *reactive support service*, *voltage control service*, or *regulation* service or combinations of the foregoing, except that it shall not be registered to both participate in the *energy market* and provide *regulation* service.

21.2.34 An *electricity storage participant* wishing to register an *electricity storage facility* and its associated *dispatchable electricity storage resources*, shall satisfy the applicable requirements in section 2 as further described in the applicable *market manual*. as a dispatchable *electricity storage facility*, in addition to the requirements for market registration outlined elsewhere in the *market rules* pertaining to the facility types referenced below, shall:

21.2.4a register all *electricity storage units* associated with that *electricity storage facility* as dispatchable *generation units* to inject electricity;

21.2.4b register all *electricity storage units* associated with the same *electricity storage facility* as *dispatchable loads* to withdraw electricity; and

21.2.4c Without limiting the generality of the foregoing, fulfill all other applicable requirements for market registration relating to dispatchable *generation units* and *dispatchable loads, including* those requirements set out in Appendix 4.24 of Chapter 4 (IESO Monitoring Requirements: Electricity Storage Facilities) and Appendix 4.25 of Chapter 4 (Monitoring Requirements: Electricity Storage Performance Standards).

21.2.4.5 Subject to the *market rules* governing participation in the *energy* markets and the provision of *ancillary services* to the *IESO,* a dispatchable *electricity storage resourcefacility* may only be registered to allow that *resource* or its associated *electricity storage units* provide *energy*, *operating reserve, reactive support service* or *voltage control service*, or combinations of the foregoing and may participate in the *capacity auction*.

21.3   Provision of Regulation Service

21.3.1   An e*lectricity storage participant* wishing to provide *regulation* services must register its *electricity storage* ~~facility~~ *resource* as <u>further described in the applicable *market manual*</u> ~~a self-scheduling electricity storage facility~~ ~~as set forth in section 21.2.2, but excluding section 21.2.2b~~.

21.3.2   Notwithstanding section 2.2.9A.1, an *electricity storage participant* may apply to register as a *self-scheduling electricity storage* ~~facility~~ *resource* any *electricity storage facility* that has an e*lectricity storage capacity* greater than 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*;

21.3.3   An *electricity storage* ~~facility~~ *resource* that is registered to provide *regulation services* may not participate in the *energy* market or the *operating reserve* market.

21.4   ~~Day-Ahead - Energy Offers and Energy Bids~~

~~21.4.1~~   ~~In addition to submitting either an *offer* to inject *energy* or a *bid* to withdraw *energy* as part of the day-ahead commitment process, an *electricity storage participant* may also submit both an *offer* to inject *energy* and a *bid* to withdraw *energy* for a single dispatchable *electricity storage unit* for the same *dispatch hour*.~~

~~21.4.2~~   ~~For each *dispatch hour* in which both *energy offers* and *bids* are submitted in accordance with section 21.4.1, the *electricity storage participant* shall ensure that the lowest price of the *offers* submitted for that *electricity storage unit* to inject *energy* is greater than the highest price of any *bid* for that same *electricity storage unit* to withdraw *energy*.~~

21.~~4~~5   ~~Real Time~~ Energy Offers and Energy Bids

21.~~4~~5.1   Notwithstanding section 3.5.1, an *electricity storage participant* ~~that is registered and wishes to submit *energy offers* or *energy bids* relating to a dispatchable *electricity storage unit*~~ may submit both an *offer* to inject *energy* and a *bid* to withdraw *energy* for ~~that~~ a *dispatchable* electricity storage ~~unit~~ *resource* during the same *dispatch hour*.

21.~~4~~5.2   For each *dispatch hour* in which both *energy offers* and *bids* are submitted in accordance with section 21.~~4~~5.1, the *electricity storage participant* shall ensure that the lowest price of the *offers* submitted for that *electricity storage* ~~unit~~ *resource* to inject *energy* is greater than the highest price of any *bid* for that same

electricity storage ~~unit~~ *resource* to withdraw *energy*.

21.5.3 ~~An *electricity storage provider* whose lowest *offer* price for an *electricity storage unit* to inject *energy* in any *dispatch hour* is less than or equal to its highest *bid* price for the same *electricity storage unit* to withdraw *energy* in that same *dispatch hour* is not entitled to congestion management *settlement* credit determined in accordance with section 3.5.2 of Chapter 9 in respect of that *dispatch hour*, and if paid the IESO may recover such inappropriate congestion management *settlement* credit in accordance with section 3.5.6E of Chapter 9~~

21.~~6~~5 Revisions to Dispatch Data

21.~~6~~5.1 Notwithstanding section 3.3.5, the IESO shall approve reduced injections or withdrawal amounts included in revised *dispatch data* from *electricity storage participants* submitted within 2 hours of a given *dispatch hour,* up to a closing time stipulated in the applicable *market manual*, where the *electricity storage participant* determines, acting reasonably that its *electricity storage* ~~unit~~ *resource* may reach its:

21.~~6~~5.1a. *lower energy limit* in that *dispatch hour*, and will likely prevent the *electricity storage* ~~unit~~ *resource* from injecting *energy* in accordance with its *offer*; or

21.~~6~~5.1.b *upper energy limit* in that *dispatch hour*, and will likely prevent the *electricity storage* ~~unit~~ *resource* from withdrawing *energy* in accordance with its *bid*.

21.~~7~~6 Operating Reserve

21.~~7~~6.1 An *electricity storage participant* shall not submit an offer to provide *operating reserve* from a dispatchable *electricity storage* ~~facility~~ *resource* in any *dispatch hour* when there is a simultaneous *energy* bid and *energy* offer in the real-time market for that *electricity storage resource* ~~facility~~ in the same dispatch hour.

21.~~7~~6.2 An *electricity storage participant* shall only submit an *offer* to provide *operating reserve* for a *dispatchable electricity storage resource* accompanied by an *offer* to inject *energy* ~~from the *electricity storage unit* registered as a dispatchable generation unit~~ to represent its injection capabilities pursuant to Section 21.2.2a if:

21.~~7~~6.2.1 The *electricity storage participant* submits an *offer* for the ~~dispatchable~~ *electricity storage* ~~unit~~ *resource* to inject *energy* ~~is exclusively *offered* as a dispatchable *generation unit*~~ for the entire *dispatch hour* and has

not submitted any *bids* for that *electricity storage resource* to withdraw *energy* for that *dispatch hour*;

21.~~7~~6.2.2 The *electricity storage participant* does not submit an *offer* to provide *operating reserve* accompanied by a *bid* to withdraw *energy* ~~the dispatchable *electricity storage unit* registered as a *dispatchable load* shall not *bid* to withdraw *energy* from the *real-time market* nor *offer operating reserve*~~ in the subsequent *dispatch hour*; and

21.~~7~~6.2.3 the *remaining duration of service* at the time stipulated in the applicable *market manual* is greater than or equal to the period of time stipulated in the applicable *market manual.*

21.~~7~~6.3 An *electricity storage participant* shall only submit an offer to provide -*operating reserve* ~~from~~ for a *dispatchable* ~~the~~ *electricity storage* ~~unit~~ *resource* accompanied by a *bid* to withdraw *energy* ~~registered as a *dispatchable load* to represent its withdrawal capabilities pursuant to Section 21.2.2b~~ if:

21.~~7~~6.3.1 The *electricity storage participant* submits a *bid* for the ~~The dispatchable~~ *electricity storage* ~~unit~~ *resource* to withdraw *energy* for the entire *dispatch hour* and has not submitted any *offers* for that *electricity storage resource* to inject *energy* ~~is exclusively bid as a *dispatchable load*~~ for ~~the~~ that entire *dispatch hour*;

21.~~7~~6.3.2 The *electricity storage participant* does not submit an *offer* for the ~~dispatchable~~ *electricity storage* ~~unit~~ *resource* to inject *energy* into ~~registered as a dispatchable *generator* shall not offer to inject *energy*~~ in the *real-time market* nor an offer to provide *operating reserve* in the subsequent *dispatch hour*; and

21.~~7~~6.3.3 The *remaining duration of service* at the time stipulated in the applicable *market manual* is greater than or equal to a period of time stipulated in the applicable *market manual.*

21.~~8~~7 Interpretation

21.~~8~~7.1 To the extent of any conflict or inconsistency between the provisions of this section 21 and any other provisions of the *market rules*, the provisions of this section 21 shall govern.

21.~~8~~7.2 With respect to Chapter 7, System Operations and Physical Markets-Appendices, the *IESO* will, acting reasonably and consistently at all times with the scope and intent of the amendments referenced in section 21.1:

21.87.2a treat electricity storage injecting, or proposing to inject *energy*, as either a ~~dispatchable~~ *dispatchable generation resource* or ~~self-scheduling generation resource~~ *self-scheduling generation resource*; and

21.87.2b treat electricity storage withdrawing, or proposing to withdraw *energy*, as either a *dispatchable load* or ~~non-dispatchable load~~ *price responsive load*, in each case, deeming such changes to be made to the applicable provisions of such Appendices or applicable *market manuals* as may be necessary to give full meaning to the foregoing.

21.87.3 For further certainty, the reference in section 21.78.2a to the use of *dispatchable generation resource* or *self-scheduling generation resource* ~~dispatchable or self-scheduling generation resources~~ in the interpretation of Chapter 7, System Operations and Physical Markets-Appendices and the applicable *market manuals*, shall not include any features or attributes that pertain primarily to and are distinctive of *intermittent* ~~generators~~ *generation resources,* flexible nuclear generators, *or* variable generators~~, or transitional scheduling generators~~.

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.

22.1.2 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 *reference level values* of each *energy offer reference level* shall be consistent with the requirements for *energy offers* in Chapter 7, section 3.5.3 of the *market rules*.

22.1.6   The *reference level values* of each *operating reserve offer reference level* shall be consistent with the requirements for *offers* to provide *operating reserve* in Chapter 7, section 3.6.2 of the *market rules*.

22.1.7   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*.

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   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:

22.3.3.1   *energy ramp rate reference level*: 0.1 MW/min;

22.3.3.2   *operating reserve ramp rate reference level*: 0.1 MW/min;

22.3.3.3   *lead time reference levels* for each *thermal state*: 24 hours;

22.3.3.4   *minimum loading point reference level*: the maximum installed capacity of the -relevant *resource*;

22.3.3.5   *minimum generation block run-time reference level*: 24 hours;

22.3.3.6   *minimum generation block down-time reference level* for each *thermal state*: 24 hours;

22.3.3.7   *maximum number of starts per day reference level*: 10,000 starts per day;

22.3.3.8   *ramp hours to minimum loading point reference levels* for each *thermal state*: 24 hours;

22.3.3.9   minimum *energy per ramp hour reference levels* for each *thermal state*: 0 MWh; and

22.3.3.10   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

22.4.1   For each *resource* that is registered as a *pseudo-unit*, the *IESO* shall determine one set of *reference levels* for the combined-cycle mode of operation and one set of *reference levels* for the single-cycle mode of operation, as applicable to that *resource*.

22.4.2   For a *resource* that has registered a primary fuel type of gas, oil, steam, or biomass, and which is not eligible to submit *start-up offers* and *speed-no-load offers* as hourly *dispatch data* into the *day-ahead market* and *real-time market*, the *IESO* shall determine two *energy offer reference levels* for that *resource* in accordance with the applicable *market manual*.

22.4.3   For a *resource* that does not have multiple sets of *reference levels* determined pursuant to section 22.4.1 or 22.4.2 and which has indicated to the *IESO* that it can operate according to two distinct cost profiles, the *IESO* shall determine a set of *reference levels* for each profile in accordance with the applicable *market manual*. Each set of *reference levels* shall include all *reference levels* applicable to the *resource*.

22.4.4   For a *resource* with *reference levels* determined pursuant to section 22.4.3, the *IESO* shall use the set of *reference levels* associated with the profile with the lowest costs, unless the *market participant* requests otherwise pursuant to section 22.5.5 and the *IESO* has accepted the request.

22.4.5 The *IESO* shall determine one *operating reserve offer reference level* to be used when an *energy 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* has modified the applicable *market manual* such that the *reference level* determined following such modification differs from the registered *reference level*;

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 22.1.1 or 22.3.3;

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 the *IESO* of a change to the *resource's short-run marginal cost*s or operational characteristics pursuant to section 22.5.4 and the *IESO* has accepted the change;

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 the supporting documentation submitted pursuant to section 22.1.3 to verify that the *reference level* determined is consistent with the 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 supporting documentation, the *IESO* shall update that *reference level* on a go-forward basis from a date specified by the *IESO*.

22.5.3   The *IESO* shall include *energy* and *speed no-load* costs in a *resource's start-up offer reference level* for every hour that the *resource's minimum generation block run-time* extends into the next *dispatch day* after HE 24 of the current *dispatch day*, if that *resource* is eligible to submit *start-up offers* and *speed-no-load offers* as hourly *dispatch data* into the *day-ahead market* and *real-time market*.

22.5.4   A *market participant* may, in accordance with the applicable *market manual*, request that the *IESO* review one of its *resources' reference levels* if the *market participant*:

22.5.4.1   believes the *reference level* does not accurately describe the *short-run marginal cost*s or operational characteristics of that *resource*; or

22.5.4.2   reasonably expects the *reference level* will not accurately describe the *short-run marginal costs* or operational characteristics of that *resource*.

22.5.5   A *market participant* may, in accordance with the applicable *market manual*, request a temporary revision to the fuel cost component of a *reference level* for

specific *dispatch hours* if the fuel cost component in a *resource*'s *energy offer reference level*, *start-up offer reference level*, or *speed no-load offer reference level* will not reflect the *resource*'s *short-run marginal costs* for fuel in those *dispatch hours*. Such request must include supporting documentation showing that the fuel cost component will not reflect the *resource*'s *short-run marginal costs* for fuel in those *dispatch hours*.

22.5.6   A *market participant* that has more than one set of *reference levels* determined for a *resource* pursuant to section 22.4.3 may request, in accordance with the applicable *market manual*, that the *IESO* temporarily use the set of *reference levels* with the highest costs for specific *dispatch hours* if the *resource* is expected to operate in a manner consistent with those *reference levels* for those *dispatch hours*, and shall submit to the *IESO* documentation to substantiate the need to use those *reference levels* at the time of the request. The form and content of such documentation shall be set by the *IESO* and the *market participant* at the time a *resource's reference levels* are determined and may be amended with the agreement of the *IESO* and the *market participant*.

22.5.7   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.

22.5.8   The *IESO* shall temporarily revise the *reference level* for the *dispatch hours* that were the subject of a request made pursuant to section 22.5.5 or 22.5.6 if the request met the applicable deadline specified in section 22.5.7.

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 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 22.5.8, 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 9;

22.5.10.3   reject subsequent requests for the *resource* made outside of 8:00 to 16:00 EDT on *business days* for 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 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.

22.6.2   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*.

22.6.3   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 quantities*, in accordance with the applicable *market manual*.

22.6.4   The *IESO* shall make available to each *market participant* the *reference quantities* and *reference quantity values* registered for that *market participant's resources* in accordance with the applicable *market manual*.

22.6.5   A *market participant* may request that the *IESO* modify a *reference quantity* for a *resource* registered under that *market participant,* if the *market participant* believes that the *IESO's* methodology for calculating that *reference quantity* will over-estimate the quantity of *energy* or *operating reserve* that the *resource* can provide. Any request to do so must be accompanied by additional data and supporting documentation, as set out in the applicable *market manual*.

22.6.6   If the *IESO* is satisfied that the modified methodology used pursuant to section 22.6.5 more accurately describes the specific operational characteristics of the *resource*, then the *IESO* shall use such modified methodology to determine the *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*, 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* has modified the applicable *market manual* such the *reference quantity* determined following such modification differs from the registered *reference quantity*;

     22.7.1.2   the *IESO* identifies a need in accordance with section 22.7.2;

     22.7.1.3   the *market participant* for the *resource* notifies the *IESO* of a change to the *resource's* operational characteristics in accordance with section 22.5.4 or section 22.7.3 and the *IESO* has accepted the change; or

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

22.7.2   The *IESO* may, at any time, review the supporting documentation submitted pursuant to section 22.6.3 to verify that the *reference quantity* determined is consistent with the supporting documentation. If, as a result of such review, the *IESO* determines that the *reference quantity* needs to be amended to be consistent with the supporting documentation, the *IESO* shall update that *reference quantity* on a go-forward basis from a date specified by the *IESO*.

22.7.3   A *market participant* may request that the *IESO* review one of its *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*.

22.8.2 A *market participant* may request that the *IESO* engage an expert independent of the *IESO* and the *market participant* to 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*. The *IESO* shall not register a *reference level* or *reference quantity* that is the subject of an expert determination except in accordance with this section -22.8.

22.8.3 The *IESO* shall request proposals to conduct a determination following a request made pursuant to section 22.8.2, 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 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 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 determination within five *business days* of the *IESO's* notification, the *IESO* shall terminate the 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 an expert engaged pursuant to this section 22.8 with the following:

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

22.8.5.2 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 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 expert's determination following receipt thereof .

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* 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;

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:

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, 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 the determination process and register the *reference levels* or *reference quantities* that the *market participant* originally requested.

22.8.14   The *IESO* may apply a *settlement* charge to the *market participant* equal to the amount charged to the *IESO* by the expert. The *IESO* shall not apply a *settlement* charge for subsequent determinations conducted as a result of the *IESO* rejecting a finding pursuant to section 22.8.10.

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 *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*

22.9.2   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:

    22.9.2.1   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*;

    22.9.2.2   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;

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

22.9.2.4 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;

22.9.2.5 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;*

22.9.2.6 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

22.9.2.7 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*.

22.9.3 A *market participant* shall designate one of the persons or entities disclosed pursuant to section 22.9.2 as the *market control entity for physical withholding* for each *dispatchable generation resource, dispatchable electricity storage resource* and *dispatchable load resource* 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 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*.

22.9.5 If none of the *market participant's market control entities* meets the criteria in section 22.9.4, the *market participant* shall designate a *market control entity* as the *market control entity for physical withholding* for a *resource* as follows:

22.9.5.1 If the *market participant* is a corporation with share capital, then the *market participant* shall designate as the *resource's market control entity for physical withholding* the person or entity that ultimately holds, directly or indirectly, whether through one or more subsidiaries or otherwise, otherwise than by way of security only, by or for the benefit of that person or entity securities of the *market participant* that are attached to more than 50% of the votes that may be cast to elect directors of the *market participant* and the votes attached to those securities are sufficient, if exercised, to elect a majority of the directors of the *market participant*.

22.9.5.2 If the *market participant* is a corporation without share capital, then the *market participant* shall designate as the *resource's market control entity for physical withholding* the person or entity that ultimately, directly or indirectly, whether through one or more subsidiaries or otherwise, is able to elect or appoint a majority of the directors of the *market participant*, other than ex officio directors.

22.9.5.3 If the *market participant* is an entity other than a corporation, then the *market participant* shall designate as the *resource's market control entity for physical withholding* the 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 that person or entity to receive more than 50 per cent of the profits of the *market participant*.

22.9.6 If none of the *market participant's market control entities* meets the criteria in sections 22.9.4 to 22.9.5 and the *market participant* is any type of partnership, then the *market participant* shall designate as the *resource's market control entity for physical withholding* the partner that is entitled to the greatest share of the profits of the *market participant*.

22.9.7 If none of the *market participant's market control entities* meets the criteria in sections 22.9.4 to 22.9.6 then the *market participant* shall designate itself as the *resource's market control entity for physical withholding*.

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 constrained area* designations shall be assessed on at least an annual basis.

22.10.2   Narrow Constrained Areas

22.10.2.1   The *IESO* shall *publish* a list of *narrow constrained areas*, along with each of the *resources* and the transmission constraints within each *narrow constrained area*, at least once per year, in accordance with the applicable *market manual*.

22.10.2.2   The *IESO* shall designate a *potential constrained area* as a *narrow constrained area* if during an *IESO*-determined study period, the *potential constrained area* was import constrained in more than 4% of the hours in the previous 365 days in either the *day-ahead market* or the *real-time market*, as further specified in the applicable *market manual*.

22.10.2.3   The *IESO* may update the list of *resources* or the name of any system element in a *narrow constrained area* in accordance with the applicable *market manual*.

22.10.2.4   Designations made pursuant to section 22.10.2.1 and changes *published* under section 22.10.2.3 shall come into effect in accordance with the applicable *market manual*.

22.10.3   Dynamic Constrained Areas

22.10.3.1   The *IESO* shall designate a *potential constrained area* as a *dynamic 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 *dynamic constrained area* designation shall remain in effect until: (1) 120 *dispatch hours* have passed since the start of the *dispatch hour* in which the designation came into effect, and (2) 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.

22.10.3.3   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*.

22.11   Global Market Power Reference Intertie Zones

22.11.1   The *IESO* may designate an *intertie zone* as a *global market power reference intertie zone* if:

   22.11.1.1   the *intertie* associated with that *intertie zone* connects Ontario directly to another wholesale electricity market; and

   22.11.1.2   the *intertie zone* is able to provide effective competitive discipline for *market participant* behaviour.

22.11.2   The *IESO* shall designate an *intertie zone* as a *global market power reference intertie zone* in accordance with the applicable *market manual.*

22.11.3   The *IESO* shall *publish* the *intertie zones* designated as *global market power reference intertie zones* following a change to an *intertie zone's* designation status. A change to an *intertie zone's* designation status shall take effect no earlier than five *business days* following *publication.*

22.12   Uncompetitive Intertie Zones

22.12.1   The *IESO* shall designate an *intertie zone* as uncompetitive if at least one of the following conditions is true for that *intertie zone*:

   22.12.1.1   a single *market participant* received at least ninety percent of the *day-ahead market* scheduled *energy* withdrawals or injections over *boundary entity resources* connected to that *intertie zone* scheduled in the previous calendar quarter; or

   22.12.1.2   the *IESO* reasonably determines that effective competition in that *intertie zone* is or is expected to be restricted.

22.12.2   The *IESO* shall designate an *intertie zone* as uncompetitive in accordance with the

applicable *market manual.*

22.12.3   The *IESO* may remove the designation of an *intertie zone* as uncompetitive if the *intertie zone* no longer meets any of the criteria specified in section 22.12.1.

22.12.4   The *IESO* shall *publish* the *intertie zones* designated as uncompetitive following a change to an *intertie zone's* designation status. A change to an *intertie zone's* designation status shall take effect no earlier than two days following *publication*.

22.12.5   The *IESO* shall review the *intertie zones* designated as uncompetitive:

22.12.5.1   within the first five *business days* of each calendar quarter to determine whether either of the conditions in section 22.12.1 has been met; and

22.12.5.2   when a new *intertie zone* is added to the *IESO-administered market*.

22.12.6   The *IESO* may review the *intertie zones* designated as uncompetitive when a material change in market trade, structure, or regulation of external markets has occurred in the neighbouring *control 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 greater than the lesser of 100% or three hours above the *reference level value*;

22.13.1.2   *minimum generation block down-time* is greater than the lesser of 100% or three hours above the *reference level value* for the hot *thermal state*;

22.13.1.3   *minimum generation block down-time* is 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 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 less than 50% of the *reference level value*;

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

22.13.1.8   *lead time* is greater than the lesser of 100% or three hours above the *reference level value* for any *thermal state,* or submitted *lead time* across all *thermal states* is greater than six hours above the total *reference level values* across all *thermal states*;

22.13.1.9   *ramp hours to minimum loading point* is greater than the lesser of 100% or three hours above the *reference level value* for any *thermal state*;

22.13.1.10   *energy per ramp hour* is greater than 50% above the upper bound *reference level value* or 50% below the lower bound *reference level value* for any *thermal state*; or

22.13.1.11   *maximum number of starts per day* is 50% less than the *reference level value* or 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 7.5 and Appendix 7.5A of the *market rules*.

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 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 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 7.15 and Appendix 7.5A 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 22.15.4. 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* 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* (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, greater than 5 MW 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:

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

22.15.5.2.2   that *resource* and every other *resource* (i) that shares a *market control entity for physical withholding* that met the same condition in 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, less than those *resources'* aggregate *reference quantity values* by greater than the lesser of 5% or 200 MW.

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22.15.6   A *registered market participant* for a *resource* that did not submit an *energy offer* for a *dispatch hour* in the *day-ahead market* or *real-time market* shall be deemed to have submitted an *energy offer* of 0 MW in that market for the purposes of the conduct test set out in this section.

22.15.7   If a *resource* met more than one of the conditions in sections 22.15.4.3 to 22.15.4.6, the *IESO* shall apply the conduct test for *physical withholding* with the most restrictive of the conduct thresholds set out in section 22.15.5.

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:

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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 greater than the lesser of 50% or $25/MWh;

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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 greater than 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 the greater than lesser of 100% or $50/MWh.

22.15.9   The *IESO* shall calculate a *resource*'s *simulated as-offered energy locational marginal price* using the same inputs as those used by the relevant calculation engine to calculate that *resource*'s *energy locational marginal price*.

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

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 had a *day-ahead market* or a *real-time market locational marginal price* for *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 or its maximum load active power; or

22.15.11.2 had a *day-ahead market* or a *real-time market locational marginal price* for *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 10 MW of *operating reserve* in aggregate based on those *resources'* maximum resource active power capabilities or its maximum load active power,

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*:

22.15.11.3 the *offer* for *operating reserve* was below the *resource's reference quantity value* and the *operating reserve locational marginal price* for the *resource* 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.

Conduct Test – Operating Reserve

22.15.12   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:

22.15.12.1 that *resource* met the conditions in section 22.15.11.1, and:

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

22.15.12.1.2 that *resource* and every other *resource* (i) that shares a *market control entity for physical withholding* that met the 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, less than those *resources'* aggregate *reference quantity values* by greater than the lesser of 5% or 200 MW; or

22.15.12.2   that *resource* met the conditions in section 22.15.11.4 and:

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

22.15.12.2.2   that *resource* and every other *resource* (i) that 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 22.15.12.2.1, submitted *offers* for *operating reserve* that were, in the aggregate, 5 MW less than below those *resources'* aggregate *reference- quantity values*.

22.15.13 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.

22.15.14 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 22.15.12~~3~~.

Impact Test – Operating Reserve

22.15.15   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 22.15.12. An *offer* for *operating reserve* shall fail the impact test if:

22.15.15.1 the *resource* met the condition in section 22.15.11.3 and the *resource*'s *simulated as-offered operating reserve locational marginal price* 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

22.15.15.2 the *resource* met the condition in section 22.15.11.4 and the *resource*'s *simulated as-offered operating reserve locational marginal price* is greater than the *resource*'s *simulated reference quantity operating reserve locational marginal price*.

22.15.16   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*.

22.15.17   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

22.15.18   If an *energy offer* or *offer* for *operating reserve* fails an impact test for *physical withholding* applied pursuant to section 22.15.8 or 22.15.15, the *IESO* shall issue a first notice of *physical withholding* to the relevant *market participant* communicating a finding of an *instance of physical withholding.*

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

22.15.19   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.*

22.15.20   Up to 45 days after the date of the notice specified in section 22.15.18, 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 22.15.15.

   22.15.20.1 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.*

22.15.21   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 22.15.12 and impact test applied pursuant to section 22.15.8 or 22.15.15, as applicable, using the *alternative reference quantity value* in the place of the applicable *reference quantity value.*

22.15.22   If the conduct test and impact test repeated pursuant to section 22.15.21 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.

22.15.23   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 22.15.20 if:

22.15.23.1 the conduct test and impact test repeated pursuant to section 22.15.21 are failed; or

22.15.23.2 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*.

22.15.24   If a *market participant* does not request that the *IESO* determine an *alternative reference quantity value* in accordance with section 22.15.20 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 22.15.20 elapsing or receipt of such notice, as the case may be.

22.15.25   If the *registered market participant* for a *resource* has submitted an *offer* that fails an impact test repeated pursuant to section 22.15.21, 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 22.15.20 elapsing.

22.15.25.1 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* 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 six *business days* following the relevant *dispatch day.*

22.16.2   For a *market participant* that has *intertie reference levels* determined pursuant to section 22.16.1, the *IESO* shall determine one set of *intertie reference levels* for the period from 7:00 to 23:00 EPT on *business days* and one set of *intertie reference levels* for all other times. The *IESO* shall consider only the *dispatch hours* within each period when determining *intertie reference levels* for that period.

Energy Offers

22.16.3   When determining *day-ahead market energy offer intertie reference levels* 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:

22.16.3.1   the *market participant* had at least 1 MW 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*;

22.16.3.2   the positive congestion component of the *intertie border price* in the *day-ahead market* was less than or equal to $25/MWh for *energy*; and

22.16.3.3   the *market participant's energy offer* for the *boundary entity resource* was priced below or equal to the *intertie border price.*

22.16.4   If a *market participant* did not have an *energy offer* that met the conditions in section 22.16.3 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 energy offer intertie reference level* for a *boundary entity resource* for a particular *dispatch hour* on a particular *dispatch day* shall be the *intertie border price* for *energy* from the *day-ahead market* for that *dispatch hour* in that *dispatch day*.

22.16.5   If a *market participant* had an *energy offer* that met the conditions in section 22.16.3 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 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 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 22.16.3.

22.16.6   When determining *real-time market energy offer intertie reference levels* 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:

22.16.6.1   the *market participant* had at least 1 MW 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;*

22.16.6.2   the positive congestion component of the *intertie border price* in the *real-time market* was less than or equal to $25/MWh for *energy*; and

22.16.6.3   the *market participant'*s *energy offer* for the *boundary entity resource* was priced below or equal to the *intertie border price*.

22.16.7   If a *market participant* did not have 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 *intertie border price* for *energy* from the *real-time market* for that *dispatch hour* in that *dispatch day*.

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 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

22.16.9   When determining *day-ahead market energy bid intertie reference levels* 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:

22.16.9.1   the *market participant* had at least 1 MW 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*;

22.16.9.2   the positive congestion component of the *intertie border price* in the *day-ahead market* was less than or equal to $25/MWh for energy; and

22.16.9.3   the *market participant'*s *energy bid* for the *boundary entity resource* was priced above the *intertie border price*.

22.16.10   If a *market participant* did not have an *energy bid* that met the conditions in section 22.16.9 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 energy bid intertie reference level* for a *boundary entity resource* for a particular *dispatch hour* on a particular *dispatch day* shall be the *intertie border price* for *energy* from the *day-ahead market* for that *dispatch hour* in that *dispatch day*.

22.16.11   If a *market participant* had an *energy bid* that met the conditions in section 22.16.9 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 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 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 22.16.9.

22.16.12   When determining *real-time market energy bid intertie reference levels* 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:

22.16.12.1 the *market participant* had at least 1 MW 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*;

22.16.12.2 the positive congestion component of the *intertie border price* in the *real-time market* was less than or equal to $25/MWh for *energy*; and

22.16.12.3 the *market participant'*s *energy bid* for the *boundary entity resource* was priced above the *intertie border price*.

22.16.13   If a *market participant* did not have 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 *intertie border price* for *energy* from the *real-time market* for that *dispatch hour* in that *dispatch day*.

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 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 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* 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 levels* 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 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* in 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.*

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

Conduct Test – Energy

22.17.3   The *IESO* may apply a conduct test for *intertie economic withholding* to an *energy offer* or *energy bid* submitted by a *registered market participant* for a *boundary entity resource* in an uncompetitive *intertie zone* if: (i) that *energy offer* or *energy bid* was scheduled; and (ii) there is a positive congestion component on the *intertie border price* for *energy* greater than \$25/MWh in the *day-ahead market* or greater than \$25/MWh in the *real-time market,* as applicable.

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
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 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.

22.17.8   The *IESO* shall calculate the *simulated intertie reference level energy locational marginal price* using the same inputs as those used by the relevant calculation engine to calculate the *energy locational marginal price* for the uncompetitive *intertie zone* and replacing each *energy offer* or *energy bid* that failed the conduct test applied pursuant to section 22.17.3 with the applicable *intertie reference level* for *energy* for the *boundary entity resource* in the *dispatch day* being assessed.

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.

22.17.10   An *offer* for *operating reserve* submitted by a *registered market participant* for *a boundary entity resource* shall fail the conduct test applied pursuant to section 22.17.9 if the *offer* is greater than the lesser of 50% or $25/MWh above the *boundary entity resource's intertie reference level* in the *day-ahead market* or greater than the lesser of 50% or $25/MW above the *boundary entity resource's intertie reference level* in the *real-time market*.

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 less 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 the 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*.

22.17.14 The *IESO* shall calculate the *simulated intertie reference level operating reserve locational marginal price* using the same inputs as those used by the relevant calculation engine to calculate the *operating reserve locational marginal price* for the *uncompetitive intertie zone* and replacing each *offer* for *operating reserve* that failed the conduct test applied pursuant to section 22.17.10 with the applicable *operating reserve offer intertie reference level* for the *boundary entity resource* in the *dispatch day* being assessed.

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

22.18.1 The *IESO* may apply the conduct tests and impact tests specified in this section 22.18 in accordance with the applicable *market manual* to assess mitigation for make-whole payment impact on an uncompetitive *intertie zone*.

22.18.2 The *IESO* may cease the assessment of mitigation for make-whole payment impact at any time.

Conditions

22.18.3 The *IESO* may assess mitigation for make-whole payment impact on an uncompetitive *intertie zone* for a *boundary entity resource* if:

22.18.3.1 the *boundary entity resource* was tested for an *energy* price impact pursuant to section 22.17.6;

22.18.3.2   the *boundary entity resource* was tested for an *operating reserve* price impact pursuant to section 22.17.12; or

22.18.3.3   the *boundary entity resource* was scheduled to provide *operating reserve* on an uncompetitive *intertie zone* and received a make-whole payment greater than $10,000 for a *dispatch hour.*

Conduct Test

22.18.4   The *IESO* may apply a conduct 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 met any of the conditions in section 22.18.3. The *energy offer* or *offer* for *operating reserve* shall fail the conduct test if:

22.18.4.1   the *energy offer* was greater than the lesser of 300% or $100/MWh above the *boundary entity resource*'s *intertie reference level* in the *day-ahead market* or greater than the lesser of 300% or $100/MW above the *boundary entity resource*'s *intertie reference level* in the *real-time market*; or

22.18.4.2   the *offer* for *operating reserve* was greater than the lesser of 50% or $25/MWh above the *boundary entity resource*'s *intertie reference level* in the *day-ahead market* or greater than the lesser of 50% or $25/MW above the *boundary entity resource*'s *intertie reference level* in the *real-time market.*

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 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.

22.19   Intertie Economic Withholding – Procedural Steps and Timelines

22.19.1   If an *energy offer, energy bid,* or *offer* for *operating reserve* fails an impact test applied pursuant to section 22.17.6, 22.17.12 or 22.18.5, the *IESO* shall issue a first notice of *economic withholding* to the relevant *market participant* communicating a finding of an *instance of intertie economic withholding.*

22.19.1.1   Notices issued pursuant to this section shall be issued no later than 180 days following the *dispatch day* for which the *offer* or *bid* was submitted.

22.19.2   The *IESO* shall notify the *market participant* if the *IESO* ceases its assessment of *intertie economic withholding* following issuance of the first notice of *intertie economic withholding.*

22.19.3   Up to 45 days after the date of the notice specified in section 22.19.1, the *market participant* may submit to the *IESO* a request that the *IESO* determine an *alternative intertie reference level value* for the relevant *boundary entity resource* during the *dispatch day* in which the *offer* or *bid* was submitted.

22.19.3.1   Requests submitted pursuant to this section must include documentation to support any *resource*-specific considerations that were not accounted for in the *intertie reference levels* in use during the *instance of intertie economic withholding.*

22.19.4   The *IESO* shall review the submitted supporting documentation and if upon such review the *IESO* determines it demonstrates that the *intertie reference level* did not account for all a *market participant's short-run marginal costs*, for *offers*, or *short-run marginal benefits*, for *bids*, the *IESO* shall determine an *alternative intertie reference level value* for the *boundary entity resource* that accounts for all the *short-run marginal costs* or *short-run marginal benefits*, as the case may be, and repeat the conduct test applied pursuant to section 22.17.3, 22.17.9, or 22.18.4 and impact test applied pursuant to section 22.17.6, 22.17.12, or 22.18.5 using the *alternative intertie reference level value* in the place of the applicable *intertie reference level value.*

22.19.5   If the conduct test and impact test repeated pursuant to section 22.19.4 are not failed when the *alternative intertie reference level value* is used, the *IESO* shall discontinue the assessment and notify the *market participant* within 90 days of receiving the supporting documentation.

22.19.6   The *IESO* shall issue a second notice of *intertie economic withholding* to the relevant *market participant* within 90 days of the day the *IESO* received supporting documentation pursuant to section 22.19.3 if:

      22.19.6.1   the conduct test and impact test for *intertie economic withholding* repeated pursuant to section 22.19.4 are failed; or

      22.19.6.2   upon review of the supporting documentation, the *IESO* determines that the supporting documentation does not demonstrate that the relevant *intertie reference level* did not account for all of a *market participant's short-run marginal costs*, for *offers*, or *short-run marginal benefits*, for *bids*.

22.19.7   If a *market participant* does not request that the *IESO* determine an *alternative intertie reference level value* in accordance with section 22.19.3 or notifies the *IESO* that it will not make such a request, the *IESO* shall issue a second notice of *intertie economic withholding* within 90 days of the time period in section 22.19.3 elapsing or receipt of such notice, as the case may be.

22.19.8   If a *registered market participant* for a *boundary entity resource* has submitted an *offer* or *bid* that fails an impact test applied pursuant to section 22.17.6, 22.17.12, or 22.18.5, the *IESO* shall apply a *settlement* charge to the relevant *market participant* in respect of each *instance of intertie economic withholding*.

22.19.8.1   A second notice of *intertie economic withholding* shall set out the *settlement* charge relating to the *instance of intertie economic 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*.