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Market Manual 4: Market Operations

Part 4.2: Submission of Dispatch Data in the Real-Time Energy and Operating Reserve Markets

Issue 56.0

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This procedure provides guidance to Market Participants on the submission of dispatch data in the Real-Time Energy and Operating Reserve Markets.

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This *market manual* may contain a summary of a particular *market rule*. Where provided, the summary has been used because of the length of the *market rule* itself. The reader should be aware, however, that where a *market rule* is applicable, the obligation that needs to be met is as stated in the "Market Rules". To the extent of any discrepancy or inconsistency between the provisions of a particular *market rule* and the summary, the provision of the *market rule* shall govern.

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Document ID	MDP_PRO_0027
Document Name	Part 4.2: Submission of Dispatch Data in the Real-Time Energy and Operating Reserve Markets
Issue	Issue 56.0
Reason for Issue	Issued released for Baseline 37.1
Effective Date	June 7, 2017

Document Change History

Issue	Reason for Issue	Date
For changes prior to 2011, refer to version 41.0 and prior.		
41.0	Issued in advance of Baseline 26.1 for the implementation of EDAC	October 12, 2011
42.0	Issue released for Baseline 27.1	June 6, 2012
43.0	Issue released for Baseline 28.1	December 5, 2012
44.0	Issue released for Baseline 29.0	March 6, 2013
45.0	Issue released for Baseline 29.1	June 5, 2013
46.0	Issue released for Baseline 30.0	September 11, 2013
47.0	Issue released in advance of Baseline 31.0 for the implementation of SE-109: Outage Management Process Redesign and Market Rule Amendment MR-00404-R00	February 5, 2014
48.0	Issue released in advance of Baseline 33.0	December 8, 2014
49.0	Issue released for Baseline 33.0	March 4, 2015
50.0	Issue released for Baseline 33.1	June 3, 2015
51.0	Issue released for Baseline 34.0	September 9, 2015
52.0	Issue released for Baseline 34.1	December 2, 2015
53.0	Issue released for Baseline 35.0	March 2, 2016
54.0	Issue released in advance of Baseline 36.0	June 21, 2016
55.0	Issue released in advance of Baseline 36.1	October 26, 2016
56.0	Issue released for Baseline 37.1	June 7, 2017

Related Documents

Document ID	Document Title
IMP_PRO_0034	Market Manual 4.3: Real-Time Scheduling of the Physical Markets

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Reference (Paragraph and Section)	Description of Change
Throughout	Updated references from “best effort basis” to “reasonable effort basis” in order to better express the intent of the relevant provisions. This change does not impact IESO operations priorities.
Appendix C.4	Revised content to indicate that the IESO will approve revisions to dispatch data as per the Short Notice Change Criteria contained in Appendix B.
Appendix D	Revised content to reflect the shift from using a set of defined Ramp Hours in pre-dispatch scheduling to the dynamic selection of Ramp Hours (IMDC-38).

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Market Manuals

The *market manuals* consolidate the market procedures and associated forms, standards, and policies that define certain elements relating to the operation of the *IESO-administered markets*. Market procedures provide more detailed descriptions of the requirements for various activities than is specified in the *market rules*. Where there is a discrepancy between the requirements in a document within a *market manual* and the *market rules*, the *market rules* shall prevail. Standards and policies appended to, or referenced in, these procedures provide a supporting framework.

The "Market Operations Manual" is Series 4 of the *market manuals*, where this document forms "Part 4.2: Submission of dispatch Data in the Real-Time Energy and Operating Reserve Markets".

– End of Section –

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1. Introduction

1.1 Purpose

This document provides *market participants* with the information necessary for submitting *dispatch data* in the real-time *energy* and *operating reserve* markets. The submission of *dispatch data* for a *registered facility*, other than a *boundary entity*, is the responsibility of the *market participant* who is registered with the *IESO* as the *registered market participant* for a specific *facility*. All references within this document to a *market participant*, in the context of submitting *dispatch data* for a *registered facility*, other than a *boundary entity*, should be taken to mean the *registered market participant*. (Refer to Market Manual 1.2: Market Entry, Maintenance and De-registration for more information on this process.)

Market participants may also submit *dispatch data* for *boundary entity* resources where they have previously registered the capability to import and/or export *energy* (and/or import *operating reserve*) through a *boundary entity*, as part of the participant authorization process. (Refer to Market Manual 1.1: Participant Authorization, Maintenance & Exit for more information on this process.)

Dispatch data consists of:

- *Offer*s to provide *energy* and *operating reserve* by a *dispatchable generation facility*, a *capacity based demand response (CBDR)* resource, or a *boundary entity*,
- *Bid*s to take *energy* and *offers* to provide *operating reserve* by a *market participant* having a *dispatchable load facility*, or a *boundary entity*,
- *Bids* to reduce *energy* withdrawals by a *market participant* having an *hourly demand response (HDR)* resource,
- *S*elf-schedules for the provision of *energy* by self-scheduling *generation facilities*, and transitional scheduling *generators*,
- Forecasts for the *energy* expected to be provided by *intermittent generators*, and
- Installed capacity net *outages* and *derates* to be provided by *variable generators*.

This *market manual* also provides a procedure for changing *dispatch data*, and describes the steps followed by the *IESO* for processing *dispatch data* and changes and its subsequent publication of the *security* and *adequacy* assessments and *pre-dispatch schedule* (and notification to scheduled *market participants*).

1.2 Scope

This *market manual* is intended to provide *market participants* with a summary of the steps and interfaces between *market participants*, the *IESO*, and other parties for submitting *dispatch data* in the real-time *energy* and *operating reserve* markets. The procedural work flows and steps described in this document serve as a roadmap for *market participants* and the *IESO*, and reflect the requirements set out in the *market rules* and applicable *IESO* policies and standards.

The procedure does not apply when the *IESO-administered markets* are suspended. See Market Manual 4.5: Market Suspension and Resumption for more information on the processes to be followed in this situation.

The overview information in Section 1.3, below, is provided for context purposes only, highlighting the main actions that comprise the procedure as set out in Section 2.

Transmission system information to be provided by *transmitters,* as per *Market Rule* Chapter 7, Sections 3.4.2 and 3.9 (*MR* Ch. 7 Sec. 3.4.2 and 3.9), is not included as part of this *market manual*.

1.3 Roles and Responsibilities

Responsibility for submitting *dispatch data* in the real-time *energy* and *operating reserve* markets is shared among:

- ***Generators*** *having dispatchable generation facilities that are responsible for:*
  - Submitting *offer*s for *energy* and *operating reserve* for *registered facilities* in the real-time *energy* and *operating reserve* markets in the required timeframe, and
  - Making revisions to data as required within the required timeframe,
- ***Generators*** *having self-scheduled generation facilities or transitional scheduling generators that are responsible for:*
  - Submitting *self-schedules* of *energy* to be provided to the market, and
  - Making changes to data as required within the required timeframe,
- ***Generators*** *having intermittent generators that are responsible for:*
  - Submitting a forecast of *energy* to be provided to the market, and
  - Making changes to data as required within the required timeframe,
- ***Generators*** *having variable generation that are responsible for:*
  - Submitting the total installed capacity net any derates or *outages* to the *variable generation* facility, and
  - Making changes to data as required within the required timeframe,
- ***Market participants*** having ***dispatchable loads*** that are responsible for:
  - Submitting *bids* for *energy* and *offer*s for *operating reserve* for *registered facilities* in the real-time *energy* and *operating reserve* markets in the required timeframe, and
  - Making changes to data as required within the required timeframe,
- ***Market participants*** having ***hourly demand response (HDR)*** resources that are responsible for:
  - Submitting *bids* to reduce *energy* withdrawals for *registered facilities* in the real-time *energy* market in the required timeframe, and
  - Making changes to data as required within the required timeframe,
- ***Market participants*** *having the capability to* ***import or export energy*** *(and import operating reserve) through a boundary entity and who are responsible for:*

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- Submitting *bids* and *offers* for *energy* and *offers* for *operating reserve* for the *boundary entity* in the real-time *energy* and *operating reserve* markets in the required timeframe, and
- Making changes to data as required within the required timeframe,

- ***Generators*** *having registered generation facilities operable in a segregated mode of operation and who are responsible for:*
  - Submitting requests for segregation in the required timeframe,
  - Submitting *outage* requests as indicated in Market Manual 7.3: Outage Management and notifying *IESO* of such requests, and
  - Making revisions to *dispatch data* as required within the required timeframe,
- The ***IESO*** which is responsible for:
  - Receiving and processing *dispatch data*, including requests for segregation,
  - Notifying *market participants* of invalid data and rejection of data within the required timeframe,
  - Running the pre-dispatch process,
  - Determining market clearing prices as well as *energy* and *operating reserve* schedules,
  - Making decisions regarding requests for segregation,
  - Notifying *market participants* of their own individual schedules for *energy* and *operating reserve* and of decisions regarding requests for segregation,
  - Coordinating and confirming with the applicable *control area operator* and directing the relevant *transmitter* on the switching of the segregated *generation facilities*, and
  - Publishing the results of each pre-dispatch run.

1.4 Contact Information

Changes to this public *market manual* are managed via the *IESO* Change Management process. Stakeholders are encouraged to participate in the evolution of this *market manual* via this process.

To contact the *IESO*, you can email *IESO* Customer Relations at customer.relations@ieso.ca or use telephone or mail. Telephone numbers and the mailing address can be found on the IESO website (http://www.ieso.ca/corporate-ieso/contact). Customer Relations staff will respond as soon as possible.

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2. Real-Time Energy and Operating Reserve Markets

The real-time *energy* and *operating reserve* markets are electricity markets administrated by the *IESO*, which, for purposes of submitting and revising *dispatch data*, operate in advance of and up to the *dispatch hour*. Based on this *dispatch data*, the *IESO* determines *dispatch instructions* for each registered *facility* and *boundary entity* as the primary means of coordinating the operation of the *physical markets* during the *dispatch hour*. The *IESO* continues to perform administrative tasks relative to these markets, such as the *settlements* functions, after the *dispatch hour*.

- *Dispatch* data in the real-time *energy* and *operating reserve* markets consists of *offers* to provide *energy* and/or *operating reserve*, *bids* for the withdrawal of *energy (dispatchable loads)*, *bids* to reduce *energy* withdrawals (*HDRs* and *CBDR*), self-schedules and forecasts for the provision of *energy*.

Dispatch data for the real-time *energy* and *operating reserve* markets is submitted separately, but follows the same procedure and is therefore discussed together for purposes of this document.

Each applicable market participant may submit dispatch data for its registered facilities for any or all hours of a dispatch day subject to the limitations set out in this manual.

2.1 Offers and Bids for Energy and Offers for Operating Reserve in the Real-Time Energy Markets

There are four types of *market participants* who may submit *offer*s and *bids* for *energy* or, in addition, *offer*s for *operating reserve* in the real-time *energy* and *operating reserve* markets (*MR* Ch.7, Sec. 3.4.1.1 and 3.4.1.2):

- ***Generators*** having *dispatchable generation facilities,* who submit *offers* to provide *energy* or, in addition*, operating reserve* for registered facilities*,*
- ***Market participants*** with *dispatchable loads submitting bids* to take *energy* or, in addition, *offers* to provide *operating reserve* for registered facilities,
- ***Market participants*** with *HDR* resources submitting *bids* to reduce *energy* withdrawals, and
- ***Market participants*** with a *boundary entity* capability who submit *bids* and *offers* to import energy to, export *energy* from, and/or, in addition, import *operating reserve* to, the Ontario market.

Additionally, the *IESO* may include voltage reductions and reductions in the *thirty-minute operating reserve* requirements within allowable *reliability standards* as standing *offers* in the *operating reserve* markets subject to the following conditions:

- The *IESO* shall introduce such standing *offers* in increasing quantities (*MR Ch. 5*, Sec. 4.5.6A.1),
- The prices and quantities of the standing *offers* shall be determined by the *IESO Board* (*MR* Ch. 5, Sec. 4.5.6A.2),

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- The *IESO Board* may specify the circumstances under which any one or more of the quantities may either be withdrawn or not introduced, and the manner in which any such withdrawal will be effected (*MR* Ch. 5, Sec. 4.5.6A.3), and
- The prices and quantities of the standing *offers* set by the *IESO Board* shall be monitored by the *IESO* to assess their impacts and so that any changes to the prices and quantities would be recommended to the *IESO Board* as necessary (*MR* Ch. 5, Sec. 4.5.6A.5).

Market participants may submit initial *offer*s to supply *energy* and *operating reserve*, *bids* to reduce *energy* withdrawals, or *bids* to take *energy*, for any or all *dispatch* hours of a *dispatch day*. *Dispatch data* is submitted using the web-based *market participant* interface. See the "Energy Market Graphical User Interface User's Guide" for detailed information as to how to operate this interface. In the event that the *Market Participant* Interface is unavailable, the *IESO* will follow a contingency plan for the submission of *dispatch data* (see Appendix C) (*MR* Ch. 7, Sec. 3.2.1).

A *market participan*t may submit only one *offer* to supply *energy*, or one *bid* to take *energy* or to reduce *energy* withdrawals, with respect to a given *registered facility* for any *dispatch hour*. If more than one *offer* or *bid* is submitted for a given *registered facility* in a given *dispatch hour*, only the latest valid and accepted *offer* or *bid* will be considered (*MR* Ch. 7, Sec. 3.5.1).

A *market participan*t must provide *dispatch data* to the *IESO* for all *registered facilities* for which *dispatch data* is required even if that *market participan*t has all sales or purchases of *energy* covered by a physical bilateral contract (*MR* Ch. 7, Sec. 3.3.1 and 3.3.12).

There are three classes of *operating reserve* that may be offered: 10-minute synchronized *operating reserve*, 10-minute non-synchronized *operating reserve*, and 30-minute *operating reserve*. Each *offer* to provide *operating reserve* must be accompanied by a corresponding *energy offer* or *energy bid* that covers the same megawatt (MW) range (*MR* Ch. 7, Sec. 3.6.3). The classes of *operating reserve* for which a *market participan*t can submit *dispatch data* with respect to a specific *registered facility*, other than a *boundary entity*, are established during the *market entry* process. Refer to Market Manual 1.2: Facility Registration, Maintenance & De-registration. *Boundary entities* are registered through the Participant Authorization process (refer to Market Manual 1.1 Participant Registration, Maintenance and Exit) and are allowed to submit *dispatch data* for export/import of *energy* and import of non-synchronized *operating reserve*.

If the *dispatch data* provided 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 submit standing *dispatch data* (i.e. standing *offer*s and standing *bids*) for that *registered facility* (*MR* Ch. 7, Sec. 3.3.9). Standing *dispatch data* must be submitted prior to 06.00 EST on the pre-*dispatch day* and include the *offer* or *bid* for each *dispatch hour* of each *dispatch day* being submitted.

Standing *dispatch data* will remain in effect until the day after the expiration date specified in the standing *dispatch data*, unless withdrawn earlier by the *market participant* or revised by the *market participant* (*MR* Ch. 7, Sec. 3.3.9.2):

- As standing *dispatch data* prior to 06:00 EST on the *pre-dispatch* day, or
- Through the process of submitting daily *dispatch data* described in this procedure.

Generators having *generation facilities* operable in *segregated mode of operation* are responsible for submitting requests for segregation and for making revisions, as required, to *dispatch data* within the specified timeframe (refer to *MR* Ch. 7, App. 7.7 as well as Section 2.5 of this manual).

2.2 Energy Schedules and Forecasts

There are four types of *market participants* who must submit *energy* schedules or *energy* forecasts in the real-time *energy* and *operating reserve* markets (*MR* Ch. 7, Sec. 3.4.1):

- ***Generators*** having self-scheduling *generation facilities* must submit *dispatch data* indicating the amount of *energy* to be provided by each self-scheduling *generation facility* in each *dispatch* hour,
- ***Generators*** having *intermittent generators* must submit a forecast of the amount of *energy* that they expect to be injected in each *dispatch* hour,
- ***Generators*** having *variable generation* must submit *dispatch data* indicating the total *installed capacity* net any *derates* or *outages* in each *dispatch hour*, and
- ***Generators*** having *transitional scheduling generators* must submit *dispatch data* indicating the amount of *energy* to be provided by each *transitional scheduling generator* in each *dispatch* hour.

These *energy* schedules and forecasts are submitted through the schedule template in Appendix A.

2.3 Timing of the Real-Time Energy and Operating Reserve Markets

Dispatch data may be submitted, without restriction, from 06:00 EST on the *pre-dispatch day* until two hours prior to the *dispatch hour* for which the submitted data applies (*MR* Ch. 7, Sec. 3.3.1 and 3.3.3). *Market participants* may also submit standing *dispatch data* instructions to the *IESO* where these instructions will not change from *trading week* to *trading week* (*MR* Ch. 7, Sec. 3.3.9). The *IESO* will apply these instructions, for the duration specified by the *market participant*, without further instructions being required from the *market participant*.

Standing *dispatch data* for specified *dispatch hours* of a *dispatch day* may be submitted at any time in advance of 06:00 EST on the pre-*dispatch day*. However, standing *dispatch data* submitted in advance will not be processed by the *IESO* until 06:00 EST on the pre-*dispatch day* (the day prior to the *dispatch day* to which the data applies). Revisions to initial *dispatch data* may be made without restriction until two hours prior to the start of the *dispatch hour* for which the *dispatch data* applies (*MR* Ch. 7, Sec. 3.3.9.2).

The procedure for submitting *dispatch data* and unrestricted changes is contained in Section 2.3.3 The timing of events is as set out below:

1. *Market participants* submit standing *dispatch data* without restriction in advance of the *dispatch* day.
2. At 06:00 EST on the *pre-dispatch* day, the *IESO* begins processing *dispatch data* for the *dispatch* day. At this time all valid *bids* and *offers* for the *dispatch day* (including valid standing *offers* and *bids* received prior to 06:00 EST on the *pre-dispatch* day) will be considered. *Market participants* may continue submitting *dispatch data* for use in the *day-ahead commitment process (DACP)* until 10:00 EST (*MR* Ch. *7*, Sec. 3.3A).
3. After 10:00 EST, the *IESO* will begin the *DACP*. Refer to Market Manual 9.2, Submitting Operational and Market Data for DACP, for more information on restrictions that apply to the submission of *dispatch data* during *DACP* (10:00 EST to 14:00 EST).

4. After 14:00 EST, *market participants* may continue to submit *dispatch data* and revisions for any *dispatch* hour or hours in the *dispatch* day subject to the restrictions set out in this manual, until two hours prior to the dispatch hour for which the dispatch data or revision is being submitted (*MR* Ch. *7*, Sec. 3.3.3).
5. After 15:00 EST the *IESO* will begin the initial *pre-dispatch* process, which will be completed by 16:00 EST. All *dispatch data* that has been received and validated at this time will be used in the *pre-dispatch* process.
6. As revisions to the *dispatch data* are made, subsequent publications and releases of the *pre-dispatch* schedule will be necessary to reflect their impact on the *pre-dispatch* results. Following each hour in which such revisions occur, the *IESO* will again initiate the *pre-dispatch* process as necessary and provide any applicable notification and publication when appropriate based on material changes. This process will continue, with the *IESO* making subsequent publications and release of the pre-dispatch schedule, as revisions require[1] (*MR* Ch. *7*, Sec. 3.5.1). (Refer to Appendix D for further information on the process for pre-dispatch schedule production and publication.)
7. Following the initial publication and release of the *pre-dispatch* schedule, and then as appropriate on subsequent publications and releases based on material changes, the *IESO* will publish the associated projected *market prices* for *energy* and each class of *operating reserve* and the associated projected *market schedule* (*MR* Ch. *7*, Sec. 5.4). The *IESO* must release the *pre-dispatch* schedule for each individual *registered facility* only to the market participant who submitted the information for that facility (*MR* Ch. *7*, Sec. 5.5). Refer to Appendix D for further information on the process for *pre-dispatch* production and publication.

Market participants may make changes to their *dispatch data* if the following conditions are met (*MR* Ch. 7, Sec. 3.3).

8. From two hours prior to the *dispatch* hour until 60 minutes prior to commencement of the *dispatch* hour: a change to *bids* and *offers* relating to a *boundary entity* may be accepted by the *IESO* if the conditions of the *market rules* are met and if the change complies with the *IESO Short Notice Change Criteria* (see Appendix B)[2]. Market mechanisms are to be used as much as possible to solve problems with the *pre-dispatch* schedule.
9. From two hours prior to the *dispatch* hour, until 10 minutes prior to the commencement of the *dispatch* hour: a change to *dispatch data* relating to a *registered facility,* other than a *boundary entity*, may be accepted by the *IESO* if the conditions of the *market rules* are met and the change complies with the *IESO Short Notice Change Criteria* (see Appendix B)*.*
10. Market mechanisms are to be used as much as possible to solve problems with the *pre-dispatch* schedule*.*

The *IESO* may reject any *dispatch data* or revision to *dispatch data* submitted by a *market participant*, or may direct a *market participan*t to submit or resubmit a revision to the quantity element of its *dispatch data*, or both, if system *security* or *local area reliability* considerations

[1] The IESO intends to run pre-dispatch hourly to set the interchange schedules for interchange and the intention is to publish the results of each pre-dispatch run.

[2] The 60 minute cut-off reflects the fact that the interchange schedule is set by the last pre-dispatch schedule run for the hour before the dispatch hour.

require such an action (*MR* Ch. 7, Sec. 3.3.10, 3.3.12, and 3.3.13). *Market participants* should consult the advisory notice for any applicable advisories, warnings and problems.

A *market participan*t must submit revised *dispatch data* to the *IESO* as soon as practical for any of its *registered facilities* 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 *market participant* expects to be delivered or withdrawn by more than the greater of 2% of the *dispatch* instruction or 10 MW[3] (*MR* Ch. 7, Sec. 3.3.8). *Dispatch data* revisions are not required for:

- The current hour,
- The next hour when it is less than 10 minutes to the start of the hour, and
- An hour when it is reasonably expected that the *dispatch data* deviation will be eliminated mid-hour because the limitation will end.

However, in such cases, the *market participant* is required to notify the *IESO* of such *dispatch data* deviation (refer to Market Manual 4.3: Real Time Scheduling of the Physical Markets, sections 7.1 and 7.5).

If the quantity of *demand response* that can be delivered by an *HDR* resource differs from the submitted *demand response energy bid* by 5 MW for any *dispatch hour*, the *demand response market participan*t *(DRMP)* must submit revised *dispatch data* to the *IESO* as soon as practical. The *DRMP* must also notify the *IESO* via telephone as soon as practical of such *dispatch data* revisions when the *IESO* has issued an activation notice to the *DRMP* for that *HDR* resource.

2.3.1 Generation Units with Start-Up Delays

The current optimization algorithm for *pre-dispatch* does not take into account the inherent start-up delays of fossil *generation units* and may schedule these units without consideration to the time required to prepare and synchronize to the *IESO-controlled grid*.

If such *generation units* are scheduled by *pre-dispatch* within a timeframe that does not accommodate their start-up delay, *market participants* are obligated to withdraw the *dispatch data* for these units for the hours in which they are not able to synchronize to the *IESO-controlled grid*.

- If, for the foregoing reasons, *market participants* seek to withdraw *dispatch data*, the *IESO* will authorize a withdrawal of *dispatch data:*
    - In the mandatory window, if the units have a start-up delay of less than two hours, and
    - If such withdrawal does not pose a risk in relation to the *reliability* or *security* of the *electricity system*.

For *generation units* with a start-up delay of more than two hours, *market participants* should withdraw *dispatch data* not less than two hours prior to the *dispatch hour*. The *IESO* will authorize withdrawal of *dispatch data* in the mandatory windows only if the withdrawal complies with the *IESO Short Notice Change Criteria* (see Appendix B).

[3] In some situations (e.g. when an *Emergency Operating State* is anticipated), the *IESO* may request that the *market participants* submit *dispatch data* that is more accurate than allowed by these criteria.

2.3.2 Replacement Energy Offers Program

The Replacement Energy Offers program (*MR* Ch. 7, Sec. 3.3.4B and 3.3.4C) allows *registered market participants* whose hydroelectric *generation facility*, combined cycle *generation facility*, *enhanced combined cycle facility* or *cogeneration facility* experiences a *forced* or urgent *outage* to 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*.

Note: The Replacement Energy Offers program is not available for resources participating in capacity-backed exports[4].

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* or urgent *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 or* urgent outage.

The submission of the revised *dispatch data* must take place no later than one hour after the *generation facility* experiences the *forced outage or* urgent outage and is limited to a maximum of the MW amount that had been offered by the generation facility experiencing the *forced outage or* urgent outage.

The registered *market participant* must notify the *IESO* via telephone to report the *outage (*as per the *outage* process), and make a verbal request to participate in the *Replacement Energy Offers* program. The *market participant* must then indicate which *generation facility* is expected to be unavailable, the affected MW amount and which *generation facility* will replace the unavailable MW. Where the related *generation facility* is not synchronized the *market participant* must notify the *IESO* of its intention to synchronize the related *generation facility.*

Note: The Replacement Energy Offers program is not available for day-ahead production cost guarantees (DA-PCGs). It is available for real-time generation cost guarantees (RT-GCGs), as long as the replacement unit can meet the eligibility requirements of the original unit.

In the interim period, before the *dispatch data* is processed by the market tools, the *IESO* shall accept the replacement energy from the r elated *generation facility* for the facility that has been forced out, provided there is no adverse impact on the reliability of the *IESO-controlled grid*.

The related *generation facility* that is specified for replacement energy must have the same *metered market participant* as the *generation facility* experiencing the *forced outage or* urgent outage. In addition, both *generation facilities* must have the same *registered market participant*.

[4] For more information on capacity-backed exports, see section 2.6

2.3.3 Procedural Steps for Submitting Dispatch Data and Revisions Until Two Hours Prior to the Dispatch Hour

Table 2-1: Procedural Steps for Submitting Dispatch Data and Revisions Until Two Hours Prior to the Dispatch Hour

Step	Completed by…	Action
1	***Market Participant***	From 06:00 EST on the *pre-dispatch day,* **submit *energy* and *operating reserve offers* and/or *energy bids*** (dispatchable generation, *dispatchable load facilities, HDR* resources and/or *boundary entities*), *self-schedules (self-scheduling generation facilities* and *transitional scheduling generators*), *energy* forecasts (*intermittent generators*), installed capacity, net derates or *outages* (*variable generation*) and requests for segregation for any of their *registered facilities* for any or all hours of the *dispatch day*. *Market participant*s may also submit standing *dispatch data* for future *dispatch day*s (or revisions to existing standing *dispatch data*) by identifying a *dispatch day* type ('Mon.' through to 'Sun.' or 'All') in addition to the *dispatch data*. **Note**: Each *offer* to provide *operating reserve* must be accompanied by a corresponding *energy offer* or *energy bid* that covers the same megawatt (MW) range. Revisions to previously submitted *dispatch data* for any hour or hours may be made as required.
2	*IESO*	The *IESO* receives, timestamps, and performs a structural validity check on *dispatch data* to confirm that the data format and structure is correct. If revisions are received within two hours of the *dispatch hour*, the process described in Section 2.3.4 is applied.
3	*IESO*	The *IESO* sends *market participant* a message indicating that the *dispatch data* is structurally invalid (if applicable).
4	***Market Participant***	Receive a structural invalidity message (if applicable).
5	***Market Participant***	Correct the *dispatch data* and resubmit (if applicable).
6	*IESO*	The IESO confirms receipt of the submitted *dispatch data* if structurally valid.
7	***Market Participant***	Receive from the *IESO* confirmation of *dispatch data* receipt by the *IESO*.
8	***Market Participant***	Immediately contact the *IESO* if confirmation is not received.
9	***Market Participant*** and *IESO*	The *IESO* and *market participant* resolve the status of submitted *dispatch data* or revision.

Step	Completed by…	Action
10	*IESO*	The *IESO* determines if the *dispatch data* is for the current *dispatch day* being processed, or a future *dispatch day* (in case of standing *dispatch data*).
11	*IESO*	The *IESO* registers standing *dispatch data* and does not consider such data for the *dispatch day* currently being processed.
12	*IESO*	The *IESO* registers data not previously registered as standing and validates current *dispatch data*.
13	*IESO*	If the *dispatch data* is invalid, the *IESO* notifies the *market participant* via a rejection message.
14	***Market Participant***	Receive rejection of invalid *dispatch data* (if applicable).
15	***Market Participant***	Correct and resubmit the invalid *dispatch data* (via step 1).
16	*IESO*	The *IESO* updates *dispatch data* set with current valid *offer*s, *bids*, schedules, and forecasts in preparation for running the pre-dispatch process.
17	*IESO*	The *IESO* runs the pre-dispatch process and determines the *pre-dispatch schedule*s based on *offer*s, *bids*, schedules and forecasts for *energy* and *operating reserve*. It also confirms *intertie* schedules and requests for segregation with other *control area operator*s.
18	*IESO*	Other *control area operator*s confirm with the *IESO intertie* schedules and requests for segregation.
19	*IESO*	The *IESO publishes* advisory notices, which will notify *market participant*s of any advisories, warnings, and problems.
20	*IESO*	The *IESO* may reject *dispatch data* previously accepted or require specific *market participant*s to submit or resubmit a revision to the quantity element of *dispatch data*, or both, based on the results of the pre-dispatch process. Such rejections, submissions or changes are based on the need to maintain the *reliability* of the *IESO-controlled grid*.
21	***Market Participant***	Specific *market participant*s receive a **rejection of previously accepted data or a requirement to submit or resubmit a revision** to the quantity element of *dispatch data*, or both, due to a *reliability* issue on the *IESO controlled grid*.
22	*IESO*	The *IESO* notifies each individual *market participant* of *pre-dispatch schedule*s and decision on their *request for segregation*. All *market participant*s are notified of aggregate data.
23	***Market Participant***	*Market participant*s **receive notification of *energy* and *operating reserve pre-dispatch schedules***, including *market prices* and quantities for their own individual *facilities*. All *market participants* receive notice of aggregate data. *Market participant*s receive notification of approval/denial of their requests for

Step	Completed by…	Action
		segregation. See Appendix D: Pre-dispatch Schedule Production and Publication. Appendix A provides information on where to find examples of: • *Pre-dispatch energy* results, • *Pre-dispatch operating reserve* results, • Public results, • The totals report, • *Market clearing prices*, • *Security* constraints, and • Regional constraints.

2.3.4 Procedural Steps for Submitting Dispatch Data and Revisions Within Two Hours of the Dispatch Hour

Table 2-2: Procedural Steps for Submitting Dispatch Data and Revisions Within Two Hours of the Dispatch Hour

Step	Completed by…	Action
1	***Market Participant***	Submit revisions to *dispatch data* for any of their *registered facilities*. Submissions are required • Within two hours of the actual *dispatch hour* but at least 10 minutes prior to the *dispatch hour* for *registered facilities* other than *boundary entities*. • Within two hours of the actual *dispatch hour* but at least 60 minutes prior to the *dispatch hour* for *boundary entities*.
2	*IESO*	The *IESO* receives, timestamps, and performs a structural validity check on *dispatch data* revisions.
3	*IESO*	The *IESO* sends *market participant* a message indicating that the *dispatch data* revision is structurally invalid (if applicable).
4	***Market Participant***	Receive a structural invalidity message (if applicable).
5	***Market Participant***	Correct the *dispatch data* revision and resubmit (if applicable).
6	*IESO*	The IESO confirms receipt of the submitted *dispatch data* revision if structurally valid.
7	***Market Participant***	Receive from the *IESO* confirmation of *dispatch data* revision receipt by the *IESO*.
8	***Market Participant***	Immediately contact the *IESO* if confirmation is not received.

Step	Completed by…	Action
9	***Market Participant*** and *IESO*	The *IESO* and *market participant* resolve the status of submitted *dispatch data* revision.
10	*IESO*	The *IESO* registers and validates the *dispatch data* revision.
11	*IESO*	If the *dispatch data* revision is invalid, the *IESO* notifies the *market participant* via a rejection message.
12	***Market Participant***	Receive rejection of invalid *dispatch data* revision (if applicable).
13	***Market Participant***	Correct and resubmit the invalid *dispatch data* revision (via step 1).
14	*IESO*	The *IESO* determines if the change passes the *IESO* Short Notice Change Criteria for the two hour window. See Appendix B for the *IESO* Short Notice Change Criteria.
15	*IESO*	The *IESO* sends a rejection message to the *market participant* if the *dispatch data* revision does not pass the *Dispatch data* Revision Acceptance Criteria.
16	***Market Participant***	Receive a rejection message from the *IESO* if the *dispatch data* revision does not pass the *Dispatch data* Revision Acceptance Criteria.
17	*IESO*	The *IESO* updates *dispatch data* set with current valid *offer*s, *bids*, schedules and forecasts in preparation for running the pre-dispatch process.
18	*IESO*	The *IESO* runs the pre-dispatch process and determines the *pre-dispatch schedule*s based on *offer*s, *bids*, schedules and forecasts for *energy* and *operating reserve*. It also confirms *intertie* schedules and requests for segregation with other *control area operator*s.
19	*IESO*	Other *control area operator*s confirm with the *IESO intertie* schedules and requests for segregation.
20	*IESO*	The *IESO publishes* advisory notices, which will notify *market participants* of any advisories, warnings and problems.
21	*IESO*	The *IESO* may reject *dispatch data* previously accepted or require specific *market participants* to submit or resubmit a revision to the quantity element of *dispatch data*, or both, based on the results of the pre-dispatch process. Such rejections, submissions or changes are based on maintaining the *reliability* of the *IESO-controlled grid*.
22	***Market Participant***	Specific *market participant*s receive a rejection of previously accepted data or a requirement to submit or resubmit a revision to the quantity element of *dispatch data*, or both, due to a *reliability* issue on the *IESO controlled grid*.

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Step	Completed by…	Action
23	*IESO*	The *IESO* notifies each individual *market participant* of *pre-dispatch schedule*s and decision on their requests for segregation. All *market participants* are notified of aggregate data.
24	***Market Participant***	Receive notification from the *IESO* of ***energy* and *operating reserve pre-dispatch schedules*** including *market clearing prices* and cleared quantities for their own individual *facilities*. All *market participants* are notified of aggregate data and decision on their requests for segregation. See Appendix D: Pre-dispatch Information Release and Publication.

2.4 The Structure of Dispatch Data

2.4.1 Energy Offers and Bids

Each *energy offer* and *energy bid* for real time must contain at least two and may contain up to 20 *price-quantity pair*s for each *dispatch hour*. Price is to be expressed in dollars and whole cents per megawatt-hour (MWh), and the quantity in megawatts (MW) per hour.

For *generation facilities* that have registered *forbidden regions* with the *IESO*, *price-quantity pairs* for each *dispatch hour* must respect these regions, such that the submitted *price quantity pairs* must include a quantity equal to each of the lower and upper limits of each *forbidden region* within the offer range. *Dispatch data* submissions that do not respect such information will be rejected by the *IESO* for the affected *generation facility* and for the affected *dispatch hour(s)* (*MR* Ch. 7, Sec. 2.2.6A). Should a *market participant* wish to operate a *facility* below its registered *minimum loading point* (PMIN) an *outage* request is to be submitted to derate the *facility* to the output desired two hours prior to the derate. This is to be done in conjunction with and at the same time as submission of *offers* to economically schedule the *facility* to this desired output. *Operating reserve* is unavailable when a *generation facility* operates below its *minimum loading point*.

Note: The *outage* start and end times corresponds to the period of time the *market participant* wishes the *facility* to operate below PMIN.

In the case of *generation facilities* participating in the Real-Time Generation Cost Guarantee (RT-GCG) program (also known as Spare Generation On Line or SGOL), the *offer price* in the *price-quantity pairs* corresponding to the *minimum loading point* for all hours of the *minimum generation block run-time* must be the same until after the IESO has constrained on the generation facility.

Offers reflecting *flexible nuclear generation* are to be submitted when the nuclear *generator* determines, at its own discretion, that the unit has such capability under normal operations without requiring a unit shutdown and while respecting safety, equipment, environmental and regulatory restrictions. For nuclear *generation facilities,* the *offer price* in the *price-quantity pair* corresponding to *flexible nuclear generation*, when available, must be no less than -$5/MWh.

Offers in respect of *variable generation* are to be submitted in the following manner:

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The *offer price* in the *price-quantity pair* corresponding to Solar and Wind resources (excluding the last 10% of the available capacity of a wind *facility*) must be no less than -$3/MWh.

The *offer price* in the *price-quantity pair* corresponding to the last 10% of the available capacity of a wind *facility* must be no less than -$15/MWh.

The *IESO* will attempt to provide *market participants* with flexibility for all IESO-approved planned testing, provided:

- There are no reliability concerns, and
- The scope of the test (including the scope of any potential changes to the test plan) has been identified by the market participant at the time of the original submission.

Normally, dispatchable generators are expected to *offer* at an appropriate price to be scheduled for the full capability of the test unit, and to use *outage* requests to derate the test unit to the required test output levels.

To ensure full capability for the test, the offer price in the price-quantity pair corresponding to solar and wind resources during an IESO-approved planned test may be less than -$15/MWh for the duration of the test.

The quantity in the case of *a registered facility* other than a *boundary entity,* must be expressed in MW (or MWh/hour) to one decimal place and not be less than 0.0 MW (or 0.0 MWh/hour). In the case of a *registered facility* that is a *boundary entity*, quantities must be expressed in whole MW (or MWh/hour) and not be less than 0 MW (or 0 MWh/hour). The quantity in the first *price-quantity pair* within each *bid* must be set at 0.0 MW or 0 MW as applicable (*MR* Ch. 7, Sec. 3.5.3).

Prices may be negative with such negative prices meaning (*MR* Ch. 7, Sec. 3.5.4):

- 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 (*MR* Ch. *7,* Sec. 3.5.4.1), and
- 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 (*MR* Ch. *7,* Sec. 3.5.4.2).

Each *energy offer* or *energy bid* for a *registered facility*, other than a *boundary entity*, may contain up to five sets of ramp quantity and ramp up/ramp down values for each *dispatch hour*. Each *energy offer* or *energy bid* for a *boundary entity* does not have to specify a ramp rate. The ramp quantity in each set must specify the maximum MW quantity at which the corresponding ramp rate values apply. The ramp quantities must be expressed in megawatts (MW) to one decimal place and must be greater than 0.0 MW. The ramp up and ramp down values must be expressed in MW/minute and must be greater than 0.0 MW/minute. The laminations corresponding to such sets may be different from those of the *price-quantity pair*s contained in the *energy bid* or *energy offer* (*MR* Ch. 7, Sec. 3.5.5).

Participants, who are registered for Compliance Aggregation, have further requirements with respect to their offered ramp rates. These requirements are discussed in Market Manual 4.3, Section 1.12.

DRMPs must submit ramp up and ramp down values for each *HDR* resource that is equal to the *demand response capacity* of the *HDR* resource. For example, an *HDR* resource with a *demand response capacity* of 10 MW would submit ramp up and ramp down values of 10 MW/minute.

The largest quantity in any *energy offer* or *energy bid* for any *dispatch hour* must be at least 1 MWh but must not exceed the lesser of (*MR* Ch. 7, Sec. 3.5.6):

- *The maximum output of energy in an hour indicated in the registration information for the relevant registered facility,*
- *The maximum quantity of energy that can be supplied (for an energy offer), reduced (for a bid to reduce energy withdrawals) 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*
- *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:*
    - The capacity of any radial line connecting the *registered facility* to the *connection point*,
    - The maximum injection or withdrawal as specified in the *connection agreement* applicable to the *registered facility*, or
    - The maximum injection or withdrawal permitted by the relevant *transmitter*.

A *registered market participan*t offering *energy* may submit *dispatch data* for a specified *registered facility* specifying a maximum amount of *energy* that can be scheduled by the *IESO* for that *registered facility* over a *dispatch day* (referred to as the Daily E*nergy* Limit or DEL). Such a limit shall be used in the day-ahead commitment process and the *pre-dispatch schedule* and only for the purpose of providing information that the *registered market participan*t may use as a basis to revise its *energy offer*s in subsequent submissions (*MR* Ch. 7, Sec. 3.5.7).

The submission of the DEL by the *market participant* is voluntary. If a *market participant* does not wish to submit a DEL, leave the field blank and the tool will assume an infinite amount of energy available for scheduling. If a *market participant* chooses to submit a DEL, it must accurately reflect the capability of the facility for the given day. If the value input is no longer accurate, the *market participant* must revise the DEL, as soon as practical, to an accurate value or remove it. Once input, the only way a *market participant* can remove the value is by deleting the existing value, leaving the DEL blank. A value of 0 does not remove the DEL and will result in inaccurate data. A value of 0 indicates that the *generation facility* has no *energy* that can be scheduled.

Every submission of *dispatch data* with respect to a *generation facility* (including a *self-scheduling generation facility*, an *intermittent generator* or a *transitional scheduling generator*) or a *boundary entity* shall specify a *market price* of *energy*, in $/MWh, at and below which the *IESO* may instruct the *facility* to reduce its *energy* output to zero. Such price may be zero or negative but may not be less than negative *MMCP* (*MR* Ch. 7, Sec. 3.4.4).

Every submission of *dispatch data* with respect to a *dispatchable load facility* or a *boundary entity* 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* (*MR* Ch. 7, Sec. 3.4.5).

Every submission of *dispatch data* with respect to a *bid* to reduce *energy* withdrawals shall specify a *market price* of *energy*, in $/MWh, at and above which the *IESO* may instruct the *facility* to reduce its *energy* withdrawals by the total offered quantity. Such price shall not be greater than *MMCP.* (*MR* Ch. 7, Sec. 3.4.5)

A *demand response energy bid* is a *bid* greater than the *demand response bid* price threshold and less than the *MMCP*. The *demand response bid* price threshold is $100/MWh. A *DRMP* wanting to meet its *demand response capacity obligation* must submit a *demand response energy bid* equal to the *demand response capacity obligation* for either a(n):

- *Dispatchable load,*
- *HDR* resource, or
- Combination of both,

for all hours of the availability window of the *commitment period* (as specified in Market Manual 12: Demand Response Auction).

A *registered market participant* may, for any one or more of its *registered facilities* that is a *dispatchable load facility*, identify all or a portion of the consumption at such *registered facilities* as *non-dispatchable load* by submitting *dispatch data* for the non-dispatchable portion at the *maximum market clearing price* (*MMCP*) (*MR* Ch. 7, Sec. 3.3.18). A *dispatchable load* that needs to change its load status, in whole, may also identify its consumption as non-dispatchable by removing all *bids* for the hours in which it wishes to be considered non-dispatchable. If the *dispatchable load* cannot assume this process without changes to its current tools or processes, it may continue to identify its whole consumption as non-dispatchable by bidding its consumption at the *maximum market clearing price* (*MMCP*).

If *dispatch data* changes are required during the mandatory window to effect a change to or from *dispatchable* status by removing *bids*, the *dispatchable load* is required to contact the *IESO* to indicate the reason for its load status change. The *dispatchable load* will automatically be *dispatched* to 0 MW in the first interval (Interval 1) of the first hour that does not have *dispatch data.* The *dispatchable load* is required to ignore this 0 MW *dispatch instruction* to confirm its intention to becoming non-dispatchable. The *IESO* will consider the load as non-dispatchable until new *bids* are submitted, resulting in a new *dispatch instruction* (see also Appendix B.2.2: Mandatory Window Submission).

The quantity in any *dispatch hour,* for a *bid* from a *dispatchable load* that expects to be withdrawing *energy* for only part of that *dispatch hour,* shall reflect its average value at normal production, when up and its *operating reserve offer* shall reflect its minimum dispatchable consumption during the *dispatch hour,* or zero if bidding its entire *energy bid* at *MMCP*.

A *dispatchable load is* expected to follow the *dispatch* instructions associated with *the dispatchable* portion of the *bid.* See Market Manual 4.3: Real-Time Scheduling of the Physical Markets for more details.

When a *market participant* whose *generation facility* is expected to undergo a test[5] submits *dispatch data* for any hour of the test, the *market participant* must offer an amount that equals the expected hourly average *energy* delivery of that *generating facility*. Where the test is instantly recallable, these *generation facilities* are allowed to participate in the *operating reserve market*. This is acceptable as long as the *market participant* ensures that the sum between the maximum *energy* expected to be produced during the hour and the *operating reserve* offered during the hour does not exceed the maximum amount that the unit can produce that hour.

[5] For more on *dispatch data* submission for *generator* tests with immediate recall, refer to Market Manual 7.3: Outage Management, Section 4.1.2.

See Appendix A for content requirements of *dispatch data.*

2.4.2 OR Offers

A *registered market participan*t may not submit, for any *registered facility*, more than one *offer* to provide each class of *operating reserve* in any *dispatch hour* (*MR* Ch. 7, Sec. 3.6.1). Additionally, if a *registered* facility determines that it will be operating below its reserve loading point for the entire *dispatch hour*, it shall not submit *offers* to provide *operating reserve* for the *dispatch hour*, and if it already has submitted any such *offers*, it shall revise its *dispatch data* by withdrawing them (*MR* Ch. 7, Sec. 3.3.8 and Ch. 7, App. 7.3, Sec. 1.1.4).

An *offer* to provide *operating reserve* must contain at least 2 and may contain up to five *price-quantity pair*s for each class of *operating reserve* for each *dispatch hour*. The quantity in each *price-quantity pair* in the case of a *registered facility* other than a *boundary entity* shall be expressed in MW to one decimal place and shall not be less than 0.0 MW, and, in the case of a *registered facility* that is a *boundary entity*, must be expressed in whole MW and must not be less than 0 MW. The price in each *price-quantity pair* shall be expressed in $ and whole cents/MW and shall be not more than the *Maximum Operating Reserve Price* (*MORP*) and not less than 0.00 $/MW. The quantity in the first *price-quantity pair* within each offer must be set at 0.0 MW or 0 MW (or 0.0 MWh/hour or 0 MWh/hour) as applicable (*MR* Ch. 7, Sec. 3.6.2).

Each *offer* to provide *operating reserve* shall be accompanied by a corresponding *energy offer* or *energy bid* that covers the same MW range (*MR* Ch. 7, Sec. 3.6.3).

See Appendix A for content requirements of dispatch data.

2.4.3 Energy Schedules and Forecasts

A *registered market participan*t must submit the following *dispatch data* for each *self-scheduling generation facility*, *transitional scheduling generator*, and *intermittent generator* that it has registered with the *IESO* detailing (*MR* Ch. 7, Sec. 3.7, 3.8, and 3.8A) either:

- The amount of *energy* (in MWh) that it reasonably expects to be provided by the *self-scheduling generation facility* and the *transitional scheduling generator* for each *dispatch hour*, or
- Its best forecast of the amount of *energy* (in MWh) that the *intermittent generator* will inject in each *dispatch hour*, or
- The total installed capacity of the *variable generation,* net any derates or *outages* that have been submitted through the outage process, and
- The price for energy (in $/MWh) below which it reasonably expects to reduce the energy output of the *self-scheduling generation facility*, *intermittent generator*, or *transitional scheduling generator* to zero[6] (*MR* Ch. 7, Sec. 3.4.4A).

See Appendix A for content requirements of *dispatch data*.

[6] This price may not be less than negative MMCP. A price must be provided, otherwise *dispatch data* will be rejected.

2.4.4 Standing Dispatch Data

In addition to the items noted above for *energy offer*s and *bids* and *operating reserve offer*s, standing *dispatch data* submitted to the *IESO* may specify an expiration date. This is the last date the standing *dispatch data* will be processed by the *IESO*, unless earlier withdrawn or revised by the *registered market participant.* This standing *dispatch data* will be processed at 06:00 EST on the expiration date and will be available to the market for another day, the next day (*MR* Ch. 7, Sec. 3.3.9).

See Appendix A for content requirements of *dispatch data*.

2.5 Dispatch Data for Importing and Exporting Energy and Importing Operating Reserve

Dispatch data submitted for the purposes of trading between the *IESO-administered* real-time *energy* and *operating reserve* markets and other jurisdictions shall broadly follow the same process as that used to submit *dispatch data* for the real-time *energy* and *operating reserve* markets within Ontario. A *market participant* can *offer* (import) *energy* into the Ontario market and *bid* (export) *energy* from the Ontario market. However, a *market participant* can only *offer* (import) *operating reserve* into the Ontario market – it cannot *bid* (export) *operating reserve* out of the Ontario market. *Market participants* can export *energy* to the United States only if they have a valid National Energy Board[7] export authorization (*MR* Ch. 7, Sec. 2.2.7).

Market participants wishing to import *energy* and/or *operating reserve* into, or export *energy* from, the Ontario market must register the capability to so with the *IESO* as part of the participant authorization process. The *IESO* records this capability once the *market participant* is authorized and will validate any *bids* or *offer*s received from a *market participant* against this initial registration information (or any subsequent updates). Refer to Market Manual 1.1: Participant Authorization, Maintenance & Exit for more information on the process of registering a *boundary entity* capability (*MR* Ch. 7, Sec. 2.2.7).

2.5.1 Boundary Entity Resources

With all import/export *interchange schedules*, data submissions with respect to imports or exports must be associated with one of the *boundary entity* resources that have been established in the *IESO*'s market systems for this purpose. This is in contrast to intra-Ontario trading, which uses resources created as part of the Market entry process.

The *IESO* has established a list of *boundary entity* resources for which *dispatch data* can be submitted to facilitate import and export *interchange schedules*. The number of resources created reflects the maximum expected number of *interchange schedules* that any one participant would initiate between Ontario and the *control area* the *boundary entity* resource represents. Each *boundary entity* resource allows at least 2 and up to 20 *price-quantity pairs* for *bids* and *offer*s for *energy* and at least 2 and up to 5 *price-quantity pairs* for *operating reserve*.

For each *bid* or *offer*, the *market participant* must specify the tie point and (*boundary entity*) resource for the *interchange schedule*. Both operation considerations (such as the radial nature of

[7] For more information please visit the National Energy Board web page at www.neb-one.gc.ca.

the Quebec *interties*) and commercial considerations (including the appropriate treatment of taxes) mean that the resources created at specific representations are intended to support specific *interchange schedule* types between Ontario and other *control areas*. Appendix E lists the available *boundary entity* resources that should be used when submitting *bids* and *offers* for *intertie interchange schedules*. *Energy* imports should use *boundary entity* resources identified as "Source", while *energy* exports should use *boundary entity* resources identified as "Sink". *Operating reserve* imports may use *boundary entities* identified as either "Source" or "Sink", depending on whether the associated *energy interchange schedule* is an import or an export.

The *boundary entity* resources detailed in Appendix E are available to all *market participants* who have registered the capability to import or export *energy* and import *operating reserve*. Each of these *market participants* can associate a *bid* or *offer* to import or export *energy* and *operating reserve* against any of these *boundary entity* resources. For example, different *market participants* who wished to export *energy* to Michigan could choose to use the same MI.LUDINGTON.SINK.1 *boundary entity* resource and specify the Michigan tie point. Similarly, different *market participants* who wished to import *energy* into Ontario may choose to use the same *boundary entity* resource (e.g. NY.ROSETON.SOURCE.2 for imports from New York). The *market participant* name associated with the *dispatch data* will uniquely identify *intertie interchange schedules* that use the same *boundary entity* resource.

Due to scheduling restrictions[8] imposed by the *IESO*, *market participants* scheduling imports on the Beauharnois interface are required to use only the *boundary entity* resources PQ.BEAUHARNOIS.SOURCE.01-10.

2.5.2 Ramp Rates

Market participants do not need to specify ramp rates for any of their *bid* or *offer* associated with a *boundary entity* resource.

2.5.3 e-Tagging

An e-Tag ID[9] must be submitted with each *bid* or *offer* and the e-Tag must be submitted through the e-tagging system in accordance with *NERC* reliability standards (*MR* Ch. 7, App. 7.1, Sec. 1.2.11). Operation in segregated mode with Hydro Quebec also requires submission of e-Tags in accordance with *IESO* requirements.

Appendix F comprises some Ontario specific requirements for e-Tags.

[8] The restrictions are a result of operating circuits B31L and B5D in the "bi-directional" mode, which means that the *IESO* will simultaneously schedule segregated mode of operation exports on B31L and imports on B5D.

[9] The Transaction ID is not the tag itself rather the unique ID # that will be used when an e-Tag is submitted through the e-Tag system.

*e-Tag*s must be submitted at least 30 minutes[10] prior to *dispatch hour*[11]. However, *market participants* are encouraged to submit e-Tags as soon as possible after submitting their *bid* or *offer* to support the validation processes described below.

Early submission will provide the *IESO* with the greatest opportunity to validate *bids* and *offer*s and notify *market participants* of the outcome. *Market participants* cannot revise the resource to which a *bid* or *offer* has been associated to reflect a e-Tag replacement within the 2 hour window prior to dispatch without *IESO* approval. Refer to Market Manual 4.3: Real-Time Scheduling of the Physical Markets for more information on the e-Tag submission process.

Normally*, registered market participants* submitting *dispatch data* associated with a *boundary entity* are required to submit all *offers* or *bids* by two hours prior to the *dispatch hour* through their **Market Participant Interface**.

Market participants, however, may make short notice changes, if necessary, to the *dispatch data e-Tag* ID, as specified in Appendix B.2.3, provided they verbally phone the change into the *IESO* to enable its manual entry to the market systems.

Furthermore, *market participants* are required to submit the e-Tag(s) corresponding to the above *dispatch data* (same e-Tag ID) and scheduled MW quantity[12] (*dispatch* instruction) to the e-Tag system at least 30 minutes prior to the *dispatch* hour. The above is based on the *pre-dispatch* schedule short report being available to *market participants* 45 minutes prior to the *d*ispatch hour. Should the pre-dispatch short report fail or run late, the *IES*O will allow comparable latitude with the IESO's 30-minute e-Tag submission timeline. However, in such situations the *IESO* encourages the *market participants* to submit the e-Tag 30 minutes prior to the *dispatch* hour based on the *interchange schedule* expectation, then making necessary changes as may be required.

With respect to *interchange schedules* with NYISO and notwithstanding the obligation in footnote 12, *market participants* shall not update their e-Tag MW schedule according to the *IESO pre-dispatch schedule* short report. To ensure that any required e-Tag MW schedule changes are not rejected by the NYISO, the sink *control area* will make these adjustments on behalf of *market participants*.

Missing or late *e-Tag*s not required for *reliability* reasons will be treated as a breach of the *market rules* and the *interchange schedule(s)* will be treated as failed. The *IESO* will notify the *market participant* by **automated e-mail**[13] with the following reason: missing *e-Tag*. If an *e-Tag* is:

[10] *Market Participants* are responsible for submitting or adjusting impacted *e-Tag*s early enough for the tags to be in the IDC database by 35 minutes prior to the *dispatch hour* when a Transmission Loading Relief (TLR) procedure has been activated.

[11] *NERC* reliability standard INT-001 for *interchange schedules* requires that tags be submitted at least 20 minutes prior to the start of the *interchange schedule* for *interchange schedules* that are less than or equal to one hour in duration. However, to ensure effective *interchange schedule* coordination between *control areas* and minimize the number of failed *interchange schedules, the IESO* has adopted a more stringent requirement of 30-minutes.

[12] The obligation to adjust the scheduled MW quantity on the e-Tag, to ensure it corresponds to the d*ispatch instruction,* lies with the *market participants.* Failure to do so will be deemed a breach of the *market rules.*

[13] Should the *market participants* e-mail system become unavailable for any reason, they must notify the *IESO* as soon as possible. Once notified, the *IESO* will revert to notifying the *market participant* of e-Tag adjustments by telephone.

- Submitted late,
- Has incorrect data (MW quantity does not match *dispatch instruction*), or
- Has yet to be submitted after 30 minutes prior to the *dispatch hour*,

but,

- Is required by the *IESO,* due to internal *reliability* reasons,

the interchange schedule may be approved on a reasonable effort basis.[14]

Where required for reliability reasons:

- In the case of a missing or late *e-Tag* (no *e-Tag* corresponding to the *dispatch data* (*e-Tag* ID) or no *e-Tag* submitted by 30 minutes prior to the *dispatch hour*), the *IESO* will notify the *market participant* of the required change by **telephone** identifying that the *market participant* must identify the correct e-Tag, submit or enter the corrections into the *e*-Tag system to ensure the *interchange schedule* will flow[15] and notify the *IESO* when complete,
- In the case of a missing *e-Tag* ID, the *IESO* will, provided it is identified by the *market participant*, link the correct *e-Tag*, in the market tools, and
- In the case of incorrect *e-Tag* data (MW quantity does not match *dispatch instruction*, or the *interchange schedule* is curtailed), the *IESO* will adjust the *e-Tag* to coincide with the *dispatch instruction* or the curtailed *interchange schedule*, as the case may be, and, except for MW quantity mismatches, notify the *market participant* of the change by automated e-mail and the reason as being one of the following (in such cases no CMSC payments will apply):
    - External curtailment (e.g. external *control area* TLR),
    - Internal curtailment, or
    - Scheduling disagreement, and
    - In the case of the MW quantity mismatches, notifications for *e-Tag* MW quantity adjustments made by the *IESO* to match the *dispatch instruction* are automatically issued via the *e*-Tag system with the following reason: *IESO* Market Results.

If, however, the *e-Tag* data and *dispatch instruction* agree and the *interchange schedule* is constrained down due to *reliability* reasons within the *IESO-controlled grid*, the *IESO* will enter the adjusted MW quantity into the e-Tag system on behalf of the *market participant*. The *IESO* will notify the *market participant* of the adjusted amount by automated e-mail with the following reason: internal curtailment.

CMSC payments will apply.

- If the *market participant* is unable to flow the *interchange schedule* as adjusted by the *IESO*, then a further change to the *interchange schedule* may be considered by the *IESO*. If this is not feasible, then the *interchange schedule* will be deemed to have failed. CMSC payments will apply.

[14] Although the *interchange schedule* may be approved for *reliability* reasons after 30 minutes prior to the *dispatch hour*, it is still deemed a breach of the *market rules* and no CMSC payments will apply.

[15] If the e-Tag is denied by another *control area* the *interchange schedule* will be removed and no CMSC payments will apply.

- Also, if the *interchange schedule* is denied by another *control area* as a result of the change due to the *IESO reliability* concerns, then the *interchange schedule* will be recorded as having failed, but CMSC payments will apply. However, if failed by another *control area* for other reasons such as a TLR, then CMSC will not apply. The *IESO* will notify the *market participant* of the change by **automated e-mail** with one of the following reasons for the change, as appropriate:
    - Internal curtailment, or
    - External curtailment (e.g., external control area TLR).

2.5.4 Wheeling Through Interchange Schedules

In the case of wheeling through *interchange schedules*, *market participants* having *boundary entities* must submit:

- An *interchange offer* (for the import into the *Ontario market*), and
- An *interchange bid (*for the export out of the *Ontario market).*

Normally, wheeling *interchange schedules* will be handled as two separate *interchange schedules*, the same as any import and export. In this case, the *dispatch data* for the interchange *offer* must be accompanied by the unique *e-Tag* ID for the import, where Ontario would be designated in the *e-Tag* as the sink *control area*. The *dispatch data* for the interchange *bid* must be accompanied by a separate *e-Tag* ID for the export, where Ontario would be designated in the *e-Tag* as the source *control area*. This implies that, when the *IESO-controlled grid* is generation deficient, the export may not be scheduled or may be manually curtailed as a means to balance the load and generation within Ontario. *Market participants* may consider that scheduling of the import portion of the wheeling through *interchange schedule* while curtailing the export portion as an inappropriate redirection of *energy* from its intended customer, but still an acceptable risk for the potential savings/profits offered by the spot market.

Risk adverse market participants, however, have the option to protect their wheeling through interchange schedule by:

- *Bidding* the export portion at +MMCP,
- *Offering* the import portion between -$50 and –MMCP, and
- As an additional protective measure, they can also submit the same *e-Tag* ID with the *dispatch data* for both the import *offer* and the export *bid* to indicate that the two *interchange schedules* are linked and part of the same wheeling through *interchange schedule*.

The *IESO* will consider that an import and an export are linked *interchange schedules* of the same wheeling through *interchange schedule* if: the export is bid at +*MMCP*, the import is offered between -$50 and –*MMCP*, and the associated *e-Tag* IDs submitted by *market participants* along with their *dispatch data* have been edited to follow this formatting convention:

- For the import: **WI_SourceCA…SinkCA**,
- For the export: **WX_SourceCA…SinkCA**,

where:

- "SourceCA…SinkCA" is the unique e-Tag ID obtained from the *e-Tag* system for the wheeling *interchange schedule*, for wheeling through *interchange schedules* treated in this manner,

Ontario would not be listed as a source CA or as the sink CA in the e-Tag ID, but would be included in the e-Tag as part of the transmission path,

- WI is a delimiter indicating that the *interchange schedule* is the import leg of a wheel, the delimiter is added by the *market participant* to the e-Tag ID submitted to the *IESO* as *dispatch data* for the import, and
- WX is a delimiter indicating that the *interchange schedule* is the export leg of a wheel, the delimiter is added by the *market participant* to the e-Tag ID submitted to the *IESO* as *dispatch data* for the export.

Appendix F shows a tagging example (Example 1) of a linked wheel through transaction.

Notes regarding *linked wheel* through *interchange schedules*:

- To receive this treatment, the *market participant* must *offer* the import between -$50 and -*MMCP* and bid the export at *+MMCP*, and
- The *IESO's* scheduling algorithm does not consider the separate submissions of *dispatch data* for the import leg *offer* and the export leg *bid* of the wheel through *interchange schedule* to be linked, therefore, the scheduling algorithm may prepare schedules for these two *interchange schedules* with different quantities (it is the *market participant's* responsibility to revise the common *e-Tag* to the lowest quantity of the import/export *interchange schedules*).

By doing so, *market participants* indicate that they are willing to have both *interchange schedules* curtailed at the same time when the *IESO-controlled grid* is generation deficient (*MR* Ch. 7, Sec. 3.5.8).

However, for a linked wheel through *interchange schedule* involving the Hydro Quebec TransEnergie (HQT) *control area*, the *e-Tag* must identify HQT as being the SOURCE, the SINK or intermediate *control area*, otherwise, the *IESO* will deny the *e-Tag*.

Appendix F has a tagging example (Example 2) of a linked wheel through transaction involving Hydro Quebec TransEnergie *control area*.

2.5.5 Validation

Bids and *offer*s to import or export *energy* will be validated by the *IESO* to ensure that:

- *Bids* and *offers* are submitted in accordance with the intentions declared during the boundary entity registration process (or any subsequent updates),
- The *market participant* has the necessary licenses and authorizations,
- The *e-Tag* source/sink corresponds with the boundary entity resource, as set out in Appendix E,
- The *e-Tag* is consistent with the tie point identified in the *dispatch data* submission,
- The *e-Tag* IDs submitted for linked wheeling through interchange schedules are correctly formatted,
- The *market participant* has navigated successfully intermediary markets as well as the Ontario markets, and
- There are no external or internal transmission constraints or other mitigating limitations.

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The *IESO* expects to undertake this validation between 1 and two hours prior to the *dispatch hour* but will seek to undertake validation on a reasonable effort basis prior to the start of the two-hour window. This may prevent a *market participant* from resubmitting their *bid* or *offer*, depending on the nature of the change that is required to address the validation failure[19]. The results of all validation will be provided to *market participants* in the form of a revised *pre-dispatch schedule*. However, the *IESO* will also seek to notify *market participant*s directly of validation failures on a reasonable effort basis.

- The manual nature of much of this validation process means that it is important that all *bids* and *offers* to import or export *energy*, or import *operating reserve*, conform to the relationships set out in Appendix E. In addition, *market participants* should ensure that they have the appropriate e-Tags within the required timeframe.

2.6 Capacity-Backed Exports

Market participants with Ontario-based generating resource capacity deemed as not required for Ontario's *reliability* and planned resource adequacy requirements, may export their capacity to other jurisdictions during a specified period of time (subject to *IESO* pre-approval).

When a resource has committed its capacity to an external jurisdiction, the delivery of the *energy* associated with that capacity will be in the form of an export to the external jurisdiction.

The resource that has committed its capacity shall be referred to as the "backing resource".

The export is considered "capacity-backed" as the backing resource is expected to maintain the export under certain real-time conditions described in Market Manual 4.3 section 6.4.5.

2.6.1 Scheduling

When a resource has successfully committed its capacity to another jurisdiction, they assume the responsibility for responding to capacity calls[16] by that jurisdiction (the "calling jurisdiction").

When Ontario has adequate supply, capacity-backed exports are supplied as long as the export bid is economic[17].

In the event of a shortfall in *energy* or *operating reserve*, the backing resource should be scheduled (in the *pre-dispatch schedule*) and be online injecting energy in real-time to a level sufficient to fully support the export. In the event that the resource is not scheduled to the full amount of the capacity-backed export, the *IESO* will curtail the export to the amount of backing resource.

In response to a capacity call, the *market participant* that has committed its capacity must:

[19] For instance the, *NERC* reliability standard INT-001 for *interchange schedules* requires that *e-Tag*s be submitted at least 20 minutes prior to the start of the *interchange schedule* for *interchange schedules* that are less than or equal to 1 hour in duration. However, to ensure effective *interchange schedule* coordination between *control areas* and minimize the number of failed *interchange schedules, the IESO* has adopted a more stringent requirement of 30-minutes.

[16] Capacity calls are made by external jurisdictions in response to *energy* and *operating reserve* shortfalls.

[17] See Market Manual 4.3 section 6.4.5

- Submit an *energy* export for delivery to the calling jurisdiction for the duration of the call by *bidding* at *MMCP* at least 125 minutes prior to the start of the *dispatch hour*[18], where, in addition to normal export scheduling, the export bid submission must contain the following:
    - B*id* quantity must be in a single lamination and shall not exceed the called export MW quantity,
    - "Other Reason" field must include a six-digit resource ID (format ######) identifying the backing resource that has committed capacity,
    - "Tie Point ID" must be selected in the direction of the calling jurisdiction, and
    - "Delivery Date" and "Delivery Hour" shall span the period (between start and end date) of the call as stipulated by the calling jurisdiction
    - "NERC Tag ID" field must include the correct tag naming convention as described below
- Submit an e-Tag which contains "ICAP" in the e-Tag ID number and the name of the backing resource that has committed its capacity in the Comments section.
- Telephone the *IESO* Control Room and indicate the e-Tag ID number of the export, the backing resource, and the expected duration of the period during which the export is to be treated as capacity-backed.

In addition, in response to a capacity call, the *market participant* that has committed its capacity may choose to:

- Submit an energy *offer* from the backing resource at least equal to the capacity-backed export MW quantity at negative *MMC*P for the duration of the call. This ensures *energy* scheduling to at least the full export quantity during an *IESO* shortfall in either *energy* or *operating reserve.*

Note: Backing resources may still offer *operating reserve* in the *IESO administered markets*. *Market participants* must manage any *operating reserve offers* from their resource for the duration of a capacity call to ensure that there is sufficient capacity and *energy* available to supply the energy to support the capacity-backed export and to fully respond to any *operating reserve* activations.

2.6.2 Changes/Updates to the Capacity-backed Export or the Backing Resource

The *market participant* must also telephone the *IESO* Control Room:

- If the quantity of energy called changes or if the expected duration of the call changes,
- If the backing resource becomes unavailable throughout the duration of the call, and/or

[18] External jurisdictions will not call on committed capacity after 135 minutes prior to the start of the dispatch hour. This provides *market participants* sufficient time to update their *bids* and *offers*. External jurisdictions and *market participants* are also required to respect the mandatory window requirements outlined within this manual, as they pertain to changes/updates to the capacity call (e.g., changes in end times, MW quantities etc.)

- When the end time of the call is confirmed to the market participant by the calling jurisdiction.

2.7 Dispatch Data for Capacity Based Demand Response (CBDR) Reducing Energy Withdrawals

All capitalized terms not defined in this section can be found in the "Glossary of Terms for Capacity Based Demand Response" on the IESO website.

Market participants wishing to reduce *energy* withdrawals under the ***CBDR*** *program* must register the capability to do so with the *IESO. Market participants* will follow the participant authorization process to become a *DRMP.* Once registered as a *DRMP,* the IESO will register a Demand Response Account with demand reducing capacity through the registration process for the *CBDR program.* The *IESO* will include the capacity from Demand Response Accounts when submitting *offer*s into the Ontario *energy* market for *CBDR* resources, as defined in Appendix G. Refer to Market Manual 1.2: Facility Registration, Maintenance, and De-registration for more information on the process of registering for the *CBDR* program.

2.7.1 Capacity Based Demand Response Offers

The *IESO* has created a set of *CBDR* resources for which it will submit *dispatch data* to represent aggregated capacity from Demand Response Accounts by settlement area(s). *Offers* reflecting capacity registered under *CBDR* shall be submitted for each *CBDR* resource, as defined in Appendix G.1, in the following manner:

- The *IESO*, as the registered *market participant* for all *CBDR* resources, will submit the *offers*,
- The offer price in the *price-quantity* pair corresponding to load curtailment will be set to the active price trigger established by the IESO,
- The offer quantity in the *price-quantity* pair will be based on the total monthly contracted MW of the aggregated Demand Response Accounts in each resource net any Planned Non-Performance Events submitted to the IESO, as defined in Appendix G.2.

If a Demand Response Account loses a contributor, the *demand response market participant* must email notification of the contributor loss to CBDR@ieso.ca as soon as possible so that the offer quantity will reflect the available demand response (DR) curtailment.

2.7.2 Standby Notices

The IESO issues Standby Notices[19] via email in advance of activating CBDR Accounts. The notifications are intended to instruct the *demand response market participants* to be prepared to curtail their demand reducing capacity of the notified Demand Response Account in the case it is activated.

The *IESO* will issue a Fixed Standby Notice to all *demand response market participants* with Demand Response Accounts within a *CBDR* resource when that resource has a non-zero *pre-dispatch schedule* for at least four (4) consecutive hours during the Hours of Availability. When required,

[19] "Standby notice" means "standby notification" in the context of CBDR only.

Fixed Standby Notices will be issued between 15:00 and 17:00 EST in the day-ahead, or 01:00 and 07:00 EST in the current day.

The IESO will issue an Open Standby Notices to all Demand Response Accounts if:

- Resources have a non-zero *pre-dispatch schedule* for at least four (4) consecutive hours during the Hours of Availability and additional hours or MWs, above contracted values, are requested,
- It is expected that *CBDR* resources will be required for *reliability* purposes to avoid entering an *emergency operating state* or *high-risk operating state*, or to facilitate the return of the *IESO-controlled grid* to a *normal operating state*, or
- There are operating problems (such as equipment overloads, voltage decline, or instability) on a local or regional part of the integrated power system during non-emergency and non-high-risk conditions and, in the opinion of the *IESO*, other available corrective actions may not be appropriate or sufficient.

When required, Open Standby Notices will be issued between 15:00 and 17:00 EST in the day-ahead, or 01:00 and 07:00 EST in the current day.

If no Standby Notices have been issued during the timelines specified, the *IESO* will remove the offers for *CBDR* resources from consideration in the *pre-dispatch* runs for the remainder of the current day.

In addition to the Standby Notices issued to *demand response market participants*, notification decisions will be communicated to the marketplace through an advisory notice. Advisory notices can be found on the IESO website.

2.7.3 Confirmation

Following a Standby Notice, if a *demand response market participant* cannot curtail the load at the notified Demand Response Account by the requested DR curtailment amount, that *demand response market participants* must email a confirmation of their reduced capability to CBDR@ieso.ca using the confirmation form found at http://www.ieso.ca/sector-participants/market-operations/markets-and-related-programs/capacity-based-demand-response.

Confirmations are due by 18:00 EST for day ahead Standby Notices and 08:00 EST for current day Standby Notices. The IESO deems that notified Demand Response Accounts are available for their full DR curtailment amount if no confirmation is received by the confirmation deadline.

Following an Open Standby Notice, *demand response market participants* may also confirm that they can provide either:

- A DR curtailment amount that is above what they have been contracted for, and/or
- A DR curtailment duration above the contracted four hours.

The *IESO* will process submitted Confirmations *and* incorporate any increases or reductions into the *energy* offers of associated *CBDR* resources.

2.7.4 Activation Notices

The *IESO* issues Activation Notices via email at least 2.5 hours in advance of an Activation Period. The notices are intended to instruct the *demand response market participant* to provide their DR

curtailment at the requested Demand Response Account by the confirmed DR curtailment amount. The *IESO* will only issue an Activation Notice to *demand response market participants* with Demand Response Accounts that have received a Standby Notice for the current day.

The *IESO* will assess each potential Activation Period every hour until no later than 2.5 hours prior to the start of the potential Activation Period. This assessment will be conducted until an Activation Notice is issued (or the activation timelines can no longer be met), at which time the *offers* for the *CBDR* resource will be removed from the Ontario *energy* market for the ineligible Activation Period.

The *IESO* will issue an Activation Notice for an Activation Period to all of the Demand Response Accounts within a *CBDR* resource when that resource has a non-zero *pre-dispatch schedule* for at least four consecutive hours during the Hours of Availability.

2.7.5 DR Curtailment

Once a *Demand Response* Account has received an activation notice, it is expected to curtail for the four hours stated in the Activation Notice, by the confirmed DR curtailment quantity. The DR curtailment provided by the Demand Response Account must meet the obligations defined in the Project's Measurement & Verification Plan, as described in Market Manual 5.5: Physical Markets Settlement Statements, and must not be applied to any other demand reduction program or service.

The *demand response market participant* must be available and consuming *energy* in order to provide an activated DR curtailment. The *IESO* shall validate whether the Demand Response Account was available and consuming an adequate amount of *energy* by performing a "Not Fully Available for Curtailment" test.

The "Not Fully Available for Curtailment" test looks at the consumption of the Demand Response Account during either the four-hour period prior to DR curtailment, or the four-hour period prior to receiving an Activation Notice, as elected by the *demand response market participants* during registration of the Demand Response Account. The Demand Response Account is considered "Not Fully Available for Curtailment" if the test period capacity calculation, described below, is less than 80% of the Monthly Contracted MW.

***Demand Response Contributor* Type**	**Test Period Capacity Calculation**
Interruptible Loads and/or Non Sub-Metered Generators	Average consumption over the test period
Sub-Metered Generators	Nameplate Capacity minus the average Generator Output

If a Demand Response Account is composed of a combination of Interruptible Loads and/or Non Sub-Metered Generators and Sub-Metered Generators, then the "Not Fully Available for Curtailment" test will use the sum of the test period capacity calculations.

If the Demand Response Account is composed of a *dispatchable load* with *bids* submitted into the Ontario *energy* market in all hours of the four-hour test period, then that account will be excused from meeting the "Not Fully Available for Curtailment" requirement (as long as the *bids* are for at least the monthly contracted MW amounts, and are priced below +*MMCP*).

If a *demand response market participant* has submitted a Planned Non-Performance Event for a Demand Response Account on the activation day, then that Demand Response Account shall be excused from meeting the "Not Fully Available for Curtailment" requirement.

In the event of a DR *forced outage* or urgent outage (including a DR *forced outage* caused by a *force majeure event*) during the "Not Fully Available for Curtailment" test period, the following will apply:

Demand Response Account type	Forced/Urgent Outage Recovery	Not Fully Available for Curtailment test
Demand response direct participant	Does not recover before the test period ends	Exempt. Day treated as a Single Day Planned Non-Performance Event.
	Recovers before the test period ends	Performed over the Intervals during the four hour test period that were not affected by the *forced outage* or urgent *outage*, or on another four hour period accepted by the IESO on the same day.
Demand response aggregator	Any	No exemption. Performed during the four test period.

If the Demand Response Account is deemed "Not Fully Available for Curtailment" and unable to meet their curtailment obligation,, then penalties may apply. A *demand response market participant* may reduce the applied penalty by notifying the *IESO* via email (CBDR@ieso.ca) prior to DR curtailment that it will be not fully available for curtailment. Refer to Market Manual 5.5 for more information on the applicable penalties.

2.7.6 Performance Exemptions

A *DRMP* in *CBDR* is required to reply to Standby Notices and comply with Activation Notices, unless any of the following conditions applies:

- DR curtailment would cause the loss of life or injury, cause equipment damage, or cause a violation of any applicable law.
- After providing a DR curtailment in the previous three (3) consecutive *business days,* a Demand Response Account is automatically issued a performance exception for the next *business day*. If the *DRMP* elects to have the *Demand Response* Account available for curtailment on the next *business day,* then by 18:00 EST on the third consecutive day, the *DRMP* may confirm that it will be participating on the next *business day* via email (CBDR@ieso.ca). If no confirmation is received, the *IESO* will deem the Demand Response Account unavailable, without consequence, on the next *business day*.
- The *DRMP* has notified the *IESO* that it will be experiencing a Planned Non-Performance Event for that Demand Response Account during the activation period.
- The Demand Response Account has been activated for the Maximum Activation Hours and the *DRMP* does not wish to participate beyond those hours.

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2.8 Requests for Segregated Mode of Operation

Generators may submit requests to operate their *generation facilities* in a *segregated mode of operation* on the *pre-dispatch day* and no later than two hours prior to the start of the first *dispatch hour,* unless otherwise agreed by the *IESO* (*MR* Ch. 7, App. 7.7, Sec. 1.3). *Generators* that wish to have their *generation facilities* scheduled in a *segregated mode of operation* in the day-ahead commitment process (DACP) must submit their request by 09:00 in order to be included in the first run of DACP. The *IESO* must assess the *SMO* request by 10:00. The *IESO* will assess SMO requests received after 09:00 and before 10:00 on a reasonable effort basis. Knowing that SMO can be recalled at any time for *reliability*, *market participants* are required to have *offers* in the Ontario Market prior to 10:00 for any SMO generation.

A request for segregation shall include, but not be limited to:

- The start time of the *segregated mode of operation*,
- The expiry time (duration) of the *segregated mode of operation*,
- A list of the registered *generation facilities* that are intended to operate in the *segregated mode of operation*, and
- An hourly schedule.

Market participants must submit *e-Tag*s for the *interchange schedules* in segregated mode with Hydro Quebec.

A *market participant* that intends for a *registered facility* to operate in a *segregated mode of operation* shall continue to provide *dispatch data* and an *outage* request[20] for that *registered facility* for each *dispatch hour* during which a *registered facility* will or is intended to operate in *segregated mode of operation*.

When submitting requests for *segregated mode of operation*, *market participants* will use the *outage* process described in Market Manual 7.3: Outage Management. Along with submitting an *outage* request for the facilities that are intended to operate in *segregated mode*, *market participants* are required to notify the *IESO* by phone of the request submitted.

The IESO shall make a decision regarding the Request For Segregation and notify the relevant generator of such decision as soon as practicable but no later than such time that allows the transmitter a minimum of 90 minutes (or such lesser time as agreed to by the transmitter) to switch any applicable equipment or facilities required to permit implementation of the segregated mode of operation (*MR* Ch. 7, App. 7.7, Sec. 1.3.4). If the IESO approves the request, it shall:

- Direct the relevant *transmitter* on the switching of applicable equipment to permit the intended operation of the segregated *generation* at the start time,
- Direct the relevant *transmitter* on the switching of applicable equipment to cease the segregated mode of operation and reconnect the segregated transmission and *generation facilities* to the IESO-controlled grid at the expiry time, and

[20] The submission of the *outage* request will fulfill the obligations with respect to the submission of *dispatch data* as set out in *MR* Ch. 7, App. 7.7.

- Coordinate and confirm with the applicable *control area* operator the switching to be effected by the transmitter and the names of the registered facilities that will operate in a *segregated mode of operation*.

The *IESO* may at any time revoke its approval to operate a *registered facility* in a *segregated mode of operation* (*MR* Ch. 7, App. 7.7, Sec. 1.3.6). In this case, the *IESO* shall notify the relevant generator and revoke any direction issued to affect the *segregated mode of operation* for the relevant *registered facility*.

The *IESO* may at any time terminate the operation of a *registered facility* in a *segregated mode of operation* (*MR* Ch. 7, App. 7.7, Sec. 1.3.6)*. In this case, the IESO shall:*

- Notify the relevant *generator*,
- Direct the relevant *transmitte*r on the switching of applicable equipment or facilities required to cease implementation of the *segregated mode of operation*, and
- Coordinate and confirm with the applicable control area operator the switching to be effected by the transmitter and the names of the registered facilities that will cease to operate in a segregated mode of operation.

2.8.1 Segregated Mode of Operation Inadvertent Accounting

The *IESO* will calculate and confirm inadvertent accumulation with neighbouring *control areas* at the end of each *dispatch day*. All reconciliations will include adjustments due to differences in time zones.

Where the interconnection, for which the inadvertent accumulation applies, is comprised of one or more interties capable of operating in a *segregated mode of operation (SMO)*, the *IESO* will:

- Confirm the *segregated mode of operation* schedules with the appropriate *market participant(s)* and compare these schedules with the corresponding *interchange schedule(s)* for purposes of determining the export transmission service charges and inadvertent amounts,

Note: Where discrepancies occur, the *segregated mode of operation* schedules agreed to by telephone will prevail.

- Determine and distinguish on an hourly granularity the inadvertent accumulation in both the segregated mode of operation and non- segregated mode of operation in relation to individual intertie *SMO* inadvertent accumulation,
- Differentiate the “on” and “off” peak inadvertent accumulation in accordance with the NERC definition of “on” and “off” peak in relation to individual intertie SMO inadvertent accumulation,
- Keep an ongoing daily record of the total *non-SMO* and SMO inadvertent accumulation,
- On a daily basis, provide applicable market participants individual intertie segregated mode of operation inadvertent accumulation data regarding hourly, peak, off peak, and daily totals,
- Manage total inadvertent accumulation with the neighbouring control areas, and, regarding the segregated mode of operation inadvertent accumulation component, the IESO will make every reasonable attempt to schedule inadvertent accumulation payback during periods that are mutually acceptable to the market participant and the IESO as follows:

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- In the case where a *market participant* owes inadvertent and, where reasonable, proposals, by the *market participants*, to reduce accumulated inadvertent have been made to, but not accepted by, the applicable neighbouring *control area*, the *IESO* will not require the *market participant* to pay back the inadvertent accumulation until the arrangements are acceptable to the *IESO* and the *market participant*, but, where reasonable proposals have not been made, and no mutually acceptable arrangement can be determined, the *IESO* may direct the *market participant* to payback *SMO* inadvertent accumulation based on the requirements of the *IESO* and neighbouring *control area*, or
- In the case where a *market participant* is owed inadvertent, the *IESO* will, upon request of the *market participant* or when deemed necessary by the *IESO*, arrange inadvertent payback to the *market participant* at a mutually acceptable time, however, where reasonable proposals to reduce accumulated inadvertent have been made to but are not accepted by the *market participant*, the *IESO* may direct the *market participant* to receive *SMO* inadvertent accumulation based on the requirements of the *IESO* and the neighbouring *control area*, but, where reasonable proposals have not been made by the applicable neighbouring *control area*, and no mutually acceptable arrangement can be determined, the *IESO* will not require the *market participant* to receive *SMO* inadvertent accumulation based on the requirements of the *IESO* and the neighbouring *control area*, and
- Where the *control area* to *control area* monthly inadvertent reconciliation indicates, the *IESO* will allocate any inadvertent accumulation adjustment (positive or negative) on a pro-rata basis to the current inadvertent accumulation accounts of all parties:

To pay back *segregated mode of operation* inadvertent accumulation, the *market participant* shall:

- Make and continue making reasonable proposals to pay back segregated mode of operation inadvertent accumulation until such inadvertent account is paid, and
- Pay back *segregated mode of operation* inadvertent accumulation in accordance with this process.

2.9 Publication of Pre-dispatch Schedules

The *IESO* must determine, *publish* and release *pre-dispatch schedule*s in order to provide itself and *market participants* with advance information and projections necessary to plan the physical operation of the *electricity system*. The *IESO* must 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* (*MR* Ch. 7, Sec. 5.5). Valid *dispatch data* provided by *market participants* are used to help determine the *pre-dispatch schedule*. Appendix D provides further background information on the process that the *IESO* undertakes to develop and *publish* the *pre-dispatch schedule*.

The schedules and forecasts provided by *self-scheduling generation facilities*, *transitional scheduling generators,* and *intermittent generators*, are used by the *IESO* to develop its own forecast of intermittent generation and self-scheduled generation to be used in the pre-dispatch process. For

variable generation, the *IESO* uses forecasts provided by a *forecasting entity*[21].The pre-dispatch process then optimizes the *energy* and *operating reserve* recognizing projected constraints on the *IESO-controlled grid* and interties. The output includes the prices and cleared quantities of *energy* and each class of *operating reserve* for individual *facilities* and in aggregate.

Following each pre-dispatch run, the *IESO* assesses the *security* and *adequacy* of the results. The two considerations that impact the assessment of pre-dispatch *security* and *adequacy* are listed below.

- The *pre-dispatch* output is not the first assessment of *security* and *adequacy*, assessments will have been made a number of times for a *dispatch* hour or day before the first *pre-dispatch* runs are prepared such that, consequently, the assessments for *pre-dispatch* benefit from the information gathered in previous assessments. In particular, the *IESO* will focus upon the near term *security* and *adequacy* assessments provided up to day 34. The assessments are located in the Adequacy Report, Transmission Facility All in Service Limits Report, and the Transmission Facility Outage Limits Report.
- Since *bids* and *offers* can be changed without limits up to two hours prior to the *dispatch* hour, *pre-dispatch* schedules will be more stable as the *dispatc*h hour approaches. Pre-*dispatch s*chedules for 5+ hours out may be totally different from the final schedule for these hours.

Once these assessments are complete, the *IESO* evaluates to find the best integrated solution based on the results of these assessments. Where *security* & *adequacy* concerns are identified, the *IESO* will undertake remedial action that may include (but is not restricted to) the following (*MR* Ch. 7, Sec. 3.3.12):

- Sending out an advisory notice requesting *offers/bids* to relieve local area inadequacies (MW, MVAR), these requests should provide cold units sufficient lead-time to start if necessary (e.g., 12 hours before the dispatch hour for thermal units), and/or
- Sending out directives requesting *offers/bids* to relieve local area inadequacies (MW or MVAR)*,* directives would be targeted specifically to relevant *generators/loads* in the areas expected to experience local area inadequacies (*MR* Ch. *7, Sec.* 3.3.13, and they would instruct market participants (to the full extent of the market rules) to submit offers/bids (this would occur at the discretion of the IESO, but probably within 12 hours of the dispatch hour).

- End of Section -

[21] At the discretion of the *IESO,* we may manually adjust the *variable generation* forecast provided by the *forecasting entity* to account for conditions such as, but not limited to, actual weather that differs from forecast weather.

Appendix A: Content of Dispatch Data

This appendix provides references to the *IESO* documentation that describes the standards that *market participants* have to follow when submitting *dispatch data* to the *IESO*-administered real-time *energy* and *operating reserve* markets.

A.1 Bid / Offer Data Requirements

Refer to the "Energy Market Graphical User Interface User's Guide" for web-based *Market Participant* Interface screens. Examples of the following template files can be found in the "Market Participant Submissions" section of the Technical Interfaces page on the *IESO* public website (www.ieso.ca). Bid/offer data requirements include:

- *Energy offers* & *bids* (including imports, exports, and requests for the *segregated mode of operation*),
- Standing energy *offers* & *bid*s,
- *OR offers* (including imports),
- Standing *operating reserve offers* & *bids*,
- *Energy market* schedules (for self-scheduling *generation facilities*, transitional scheduling *generators*, and intermittent *generators*),
- Total installed capacity net *outages* and derates (for variable generation) and
- *Bids* to reduce *energy* withdrawals.

A.2 Schedules and Forecasts

Refer to the "Energy Market Graphical User Interface User's Guide" for web-based *Market Participant* Interface screens. Examples of various schedules, forecasts and assessment data files can be found on the Technical Interfaces page on the *IESO* public website (www.ieso.ca).

– End of Section –

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Appendix B: Short Notice Change Criteria

B.1 Introduction

A short notice submission (submission - includes *bids* or *offer*s) is defined as any real-time *dispatch data* submission which occurs within two hours, of the start of a *dispatch hour* identified in the submission.

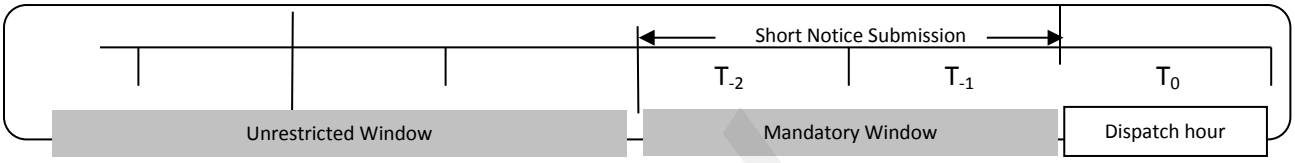


Figure B-1: Short Notice Submission Window

All new and revised dispatch data submitted within two hours in advance of the *dispatch hour* must be manually approved by the *IESO*. Criteria for manual acceptance of new and revised *dispatch data* for this window is summarized in Appendix B.3.

The market rules provide some guidance regarding IESO manual approval for short notice dispatch data submissions. The IESO will approve such changes and authorize the submission of new or revised dispatch data if:

- The revision is considered a replacement energy offer,
- *The revision, in the case of a dispatchable load, relates to:*
    - Changing its load status, in whole or in part, either to or from dispatchable, by bidding at or changing from *MMCP*, or
    - A request to restore its *operating reserve offers* after a *forced outage* or urgent outage, or
    - The revision reflects changes in the operational status of the *generation facility* or the *dispatchable load facility* to prevent violation of any *applicable law*, endangering the safety of any person, or damage to property or the environment.
- *The IESO will also approve the submission of new or revised dispatch data in the mandatory window if the revision relates solely to the quantity element of the dispatch data, and the change results from one or more of the following:*
    - Direction from the *IESO* to submit *dispatch data* for *reliability* reasons,
    - Changes in the operational status of the *generation facility* or the *dispatchable load facility* to prevent violation of any *applicable law*, endangering the safety of any person, or damage to property or the environment,
    - The *market participant* recognizes that the quantity of any p*hysical service* scheduled in the current *pre-dispatch schedule* for the *facility* differs from the quantity the *market participant* reasonably expects to be delivered or withdrawn by more than the greater of 2% or 10 MW,

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- Is associated with an *HDR* resource,
- The *IESO* denies a request for segregation,
- The IESO revokes its approval to operate a registered facility in a segregated mode of operation,
- The IESO terminates the operation of a registered facility in a segregated mode of operation,
- A System Advisory for under-generation has been issued, and the new or revised *dispatch data* increases *offer*s or decreases *bids* of *energy*,
- A System Advisory for over-generation (i.e., a Minimum Generation Alert or Event)[22] has been issued, and the new or revised *dispatch data* decreases *offer*s or increases *bids* of *energy*, or
- A System Advisory for an *operating reserve* shortfall has been issued, and the new or revised *dispatch data* increases *offer*s of *operating reserve*.

B.2 Submission Criteria

B.2.1 Intentionally Left Blank

B.2.2 Mandatory Window Submission

The mandatory window is the period less than two hours before the start of the *dispatch hour* and closing at least 10 minutes prior to the start of the *dispatch hour*.

There is no automatic acceptance of *dispatch data* submissions in the mandatory window. *IESO* approval to accept the change into the market is contingent upon manually reviewing the actual submission.

Submissions in this window must include an associated reason for change. Those submissions that do not include a reason for change will not pass validation and hence will not be eligible for manual review[23]. *IESO* approval for the *market participant* to submit the new or revised *dispatch data* (i.e. validation of the submission) does not imply approval for inclusion in the real-time *energy* or *operating reserve markets*. The *IESO* may initiate a direct conversation with the *market participant* to clarify the reason(s) provided. The intention is not to accept submission revisions made for economic reasons within this window.

Except for a *dispatchable load* changing its load status, either in whole or in part, to or from dispatchable, manual approval of submission price changes will not be allowed within the mandatory window. The *IESO* will reject these submissions unless the *IESO* has directed the *market participant* to make an additional (i.e., new, not revised) submission or as permitted in *response* to a System Advisory for under-generation, over-generation or an *operating reserve* shortfall. The reason should be specified in the submission. A d*ispatchable load* that needs to change its load status, either in whole or in part, to or from dispatchable within the mandatory

[22] Refer to Market Manual 7.2: Near Term Assessments and Reports, section 4.3 for information regarding Minimum Generation states.

[23] See the Energy Market Graphical User Interface User's Guide for detailed descriptions of the standard reasons for change that are available.

window can do so by changing the price point of the largest *bid* quantity to *MMCP* (from its original *bid* price), or vice versa. In addition, a *dispatchable load* that needs to change its load status, in whole, may identify its consumption as non-dispatchable by removing all *bids* for the hours in which it wishes to be considered non-dispatchable. When *dispatch data* changes are required during the mandatory window to effect a change to or from *dispatchable* status, the *dispatchable load* is required to contact the *IESO* to indicate the reason for its load status change.

The *IESO* will automatically *dispatch* the load to 0 MW in the first interval (Interval 1) of the first hour that does not have *dispatch data.* The *dispatchable load* is required to ignore the 0 MW *dispatch instruction* to confirm its intention to becoming non-dispatchable. The *IESO* will consider the load as non-dispatchable until new *bids* are submitted, resulting in a new *dispatch instruction*. If the *dispatchable load* cannot assume this process without significant changes to its current tools or processes, it may continue to identify its whole consumption as non-dispatchable by bidding its consumption at the *maximum market clearing price* (*MMCP*) until its tools and processes are updated.

Acceptance of mandatory window submissions into the market will occur only when a *facility* is experiencing an operational situation which precludes it from physically or legally being able to satisfy its current *pre-dispatch schedule* (equipment malfunction, worker or public safety situation, legal requirement, property damage, environmental *regulations*). In addition, the *IESO* will not sanction or support the violation of any law or statute by *market participants* through its market dispatch and *dispatch instructions*, and will approve any submission that clearly indicates such a violation will occur if changes are not approved.

In the case of *generation facilities* participating in the Real-Time Generation Cost Guarantee (RT-GCG) program, the *IESO* will not authorise increases to *offer prices* in the *price-quantity pairs* corresponding to the *generation facility's minimum loading point* for the *minimum generation block run time* after the time of the *publication* of the *pre-dispatch schedule* determined three hours prior to the *dispatch hour*.

B.2.3 Short Notice Submission - Boundary Entities

Changes to *price* and *quantity* for *registered boundary entities* are subject to same submission restrictions as *dispatch data* received from non-*boundary entities* (refer to criteria listed in section B.2.2: Mandatory Window Submissions). Quantity changes to *dispatch data* resulting from changes in an external *control area* will, however, be accepted until 60 minutes prior to the *dispatch hour*. For example, an interchange schedule may have been scheduled for a lesser quantity in the external *control area*. (Refer to Market Manual 4.3, Section 7.3: Boundary Entities).

Additionally, a change to the e-Tag identification number (ID) in the submitted dispatch data, when submitted electronically, is treated as a new interchange schedule by the market systems and is subject to the same submission restrictions as other dispatch data including:

- By two hours prior to the *dispatch* hour, *market participants* must submit new or revised *dispatch data* to reflect the correct e-Tag IDs, failure to do so will be treated as a breach of the *market rules*, and

- From two hours until 30 minutes prior to the *dispatch hour*, *market participants* must verbally communicate[24] e-Tag ID changes to the *IESO*, who will implement the necessary adjustments in the *IESO* market systems on their behalf.

B.2.4 Short Notice Submission - Reliability

The *IESO* will allow the *offers* to be submitted for a brief period only for those stations where a hydraulic unit is required to run to maintain system *reliability* and which may result in spill to be caused at other affected stations on the same river system.

- A modified criterion is established under which the IESO will consider approving changes to offers and bids within the mandatory window.

The *IESO* will open the bidding window **for a minimum of one hour or until the *reliability* concern is resolved** to allow *bids*/*offers* to be modified within the short notice submission window when the *IESO* has or is about to initiate EEA2[25] (*energy emergency* alert 2) procedures.

Note: The intent of opening the bidding window in the above situation is strictly to assist in alleviating/mitigating *reliability* or *security* concerns of the *IESO-controlled grid* (e.g., encourage *market participants* to submit additional *offers* or *bids* that will assist in alleviating an *adequacy* deficiency) and, as such, the bidding window will only be open to accept the following:

- *All new offers, and*
- *Those modified existing offers where price remains the same or is lower (a price increase on an existing offer is not allowed).*

Note: The bidding window will still remain closed for any changes to an intertie *scheduling limit* or to an operating *security limit.*

All other changes submitted by *market participants* in the mandatory window, if opened, will only be approved by the *IESO* in accordance with *MR* Ch 7. Sec. 3.3.6, where the revision relates solely to generating and the revision is required in order to reflect a proposed change in the operating status of the *registered facility* designed solely "to prevent the *registered facility* from operating in a manner that would violate any *applicable law*, endanger the safety of any person or damage property or the environment."

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[24] A short notices change to the *e-Tag* ID, if verbally communicated, is only intended for the infrequent situation where there is a mismatch between *dispatch data* and the submitted *e-Tag*.

[25] EEA2 - *NERC* Emergency Energy Alert 2: Implement emergency procedures up to but not including interrupting firm load.

B.3 Summary of Allowable Dispatch Data Changes

Table B-1: Summary of Allowable Dispatch Data Changes

Reason for Bid/Offer Change	Changes Allowed		
	2 hours+	**2-0 Hours**	**Market Rule Reference**
Market-based changes	Unrestricted changes to *dispatch data* except where *reliability* issue identified in *pre-dispatch schedule*	None	Chapter 7 Section 3.3.3, 3.3.10
Forced outages or urgent outages, *generation unit* or *dispatchable load* limitations: > the greater of 2% or 10 MW		*Offers* do not need to be revised as long as an *outage* request is entered into the *outage* management system to reflect actual capability as long as derating does not last more than two hours.	Chapter 7 Section 3.3.8
		Bids need to be revised to: o reflect what the *dispatchable load* reasonably expects to withdraw, o indicate if their status changes to or from being dispatchable[26], and o identify when *operating reserve* capability is restored following the *outage*.	
HDR resources		Reflect what the HDR resource reasonably expects to withdraw.	
• Personnel/Public Safety • Property Damage • Legal requirement Environmental *Regulation*		Quantity and price changes to reflect actual capability	Chapter 7 Section 3.3.6

[26] A *dispatchable load* indicates a status change of part of its load by bidding at *MMCP*. A status change of its whole load is indicated by either not bidding for its consumption for that hour (refer to Appendix B.2.2 for additional information), or by bidding its whole consumption at *MMCP*.

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Reason for Bid/Offer Change	Changes Allowed		
	2 hours+	2-0 Hours	Market Rule Reference
*Offer*s/*bids* created or revised in *response* to a System Advisory issued by the *IESO* for under-generation		Increased quantities in existing *energy offer*s (*generators*, *wholesale sellers*) Decreased quantities in existing load *bids* (*dispatchable loads*) New *offer*s from *generators*.	Chapter 7 Section 12.2
*Offer*s/*bids* created or revised in *response* to a System Advisory issued by the *IESO* for over-generation		Decreased quantities in existing *energy offer*s (*generators*, *wholesale sellers*) Increased quantities in existing load *bids* (*dispatchable loads*) New *bids* from *dispatchable loads*	Chapter 7 Section 12.2
*Offer*s created or revised in *response* to a System Advisory issued by the *IESO* for an *operating reserve* shortfall		Increased quantities in existing *operating reserve offer*s New *operating reserve offer*s	Chapter 7 Section 12.2
When *IESO* has directed a *market participant* to *bid*/*offer* for *reliability* reasons identified in *pre-dispatch schedule* (includes High-Risk Operating Conditions).		Increased quantities in existing *offer*s New *offer*s	Chapter 7 Section 3.3.13
When *IESO* has directed a *market participant* to *bid*/*offer* under terms of a *Reliability Must Run Contract*.		Increased quantities in existing *offer*s New *offer*s	Chapter 5 Section 4.8
Where *IESO* refuses a request for *Segregated Mode of Operation*		Increased quantities in existing *offer*s New *offer*s	Appendix 7.7 Section 1.2
Where *IESO* refuses request by generator for de-synchronization from the *IESO-controlled grid*		Increased quantities in existing *offer*s New *offer*s	Chapter 7 Section 11.2.3
Interchange schedule – Quantity Changes		Quantity reductions allowed up to 60 minutes prior to the dispatch hour, due to external *control area* schedules	

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Reason for Bid/Offer Change	Changes Allowed		
	2 hours+	2-0 Hours	Market Rule Reference
Interchange schedule – e-Tag ID changes		e-Tag identification changes allowed up to 60 minutes prior to the *dispatch hour*	
Where *IESO* directs the Ancillary Services Provider to change the *regulation* requirements with less than 5 hours notice		Increased quantities in existing *offer*s New *offer*s	
Where the *Ancillary Services Provider* must change the *regulation* requirements due to a forced outage or urgent outage or a de-rating to its equipment.		Increased quantities in existing *offer*s New *offer*s	
Where the market participant submits a replacement energy offer due to a forced outage or urgent outage		Revised dispatch data for a related generation facility	Chapter 7 Section 3.3

– End of Section –

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Appendix C: Contingency Plan

C.1 Triggering Events

This appendix contains information on the *IESO*'s contingency plan for operating the real-time *energy* and *operating reserve* markets in the event that the Market Information Management System accessed through the *Market Participant* Interface is unavailable. This plan also applies to cases where the *market participant* is not capable of communicating with the *IESO*, due to failure of hardware, software or communications.

Any of the following events may require the IESO to implement this contingency plan:

- *Failure in any of the components of the participant network or market participant's participant workstation including:*
  - Hardware,
  - Software, and
  - Communications components,
- *Failure in any of the IESO Market Systems including:*
  - Hardware,
  - Software, and
  - Communications.

C.2 Overriding Concerns / Principles for Contingency

Market participants are responsible for risk assessment and contingency preparation for contingencies on their side. This includes providing alternative communications pathways, Business Recovery Procedures (BRP) centres, etc. However, rather than undergoing this expense, *market participants* may choose simply to use standing *bids*/*offers*, default *bids*/*offers*, or zero *bids*/*offers* (which attract MCP).

The *IESO* will do its best to accept *bids*/*offers* through alternative pathways. However, if a widespread failure occurs, its ability to receive *dispatch data* may be restricted purely by the volume of information. In such instances, e-mailed files may be the only possible means of continuing operation.

A continuum of failures is possible, continued operation is possible under a wide range of conditions. However, failure of the Market Systems for periods greater than two hours is a valid reason for market suspension. (Refer to Market Manual 4.5: Market Suspension and Resumption for more details on this process.)

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C.3 Data Inputs

During a *contingency event*, data inputs may have to be restricted according to the extent of the failure (hardware/software/communications), where the failure is located (*market participant* or *IESO*), and the length of failure. Depending on these factors, *bids*/*offer*s may have to be communicated using an alternative medium. In contingency situations, the *IESO* may use its administrative capabilities within the tools to submit/withdraw/edit *bids* and *offer*s on behalf and on the instruction of the *market participants*. The following alternatives are available:

- Email file, or
- Phone.

If phone is used, it is impracticable to handle a large number of *price-quantity pairs*. Therefore, only simplified bids/offers, which include at least 2 and up to a maximum of five *price-quantity pairs* for each hour, are allowed.

The ability of the *IESO* to intervene on behalf and on the instruction of the *market participants* will depend on the extent and severity of the contingency. It may take up to an hour for the *IESO* to process bids and offers received by e-mail or phone. Therefore, it is strongly recommended that market participants submit these bids and offers well in advance, at least one hour prior to the dispatch hour to which they apply.

C.3.1 Email File

In the event of a failure affecting the Participant Network, but which leaves the Market Systems operational, *market participants* will e-mail a bidding file that uses Comma Separated Values (CSV) format to the *IESO*. *Market participants* are required to notify the *IESO* by phone prior to sending a CSV-format bidding file via e-mail to the *IESO*.

To submit *bids*/*offer*s during a contingency, *market participants* will use a specific *IESO* e-mail address that was communicated to them at the time when they registered their facilities for participation in the *IESO-administered markets*.

The *IESO* administrative capabilities and procedures are published in the "Energy Market Graphical User Interface User's Guide".

The format requirements for the bidding files are published in Market Manual 6: Participant Technical Reference Manual, section 5.1.2. For contingency reasons, *market participants* will be encouraged to have the *dispatch data* in CSV format readily available.

This medium of communication would allow at least 2 and up to 20 *price-quantity pairs* to be submitted for each pre-dispatch, which is equal to the maximum number of *price-quantity pairs* allowed by the *market rules*.

In the event of widespread problems affecting the Participant Network, the volume of e-mails would likely become unmanageable. The IESO would be unable to handle e-mails from all MPs, and would therefore suspend real-time markets.

Note: The *IESO* directs the attention of *market participants* to the non-secure nature of Internet e-mail. All risks for the confidentiality of commercial information sent to the *IESO* via e-mail are assumed by the *market participant*.

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C.4 Actions

When a *contingency event* occurs, the *IESO* needs to make an evaluation of its probable extent and duration. The extent varies according to whether the event affects the *IESO* or *market participant(s),* and the number and criticality of the components that have been affected. The duration may be short-term (i.e., up to two hours in length), medium-term (i.e., two to four in length) or long-term (i.e., four hours plus in length).

Depending on the evaluation, the *IESO* may decide on a number of palliative measures while awaiting restoration of service.

For a c*ontingency event* affecting **Market System** tools, the *IESO* may:

- Inform all *market participants* to use current *dispatch instructions,*
- Continue using current *offers* and *bids* available from *pre-dispatch* at hours 0-2*,*
- Instruct *market participants* to re-submit *offers and bids* again in the unrestricted window if ***Market System*** tools return to service),
- Suspend the *market*[27] and instruct *market participants* to remain at the last *dispatch* instruction at hour 2, i*f* ***Market System*** tools have not returned*,*
- *Approve revisions to dispatch data as per the Short Notice Change Criteria in* Appendix B *, and*
- Allow revisions to *bids/offers* in order to fix a constraint problem*.*

For a *contingency event* affecting communications with a *market participant* (Participant Network), the *IESO* will:

- Instruct the *market participant* to submit *bids/offers* by e-mailed file, and
- Suspend the *IESO-administered markets,* if the volume of e-mails exceeds the parameters of an orderly market operation.

- End of Section -

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[27] *Administrative pricing* may apply. Refer to Market Manual 4.3, Section 9: Administrative Pricing.

Appendix D: Pre-dispatch Schedule Production and Publication

D.1 Overview

Pre-dispatch is one of a series of activities that the *IESO* undertakes to assess the *reliability* of the *IESO-controlled grid*. The pre-dispatch scheduling process occurs each hour for the remaining hours of today and for all hours of tomorrow at a certain point mid-afternoon on any trade date. It is preceded by a number of *IESO* processes that also assess *reliability,* including the 18-Month Outlook and the Day Ahead Commitment Process. Pre-dispatch is followed by the IESO's real-time scheduling process.

Reliability assessments are performed using the output of the pre-dispatch scheduling algorithms. However, *security* and *adequacy* for any trade date will have been assessed many times by various longer-term *IESO* processes (with increasing granularity) in advance of the first pre-dispatch run for any day. Consequently, pre-dispatch assessments focus upon the impact of new and/or changed information relative to the previous assessments.

In the *pre-dispatch* process, the *IESO* uses a number of inputs including an hourly Ontario demand forecast and market participant supply offers (e.g. generation and imports) and demand *bids* (e.g. dispatchable load, demand response and exports) to calculate an optimized energy and operating reserve dispatch. Like the adequacy reports, *pre-dispatch* looks at adequacy in each hour. However, pre-dispatch uses *market participant offers* and *bids* as well as the effects of parallel path flows on tie-line capacity that are not available for other reports[28].

Specifically, pre-dispatch uses:

- A 60-minute time-step instead of the five-minute time-step used in real-time dispatch, and
- The average *demand* forecast for each hour prepared by the *IESO*, with the exception of Ramp Hours[29] and during any hour in which there is a *reliability* concern. During these hours, the *IESO* will use the highest demand interval forecasted for each hour prepared by the *IESO*.

Real-time dispatch uses a load predictor to prepare automatically[30] prepare an Ontario demand forecast for the next five minutes based on previous Ontario demand values and expected load profiles.

The output of the *pre-dispatch schedule* dispatches interchange for the next hour. (The pre-dispatch schedules for Ontario resources are used only to provide information to market participants – these schedules are not implemented. The output of the real-time schedule dispatches Ontario resources for the next five minutes – it does not schedule external resources.)

[28] The Adequacy Report and Transmission Facility Limit Reports use items such as *generation capacity,* tie-line capacity and *outage*s (including their impact on tie-line capacity) to assess *adequacy* of resources to meet forecast Ontario *demand*.

[29] *IESO* Ramp Hours are defined as any hour in which the peak demand forecast exceeds the average demand forecast by at least 300 MW.

[30] At the discretion of the *IESO,* we may manually adjust the Ontario *demand* forecast to account for limitations of our automated load predictor to accurately forecast expected load profiles.

Market mechanism will be used to solve problems as much as possible, including constraint violations. Consequently, most *IESO* and *market participan*t pre-dispatch input changes will be incorporated during the next hourly pre-dispatch run rather than manually initiating the pre-dispatch sequence in the interim period between these runs. It is expected that manual initiation of the *pre-dispatch* sequence by the *IESO* will occur infrequently.

The *IESO* will publish the initial *pre-dispatch schedule* and associated projections of market schedules and of market prices by 16:00 EST of each *pre-dispatch* day, and will publish any revised pre-dispatch schedules and projections of *market schedules* and of *market prices* as soon as practical after they are determined.

The overall timing of the *security* and *adequacy* assessments, Pre-dispatch and Dispatch processes are summarized in Figure D-1, overleaf.

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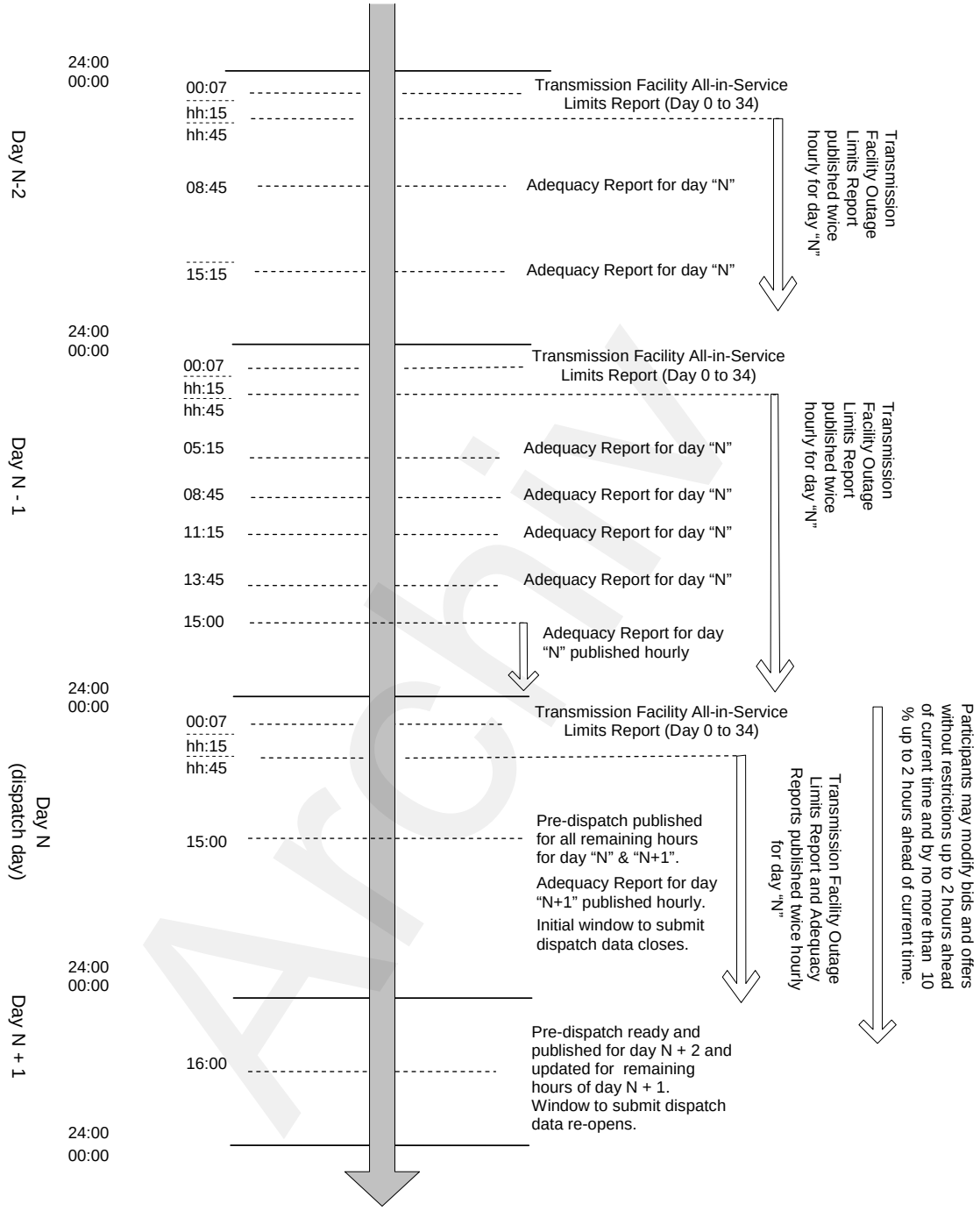


Figure D-1: Adequacy Report, Transmission Limits Report, Pre-dispatch and Dispatch Process Coordination Timing Chart

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D.2 Time-line Definition for Pre-dispatch

An example of a pre-dispatch time-line is presented in Figure D-2.

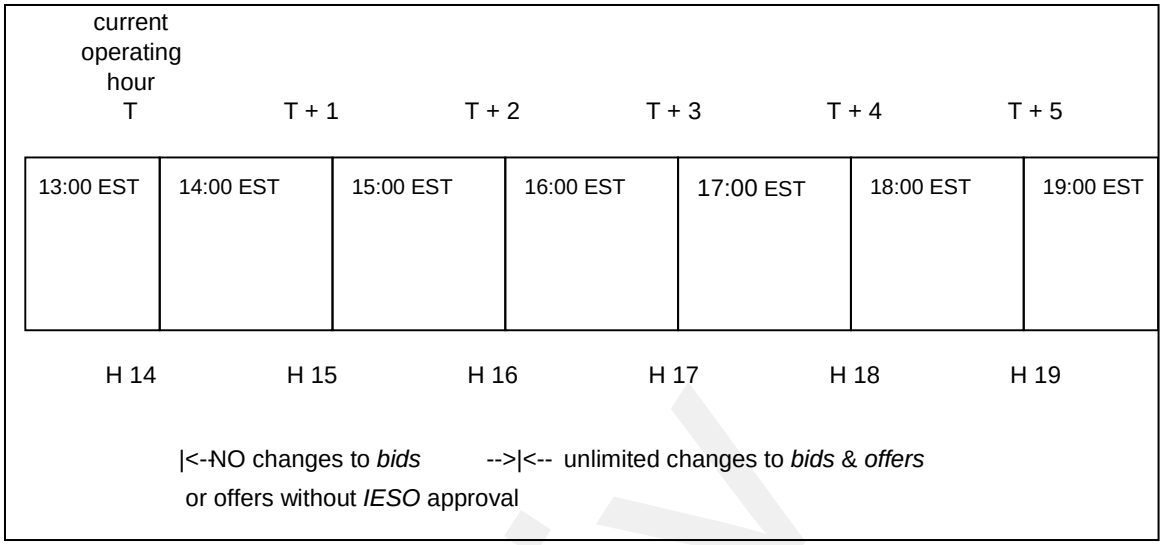


Figure D-2: Sample time-line for pre-dispatch

In this example, the current operating hour H14 (or more generally, T) is defined to be the hour ending at 14:00 EST. Thus, if the current time is 13:10 EST, then:

(T) = (H14) = (the hour ending 14:00 EST).

Hour (T+N) is interpreted as the period N hours beyond the current operating hour. Accordingly:

(T + 4) = (H 18) = (the hour ending 18:00 EST).

Some notes regarding these hours:

T (H14):

A *pre-dispatch* run is initiated at about 13:05 EST. *Pre-dispatch schedule*s are calculated for the remaining hours of the current day (including the current hour) based on the *offer*s and *bids* that have been submitted to the *IESO* by 12:50 EST.

T+1 (H15):

Interchange schedules for this hour by the H14 pre-dispatch run are implemented in the next hour.

T+2 (H16):

H14 pre-dispatch run output will provide the first very accurate view of expected scheduling of resources of this hour, since *offers*/*bids* for this hour cannot change after 13:00 EST without *IESO* approval.

T + 3 (H17) and hours beyond:

H14 pre-dispatch run schedules for these hours may still change significantly since unlimited changes to *bids*/*offer*s are still allowed for these hours.

It is necessary to perform pre-dispatch at least hourly to schedule interchange for the next hour. For the hours H1-H15, the pre-dispatch run includes all remaining hours of the current day (including

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the current hour). For hour H16 and beyond, the pre-dispatch run includes all remaining hours of the current day (including the current hour) and all of the hours of the next day.

The *IESO* will use the results of the previous pre-dispatch run in cases where the hourly pre-dispatch has not provided a solution – for example, corrupt inputs have led to an incorrect or unrealistic dispatch.

There are two 'modes' to the pre-dispatch calculation. In the 'first mode', run at hour H16, the *pre-dispatch schedule*s for the entire 24-hour period of the next *dispatch day* are calculated for the first time. At the same time, the *pre-dispatch schedule*s for the remaining hours of the current *dispatch day* are re-calculated. In the 'second mode', run each hour from hour H17 of the current day until hour H16 of the next day, the pre-dispatch run is re-calculated for the same period, excluding hours that have passed.

When the *pre-dispatch schedule* is re-calculated for any hour, there could be *dispatch data* changes from *market participants* revising *bids* and *offer*s in *response* to the previous publications of the *pre-dispatch schedule*. There could also be changes to data reflecting system events that occur in real-time but that have an impact on hours beyond the current hour. Examples of such events are:

- *Forced outages or* urgent outages *of equipment that will not return to service until into the next day or beyond,*
- Changes in weather that require a change in the demand forecast, and
- *Changes to limits driven by forced outages or* urgent outages *or early returns to service of equipment.*

During the time preceding the 'first mode' run of the pre-dispatch in hour H16, the focus of the *IESO* will be on:

- The assembly and integrity of the data for the 'first mode' run for the next dispatch day, and
- Any changes or modifications to pre-dispatch input data for the remaining hours of the current dispatch day.

For all other hours, *IESO* will focus on data changes for the 'second mode' runs.

D.3 Assessment Pre-Dispatch Security & Adequacy and Resolution of Problems identified

Following each *pre-dispatch* run, the *IESO* assesses the *security* and *adequacy* of the results through a review that addresses the following assessments:

- *P*ower system configuration,
- *Operating Security Limits (OSLs),*
- Area reserve control actions,
- Transmission Loading Relief (TLR) / Lake Erie Emergency Re-dispatch (LEER),
- I*nterchange schedules*,
- A*ncillary services*,
- Voltage, and
- R*egulation.*

There are considerations that impact the assessment of pre-dispatch *security* and *adequacy*:

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- The pre-dispatch output is not the first assessment of *security* and *adequacy* for a trade date. Assessments will have been made a number of times for a dispatch hour or day before the first pre-dispatch runs are prepared. Consequently, the assessments for pre-dispatch benefit from the information gathered in previous assessments including the Day Ahead Commitment Process and *security* and *adequacy* assessments. Since bids and offers can be changed without limit up to two hours prior to the dispatch hour, pre-dispatch schedules will be more stable as the dispatch hour approaches, pre-dispatch schedules for 3+ hours out may be totally different from the final schedule for these hours.

Once these assessments are complete the, *IESO* evaluates best-integrated solution based on the results of these assessments. Where *security* and *adequacy* concerns are identified, the *IESO* will undertake remedial action that may include (but is not limited to) the following:

- Sending out an advisory notice requesting *offers/bids* to relieve *local are*a inadequacies (MW, MVAR), this should occur 12 hours before the *dispatch hour* to provide cold thermal units time to start if necessary,
- Sending out directives requesting *offers/bids* to relieve *local area* inadequacies (MW or MVAR), directives would be targeted specifically to relevant generators/loads in the areas expected to experience *local area* inadequacies, and they would command *market participants* (to the full extent of the market rules) to submit *offers/bids* (this would occur at the discretion of the *IESO*, but probably within 12 hours of the *dispatch* hour), or
- Modifying one of more of the following *pre-dispatch* inputs prior to the next *pre-dispatch* run:
    - Changing selected *regulation*, based on the pre-dispatch *security* and *adequacy* assessment, the *IESO* will review available *regulation* resources, select *regulation* contracts that provide *regulation* in the correct location, and de-activate *regulation* contracts, as necessary,
    - Changing the selected Net Interchange Scheduling Limit (NISL) value, based on the pre-dispatch *security* and *adequacy* assessment, the *IESO* will increase the NISL value if this action is likely to provide assistance. After system *security* and *adequacy* are restored, the NISL value will be set back to its default value,
    - Preparing to initiate TLR and/or LEER, based on the pre-dispatch *security* and *adequacy* assessment, the *IESO* will invoke TLR warnings or LEER procedures to reduce the *intertie* circuit loading,
    - Considering the cancellation or rescheduling of *outage*s that have not yet started or the recall of *outage*s already in progress[31],
    - Considering the selection of alternative OSLs where the *outage* assumptions are altered and implementing correct OSLs where an incorrect limit had been selected for the *outage* pattern, and/or
    - Considering the revocation of approval of segregated generation and termination of operation of segregated generation.

[31] Cancellation, rescheduling or recall of *outage*s is detailed in the Market Manual 7.3*:* Outage Management*.* However, the *IESO* will be guided by outage priority and aim to allow as many *outage*s to proceed as possible.

D.4 Publication & Notification of Results

In releasing any information relating to the results of the pre-dispatch process, the *IESO* will:

- Ensure that all results are available,
- Ensure that the confidentiality of any confidential data[32] is not violated in publishing the results or issuing the notifications to the scheduled *market participants,*
- Confirm that the required notifications are being issued to the scheduled *market participants*, and
- Confirm that the results are getting out to the *market participants* and to the public domain locations.

D.4.1 Data Released to Individual Market Participants

The *IESO* shall release the following information for each *registered facility* only to the *registered market participant* for that *registered facility*:

- The *day-ahead commitment process* and *pre-dispatch* schedule for that *registered facility,*
- The projected *market schedule* for that *registered facility,*
- The forecast, produced by the *forecasting entity*, for the *energy* expected to be provided by that *registered facility*, which is a *variable generation facility,* in each hour over the next 48 hours,
- The expected use of that *registered facility* under *reliability must-run contracts* and contracted *ancillary service* contracts, and
- The decisions on requests for *segregated mode of operation*

D.4.2 Data Released to All Market Participants

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

- Total system *load* and total system losses,
- Area *operating reserve* requirements,
- Projected hourly energy shortfalls,
- *Aggregate reliability must-run* resources being directed to submit *offers* or *bids,*
- Any area *operating reserve* shortfalls,
- A list of the *network* constraints and *security c*onstraints that affect the *pre-dispatch schedule,*
- The most current *security* and *adequacy* assessment,
- the projected uniform *market prices* of *energy a*nd *operating reserve* in the *IESO control area*, and
- The projected *market prices* of *energy* and *operating reserves* in each *intertie zone* outside the *IESO control area.*

[32] Confidentiality is usually ensured by:
- Removing individual names, prices, and similar information, and
- Aggregating information in order to avoid identification.

When releasing the day-ahead commitment process and *pre-dispatch schedule*, the *IESO* shall include, for information purposes only:

- The projected *energy* prices at each set of *transmission* nodes identified by the *IESO* for this purpose, and
- The projected prices for 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.

– End of Section –

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Appendix E: Boundary Entity Resources

E.1 Boundary Entity Resource Representation for Exports and Imports

There are two export tax treatments that need to be considered when selecting *boundary entity* resources. *Interchange schedules* between Canadian provinces must pay GST and *interchange schedules* to the US are exempt from GST. Specific resources have been established at each relevant location for each type of *interchange schedule.* For the Minnesota and Manitoba *interties,* these are denoted by a "CAN" or "US" reference in the *boundary entity* resource name.

For exports from Ontario wheeling through Michigan or New York and into another province (and therefore not GST exempt), the requirement is to use the "WC.PRAIRIERANGES.SINK" or "EC.MARITIMES.SINK" respectively.

For Imports into Ontario there is no need to different between Canada and US sources as the tax treatments is identical.

The *boundary entity* resources established by the *IESO* take the form of [X].[Y].n, where:

X = Boundary resource representation,

Y = 'SOURCE' or 'SINK', and

N = 1, 2, 3 etc.

Example: MB.WHITESHELL.CAN.SOURCE.01 is the first of 15 boundary entity resources that in this example can be used to import into Ontario energy and/or operating reserve across the Manitoba interconnection from any control area within Canada.

E.2 Table of Boundary Entity Resources

The following revised table details the final simplified *boundary entity* resource names for each *intertie zone* and the number of *boundary entity* resources that are available at each of these locations. In all cases, the number of resources refers to the number of source resources and sink resources created at each location. (For instance, there are 50 MI.LUDINGTON.SOURCE resources and 50 MI.LUDINGTON.SINK resources available to each *market participant*.)

Table E-1: Boundary Entity Resources

Intertie	MSP[33] Name	Boundary Entity resource Name	# of BER Resources	Description
Manitoba 115 kV	MBSK	MB.SEVENSISTERS.SINK	2	Export via *IESO*/Manitoba 115kV intertie

[33] MSP - Market scheduling point or "tie point".

Intertie	MSP[33] Name	Boundary Entity resource Name	# of BER Resources	Description
		MB.SEVENSISTERS.SOURCE	2	Import via *IESO*/Manitoba 115kV intertie
Manitoba 230 kV	MBSI	MB.WHITESHELL.CAN.SINK	15	Export to Canada via *IESO*/Manitoba 230kV intertie
		MB.WHITESHELL.CAN.SOURCE	15	Import via *IESO*/Manitoba 230kV intertie
		MB.WHITESHELL.US.SINK	5	Export to US via *IESO*/Manitoba 230kV intertie
Michigan	MISI	MI.LUDINGTON.SINK	50	Export to US (except PJM) via *IESO*/Michigan intertie
		MI.LUDINGTON.SOURCE	50	Import via *IESO*/Michigan intertie from the US (except PJM)
		WC.PRAIRERANGES.SINK	5	Export to Canada via *IESO*/Michigan intertie
		MD.CALVERTCLIFF.SINK	40	Export to PJM via *IESO*/Michigan intertie
		MD.CALVERTCLIFF.SOURCE	40	Import via *IESO*/Michigan intertie from PJM
Minnesota	MNSI	MN.INTFALLS.US.SINK	10	Export to US via *IESO*/Minnesota intertie
		MN.INTFALLS.US.SOURCE	10	Import via *IESO*/Minnesota intertie
		MN.INTFALLS.CAN.SINK	5	Export to Canada via *IESO*/Minnesota intertie
New York	NYSI	NY.ROSETON.SINK	50	Export to US (except PJM) via *IESO*/NYISO intertie
		NY.ROSETON.SOURCE	50	Import via *IESO*/NYISO intertie from the US (except PJM)
		EC.MARITIMES.SINK	2	Export to Canada via *IESO*/NYISO intertie
		MD.CALVERTCLIFF.SINK	40	Export to PJM via *IESO*/NYISO intertie
		MD.CALVERTCLIFF.SOURCE	40	Import via *IESO*/NYISO intertie from PJM

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Intertie	MSP[33] Name	Boundary Entity resource Name	# of BER Resources	Description
Quebec B5D/B31L[34]	PQBE	PQ.BEAUHARNOIS.SOURCE	20	Import via *IESO*/Quebec intertie B5D/B31L
Quebec X2Y	PQXY	PQ.BRYSON.SINK	5	Export via *IESO*/Quebec intertie X2Y
		PQ.BRYSON.SOURCE	5	Import via *IESO*/Quebec intertie X2Y
Quebec H4Z	PQHZ	PQ.KIPAWA.SINK	5	Export via *IESO*/Quebec intertie H4Z
		PQ.KIPAWA.SOURCE	5	Import via *IESO*/Quebec intertie H4Z
Quebec D5A	PQDA	PQ.MACLAREN.SINK	5	Export via *IESO*/Quebec intertie D5A
		PQ.MACLAREN.SOURCE	5	Import via *IESO*/Quebec intertie D5A
Quebec H9A	PQHA	PQ.MASSON.SINK	5	Export via *IESO*/Quebec intertie H9A
		PQ.MASSON.SOURCE	5	Import via *IESO*/Quebec intertie H9A
Quebec P33C	PQPC	PQ.PAUGAN.SINK	5	Export via *IESO*/Quebec intertie P33C
		PQ.PAUGAN.SOURCE	5	Import via *IESO*/Quebec intertie P33C
Quebec Q4C	PQQC	PQ.QUYON.SOURCE	5	Import via *IESO*/Quebec intertie Q4C
Quebec D4Z	PQDZ	PQ.RAPIDDESISLE.SINK	5	Export via *IESO*/Quebec intertie D4Z
		PQ.RAPIDDESISLE.SOURCE	5	Import via *IESO*/Quebec intertie D4Z
Quebec A41T/A42T	PQAT	PQ.OUTAOUAIS.SINK	20	Export via *IESO*/Quebec intertie A41T/A42T
		PQ.OUTAOUAIS.SOURCE	20	Import via *IESO*/Quebec intertie A41T/A42T
		PQ.OUTAOUAIS.US.SINK	20	Export to US via *IESO*/Quebec intertie A41T/A42T

- End of Section -

[34] Due to scheduling restrictions imposed by the *IESO*, *market participants* scheduling imports on the Beauharnois interface are required to use only the *boundary entity* resources PQ.BEAUHARNOIS.SOURCE.01-10.

Appendix F: Ontario Specific e-Tag Requirements

F.1 Specific requirements for e-Tag

The following requirements are associated with the Physical Path section of the e-Tag. The conventions listed below will ensure correct treatment of the transaction by the IDC model for curtailment purposes. Failure to follow these requirements may result in transaction curtailments by the TLR process when the transaction does not impact the flow gate in question, due to incorrect modeling within IDC.

CA Column

- Control Area (CA) has to contain "ONT" when the generation supplying the transaction is physically located in Ontario.
- Control Area (CA) has to contain "ONT" when the load being supplied by the transaction is physically located in Ontario.

TP Column

- All transactions associated with the *IESO* must show the *IESO* as Transmission Provider (TP), using "ONT" as identifier.
    - This includes all transactions with HQT and wheel through transactions (where the *IESO* is not identified as the source or sink CA).

POR and POD Column

- Point of Receipt (POR) and Point of Delivery (POD) names must represent the interface that the transactions are associated with. For exports, a POD must be selected from the drop down list and for imports, a POR must be selected. Table F-1 lists the proper PORs and PODs.

  Note: POD/POR information is available on the OATI webRegistry (login required).

Table F-1: Interface PORs and PODs

Interface	Imports (POR)	Exports (POD)
Manitoba MBSI	ONT.IMPORT.WHITSHELL.PS	ONT.EXPORT.WHITSHELL.PS
Michigan MISI	ONT.IMPORT.MECS.PS	ONT.EXPORT.MECS.PS
Minnesota MNSI	ONT.IMPORT.INTFALLS.PS	ONT.EXPORT.INTFALLS.PS
New York NYSI	ONT.IMPORT.NYIS.PS	ONT.EXPORT.NYIS.PS
Outaouais PQAT	ONT.IMPORT.AT	ONT.EXPORT.AT

Interface	Imports (POR)	Exports (POD)
Beauharnois PQBE	ONT.IMPORT.LAW	ONT.EXPORT.LAW
D5A PQDA	ONT.IMPORT.D5A	ONT.EXPORT.D5A
D4Z PQDZ	ONT.IMPORT.D4Z	ONT.EXPORT.D4Z
H9A PQHA	ONT.IMPORT.H9A	ONT.EXPORT.H9A
H4Z PQHZ	ONT.IMPORT.H4Z	ONT.EXPORT.H4Z
P33C PQPC	ONT.IMPORT.P33C	N/A
Q4C PQQC	N/A	ONT.EXPORT.Q4C
X2Y PQXY	ONT.IMPORT.X2Y	ONT.EXPORT.X2Y

Examples:

With the introduction of phase shifters on all circuits across the Ontario - Michigan *intertie*, *market participants* that are submitting *offers* and *bids* for *interchange schedules* across the Ontario - Michigan *intertie* are required to use the following POD and POR names:

- *ONT.IMPORT.MECS.PS as POR name for interchange schedules into IESO from MECS, AND*
- *ONT.EXPORT.MECS.PS as POD name for interchange schedules out of the IESO towards MECS.*

For those interties where segregated mode of operation is available, the Point of Delivery (POD) and Point of Receipt (POR) portion of the physical path in the e-Tag must be as follows:

- *ONT.EXPORT.Q4C as the POD name for interchange schedules out of the IESO towards HQT at Chats Falls,*
- *ONT.EXPORT.LAW.as the POD name for interchange schedules out of the IESO towards HQT at Beauharnois, AND*
- *ONT.IMPORT.LAW as the POR name for interchange schedules into IESO from HQT at Beauharnois.*

  (1) For a wheel tag from HQ/PQAT through ONT to Michigan, both ONT.IMPORT.AT and ONT.EXPORT.MECS.PS would appear on the path.

SE Column

- This column should identify ONT as the scheduling entity (SE) on those rows where an Ontario POR/POD is identified.

F.2 Examples of *e-Tag* Format Convention for Wheeling through Interchange Transactions

Example 1

Dispatch data for an import and an export that contains *dispatch data* with the following *e-Tag* IDs would indicate a linked wheeling through *interchange schedule*:

- WI_GGGG_**ONT**MM1234567_LLLL, and
- WX_GGGG_**ONT**MM1234567_LLLL.

Example 2

A linked wheel through *interchange schedule* involving the Hydro Quebec TransEnergie (HQT) *control area*, the *e-Tag* must identify HQT as being the SOURCE, the SINK or intermediate *control area,* otherwise, the *IESO* will deny the *e-Tag*.

For example, a linked wheel through interchange schedule from Michigan to New York through Quebec must be tagged MECS-ONT-HQT[35]

Where:

- *MECS is the source control area in Michigan, and*
- *HQT is the Quebec sink control area.*

An additional *e-Tag* will be required to complete the linked wheel through transaction from Michigan to New York.

The correct identification of these transactions in the *e-Tag* tool must show the *IESO* as both the Generating Control Area and the Transmission Provider.

All transactions involving Hydro Quebec TransEnergie must also identify HQT as a Transmission Provider in order for the *NERC* IDC tool to treat them appropriately (as radial or DC transmission).

- End of Section -

[35] The *IESO* (ONT) will be identified as an intermediary *control area* in accordance with *market rules* Chapter 7, Section 3.5.

Appendix G: Capacity Based Demand Response Resources

G.1 Table of Capacity Based Demand Response Resources

The following table details the *Capacity Based Demand Response* resource names, and the designated settlement area(s) aggregated to that resource.

Table G-1: Aggregated DR3 Resources

CBDR resource	Designated Settlement Area(s)	Availability Window
DR3_TORONTO_EARLY	All	Early Window 12:00 p.m. to 6:00 p.m. E.P.T. throughout the year
DR3_OTTAWA_LATE	Ottawa	Late Window 1: 4:00 p.m. to 9:00 p.m. E.P.T. (October 1 to May 31) Late Window 2: 12:00 p.m. to 9:00 p.m. E.P.T. (June 1 to September 30)
DR3_TORONTO_LATE	East, Essa, Toronto	
DR3_SOUTHWEST_LATE	Georgian Bay, South Central, South West, Bruce	
DR3_WEST_LATE	Long Point, West	
DR3_NIAGRA_LATE	Niagara	
DR3_NORTHEAST_LATE	North East, North West	
DR3_NE_LOAD1_LATE	North East (Applicable to a single dispatchable load)	
DR3_NW_LOAD2_LATE	North West (Applicable to a single dispatchable load)	

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G.2 Non-Performance Events

Demand response direct participants are eligible to take the number of Single Day Planned Non-Performance Events indicated in the Demand Response Account M&V plan[36] per calendar year. *Demand response aggregators* are eligible to take one Single Day Planned Non-Performance Event per calendar year. The *demand response market participant*, whether an *Aggregator* or a *Direct Participant*, may take one Extended Period Planned Non-Performance Event per Demand Response Account per calendar year, if approved in the M&V plan. Any change to the number of Planned Non-Performance Events must be approved through the M&V process.

Participants must email an irrevocable notification to CBDR@ieso.ca for each Planned Non-Performance Event. All Planned Non-Performance Events must be applied to an entire Demand Response Account, even though that account may be composed of one or more *demand response contributors*, some of whom would otherwise have been able to provide DR curtailment.

Notification of a Single Day Planned Non-Performance Event must be provided no later than 10:00 EST on the *business day* prior to the day of the Single Day Planned Non-Performance Event. Notification of an Extended Day Planned Non-Performance Event must be provided no later than 00:00:01 EST on the fifth *business day* prior to the first day of the Extended Period Planned Non-Performance Event.

If an Extended Period Planned Non-Performance Event is used by the *demand response market participant,* and has ended earlier than expected, the *demand response market participant* shall deliver a written notice to the *IESO* confirming when the Planned Non-Performance Event has ended. The *demand response market participant* cannot transfer any remaining days from that Planned Non-Performance Event towards any future performance exemptions in the current calendar year.

- End of Section -

[36] Refer to Market Manual 5.5 for more information on the Planned Non-Performance Event approval through the M&V Plan.

References

Document ID	Document Title
MDP_RUL_0002	Market Rules for the Ontario Electricity Market
MDP_PRO_0014	Market Manual 1.1: Participant Authorization, Maintenance and Exit
MDP_PRO_0016	Market Manual 1.2: Facility Registration, Maintenance, and De-registration
MDP_PRO_0022	Market Manual 2.6: Treatment of Compliance Issues
MDP_PRO_0024	Market Manual 2.8: Reliability Assessments Information Requirements
IMP_PRO_0024	Market Manual 2.11: 18-Month Outlook and Related Information Requirements
MDP_PRO_0030	Market Manual 4.5: Market Suspension and Resumption
MDP_PRO_0033	Market Manual 5.5: Physical Markets Settlement Statements
IMO_MAN_0024	Market Manual 6: Participant Technical Reference Manual
MDP_PRO_0040	Market Manual 7.1: IESO-Controlled Grid Operating Procedures
IMP_PRO_0033	Market Manual 7.2: Near Term Assessments and Reports
IMP_PRO_0035	Market Manual 7.3: Outage Management

– End of Document –

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