PUBLIC

PROCEDURE

Market Manual 4: Market Operations

Part 0.4.1: Submitting Dispatch Data in the Physical Markets

Issue 1.0

November 11, 2024

This procedure provides guidance to *market participants* on the submission of *dispatch data* in the *physical markets.*

MAN-109

Document Change History

Issue	Reason for Issue	Date
Refer to Issue 68.0 (MDP_PRO_0027) for changes prior to Market Transition.		
1.0	Market Transition	November 11, 2024

Related Documents

Document ID	Document Title
MAN-110	Market Manual 0.4.2: Operation of the Day-Ahead Market
MAN-111	Market Manual 0.4.3: Operation of the Real-Time Market

Table of Contents

List of Figures

List of Tables

Table of Changes

Reference	Description of Change
	•
	•

Market Transition

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

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

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

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

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

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

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

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

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

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

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

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

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

Market Manuals

Market manuals set out procedural and administrative details with respect to *market rule* requirements. Where there is a conflict between the requirements described in a *market manual* or appended document, and those within the *market rules*, the *market rules* shall prevail.

Market Manual Conventions

This *market manual* uses the following conventions:

- the word 'shall' denotes a mandatory requirement;

- references to *market rule* sections and sub-sections may be abbreviated in accordance with the following representative format: '**MR Ch.1 ss.1.1-1.2**' (i.e. *market rules,* Chapter 1, sections 1.1 to 1.2).

- references to *market manual* sections and sub-sections may be abbreviated in accordance with the following representative format: '**MM 1.5 ss.1.1-1.2**' (i.e. *market manual* 1.5, sections 1.1 to 1.2).

- internal references to sections and sub-sections within this manual take the representative format: 'sections 1.1 – 1.2'

- terms and acronyms used in this *market manual* and in its appended documents that are italicized have the meanings ascribed thereto in **MR Ch.11**; and

- data fields are identified in all capitals.

– End of Section –

1   Introduction

1.1   Purpose

This *market manual* provides *market participants* with information necessary to submit daily and hourly *dispatch data,* for both *energy* and *operating reserve*, in the *IESO's* day-ahead and real-time *physical markets*.

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

1.2   Scope

This *market manual* supplements the following *market rules*:

- MR Ch.5 s.6.6: Outage coordination tests
- MR Ch.7 s.2.2.6I: Pseudo-unit technical parameters
- MR Ch.7 s.3: Data submissions in the Real-time Market
- MR Ch.7 s.4.8.1
- MR Ch.7 s.5.8.2.10
- MR Ch.7 s.6.7.4
- MR Ch.7 s.9: IESO procurement markets
- MR Ch.7 s.13.2.4.1: Market suspension events
- MR Ch.7 s.19.9: Energy market participation for system-backed capacity import resources
- MR Ch.7 s.20.1: Capacity export request and IESO review
- MR Ch.7 s.21.5: Revisions to dispatch data
- MR Ch.7 s.21.6: Operating reserve
- MR Ch.7 App.7.1: Energy offer, schedule or forecast information
- MR Ch.7 App.7.7: Radial intertie transactions
- MR Ch.8 s.2: Physical bilateral contract data and quantities

1.3   Contact Information

Changes to this *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](#) . *IESO* Customer Relations staff will respond as soon as possible.

– End of Section –

2 Dispatch Data to Supply and Consume Energy

2.1 Dispatchable Generation and Dispatchable Electricity Storage Resources

(MR Ch.7 s.3.5)

This section sets out the *dispatch data* parameters submitted by *registered market participants* as part of its *offer* to provide *energy* on *dispatchable generation resources* or *dispatchable electricity storage resources* intending to inject.

Overview – Dispatch *data* parameters for *dispatchable generation resources* or *dispatchable electricity storage resources* intending to inject consist of a combination of:

- hourly *dispatch data* parameters listed in **MR Ch.7 ss.3.5.3-3.5.4**, which apply to a specific *dispatch hour*; and

- daily *dispatch data* parameters described in **MR Ch.7 ss.3.5.21-3.5.22**, which apply to an entire *dispatch day* or the remainder of a *dispatch day* if it is submitted as a revision during a *dispatch day*.

Hourly dispatch data parameters – Hourly *dispatch data* is submitted to apply for one hour on a given *dispatch day*.

Daily dispatch data – Daily *dispatch data* are submitted as a single value applicable to an entire *dispatch day*.

Thermal states – When submitted, *start-up offer*, *minimum generation block down-time*, *lead time*, and *ramp up energy to minimum loading point* are *dispatch data* parameters that are submitted for each *thermal state*.

Table 2-1 summarizes the *dispatch data* applicable to each *dispatchable generation resource* and *dispatchable electricity storage resource* intending to inject by type.

Table 2-1: Applicable Dispatch Data for Dispatchable Generation and Electricity Storage Resources

Dispatch Data Parameter	Data Interval	Nuclear Generation	Non-Quick Start Generation	Variable Generation	Hydro Electric Generation	Other Quick Start Generation and Electricity Storage Intending to Inject
Price-Quantity Pairs	Hourly	x	x	x	x	x
Start-up offer	Hourly		x			
Speed no-load offer	Hourly		x			
Energy ramp rate	Daily & Hourly	x	x	x	x	x
Minimum hourly output	Hourly				x	
Hourly must run	Hourly				x	
Variable generator forecast quantity	Hourly			x		
Linked forebay, time lag and *MWh ratio*	Daily				x	
Forbidden regions	Daily				x	
Maximum daily energy limit	Daily		x	x	x	x
Minimum daily energy limit	Daily				x	
Maximum number of starts per day	Daily		x		x	
Minimum loading point	Daily		x			
Minimum generation block run-time	Daily		x			
Minimum generation block down-time	Daily		x			
Single cycle mode	Daily		x			
Lead time	Daily		x			
Ramp up energy to minimum loading point	Daily		x			
Thermal state	Daily		x			

2.1.1   Price-Quantity Pairs

(MR Ch.7 ss.3.5.3.1, 3.5.5, and 3.9)

Pseudo-units – For the purposes of **MR Ch.7 s.3.5.5**, for a *pseudo-unit*, the *price-quantity pairs* are submitted on the *pseudo-unit* rather than on the *resources* associated with the combustion and steam turbine *generation units* used to model the *pseudo-unit*.

2.1.1.1   Resource-Specific Requirements

(MR Ch.7 ss.1.6.2 and 3.5.6)

Overview – Registered *market participants* submitting *price-quantity* pairs on *non-quick start resources* that are not nuclear *generation resources*, resources providing *energy* generated by *flexible nuclear generation*, and *variable generation resources*, are subject to additional requirements.

Non-quick start resource excluding nuclear – The *IESO* tool does not automatically validate for compliance with **MR Ch.7 s.3.5.5.7**.

Flexible nuclear generation – For the purposes of **MR Ch.7 s.3.5.5.8**, the price offered in a *price-quantity pair* on a *resource* that is offering to provide *energy* generated by *flexible nuclear generation* must be no less than -$5/MWh.

Variable generation resources – For the purposes of **MR Ch.7 s.3.5.5.8**, *offers* on *variable generation resources* are to be submitted in the following manner:

- the *price* offered in a *price-quantity pair* on a solar *resource* or wind *resource*, excluding the last 10% of the available capacity of a wind *resource*, must be no less than -$3/MWh; and

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

Related provisions – In addition to *variable generation price-quantity pairs*, the *registered market participant* may, at its sole discretion, submit *variable generation forecast quantities* in the *day-ahead market* with respect to the *offers* in accordance with **MR Ch.7 s.3.5.18**. Refer to [section 2.1.7](#) for more information.

2.1.1.2   Planned Testing

(MR Ch.5 s.6.6)

Criteria for IESO approval – For the purposes of approving planned tests under **MR Ch.5 s.6.6.4**, the *IESO* will attempt to provide *registered 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 *registered market participant* at the time of the original submission.

Offer prices – *Dispatchable generators* and *dispatchable electricity storage participants* are expected to *offer* at a price to be scheduled for the full capability of the test unit.

Energy Offer quantities – *Dispatchable generators* and *dispatchable electricity storage participants* are expected to submit *outage* requests to derate the test unit to the required test output levels.

When a *registered market participant* whose *generation resource* is expected to undergo a test[1] submits *dispatch data* for any hour of the test, the *registered market participant* must *offer* a quantity that equals the expected hourly average *energy* delivery of the *resource*.

Solar and wind resources – 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 -$3/MWh and -$15/MWh, respectively, for the duration of the test.

Operating reserve quantities – Where the test is instantly recallable, the *generation resource* or *electricity storage resource* registered to inject may participate in the *operating reserve market*. A *registered market participant* may *offer operating reserve* provided that it ensures that the sum of the maximum *energy* expected to be produced during the hour and the *operating reserve* quantity *offered* for the *dispatch hour* does not exceed the maximum amount of *energy* that the *resource* can produce that hour.

2.1.1.3   Energy Offer Price Revisions

(MR Ch.7 ss.3.3.3 and 3.5)

Pseudo-units – For the purposes of **MR Ch.7 ss.3.3.3.4**, **3.3.3.5** and **3.3.3.8**, for a *pseudo-unit*, the *minimum loading point* applicable to *energy offer* price revision restrictions is the computed parameter referred to as *pseudo-unit minimum loading point*. Refer to [section 2.2.2](#) for information on how the *pseudo-unit minimum loading point* is derived.

Timing of revisions – After the *pre-dispatch calculation engine* has initialized at the top of each hour, the *IESO* tool will reject any revisions to increase *energy offer* prices for *GOG-eligible resources* for quantities above the *minimum loading point* until 30 minutes past the hour to enable compliance with **MR Ch.7 ss.3.3.3.8** and

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[1] For more on *dispatch data* submission for *generator* tests with immediate recall, refer to **MM 7.3 s.4.1.2**.

3.3.3.10. Such *energy offer* price revision restrictions are based on the latest *dispatch data* accepted and approved in the system at the top of each hour when the *pre-dispatch calculation engine* is initialized.

Offering additional energy quantities previously not offered in hours subject to price restrictions – A *registered market participant* for *GOG-eligible resources* may *offer* additional MW quantities previously not offered for a *dispatch hour* that is subject to *energy offer* price revision restrictions in **MR Ch.7 s.3.3.3.10**. The *offer* price for additional MW quantities previously not offered must not exceed the maximum *offer* price submitted for the *dispatch hour* at the time the revision restriction is applied, unless circumstances exists whereby the *market participant* may increase the *energy offer* price. If the additional MW quantities expand the *availability declaration envelope*, refer to [section 7.5](#) for more information.

Conditions for energy price increase after a commitment – **MR Ch.7 ss.3.3.3.9** and **3.3.3.11** set out the conditions required for a *market participant* to increase its *energy offer* price after receiving a commitment. All submissions are subject to the restrictions applicable in the real-time unrestricted and mandatory window. The procedures for submitting and revising *dispatch data* for the *real-time market* must be followed. Refer to [section 7.3](#).

Related provision – Refer to Appendix A for content requirements of *dispatch data*.

2.1.2   Start-Up Offer

(MR Ch.7 s.3.5.12)

Default submission – For the purposes of **MR Ch.7 s.3.5.12**, where no *start-up offer* is submitted for any of the *thermal states*, a default value of zero will apply.

Pseudo-units – For the purposes of **MR Ch.7 s.3.5.12**, for a *pseudo-unit*, the *start-up offer* is submitted on the *pseudo-unit* rather than on the *resources* associated with the combustion and steam turbine *generation units* used to model the *pseudo-unit*.

Additional submission instructions – In compliance with **MR Ch.7 s.3.5.35**, a *registered market participant* must identify a *thermal state* applicable to its *start-up offer* in the *day-ahead market*. Refer to [section 2.1.19](#).

A *registered market participant* may submit escalating *start-up offers*[2] into the *day-ahead market* and *pre-dispatch process* to reflect the *commitment cost parameters* associated with the completion of *minimum generation block run-time* over midnight The *generator offer* guarantee calculation does not guarantee commitment costs after midnight for *minimum generation block run-times* that extend across two days. Therefore, the *market participant* may include those commitment costs in the hours

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[2] An escalating *start-up offer* is created by including, in the *start-up offers* for the hour, the *speed-no-load offers* and *energy offers* up to MLP for the hour(s) required to satisfy the completion of the MGBRT in the following day.

prior to midnight as escalating *start-up offers* to ensure those costs are included in the guarantee.

Revisions to start-up offers – The *market rules* provide obligations related to - *start-up offer* revisions in **MR Ch.7 ss.3.3.3.6** and **3.3.3.7**.

2.1.3   Speed No-Load Offer

(MR Ch.7 s.3.5.13)

Default submission – For the purposes of **MR Ch.7 s.3.5.13**, where no *speed no-load offer* is submitted, a default value of zero will apply.

Pseudo-units – For the purposes of **MR Ch.7 s.3.5.13**, for a *pseudo-unit*, the *speed no-load offer* is submitted on the *pseudo-unit* rather than on the *resources* associated with the combustion and steam turbine *generation units* used to model the *pseudo-unit*.

Revisions to speed no-load offers – The *market rules* provide obligations related to *speed no-load offer* revisions in **MR Ch.7 ss.3.3.3.4** and **3.3.3.5**.

2.1.4   Energy Ramp Rate

(MR Ch.7 ss.3.5.7 and 3.5.34)

This subsection includes additional information related to submitting hourly and daily *energy ramp rates* from **MR Ch.7 ss.3.5.7** and **3.5.34**, respectively.

Additional submission instructions – For the purposes of **MR Ch.7 ss.3.5.7** and **3.5.34**, *registered market participants* may submit laminations that are different from those of the *price-quantity pairs* included in each *energy bid* or *energy offer*.

Pseudo-units – For the purposes of **MR Ch.7 ss.3.5.7** and **3.5.34**, for a *pseudo-unit*, the *energy* ramp rate is submitted on the *pseudo-unit* rather than on the *resources* associated with the combustion and steam turbine *generation units* used to model the *pseudo-unit*.

Related provisions – Ramp rates for *resources* that are registered for compliance aggregation must meet the additional requirements as specified in the interpretation bulletin, Compliance with Dispatch Instructions Issued to Dispatchable Facilities, IMO_MKRI_0001 v.7.0, which may be amended from time to time.

2.1.5   Minimum Hourly Output

(MR Ch.7 ss.3.5.14 and 3.5.15)

Default submission – For the purposes of **MR Ch.7 s.3.5.15**, where no *minimum hourly output* is submitted, a default value of zero will apply.

2.1.6   Hourly Must-Run

(MR Ch.7 ss.3.5.16 and 3.5.17)

Default submission – For the purposes of **MR Ch.7 s.3.5.17**, where no *hourly must-run* is submitted, a default value of zero will apply.

2.1.7   Variable Generation Forecast Quantity

(MR Ch.7 s.3.5.18)

Effect of submission – A *registered market participant* associated with a *dispatchable variable generation resource* may submit, to the *day-ahead market* only, a *variable generation forecast quantity* for each *dispatch hour*. The *variable generation forecast quantity*, if submitted for the *dispatch hour*, replaces the *IESO's* centralized *f*orecast quantity for the *resource* for the *dispatch hour*.

Default submission – For the purposes of **MR Ch.7 s.3.5.18**, where no *variable generation forecast quantity* is submitted, the *IESO's* centralized forecast quantity for the resource will continue to be used for the *dispatch hour*.

2.1.8   Linked Forebays

(MR Ch.7 s.3.5.23)

Additional submission instructions – To establish *linked forebays* under **MR Ch.7 s.3.5.23**, a *registered market participant* must submit the downstream *linked forebay, time lag* and *MWh ratio* on a *forebay* that is not located between another set of *linked forebays*. Once these *dispatch data* parameters are submitted, the *forebay* that is the subject of the submission becomes the upstream *linked forebay* for the applicable *dispatch day*.

2.1.8.1   Downstream Linked Forebays

(MR Ch.7 s.3.5.23.1)

Additional submission instructions – For the purposes of **MR Ch.7 s.3.5.23.1**, when submitting a *downstream linked forebay*, *registered market participants* must respect the following requirements:

- it must be located downstream relative to the upstream *linked forebay* (i.e, it must have a *forebay* sequence ID greater than that of the *forebay* upon which it is submitted);

- it must not be submitted on more than one upstream *linked forebay* in a *dispatch day*; and

- it must not be located between another set of *linked forebays*.

2.1.8.2   Time Lag

(MR Ch.7 s.3.5.23.2)

Additional submission instructions – For the purposes of **MR Ch.7 s.3.5.23.2**, *registered market participants* may submit a *time lag* of zero to indicate there is no delay in the water discharge between the *linked forebays*.

2.1.8.3   MWh Ratio

(MR Ch.7 s.3.5.23.3)

Additional submission instructions – For the purposes of **MR Ch.7 s.3.5.23.3**, the schedule for the upstream *resource(s)* and downstream *resource(s)* will respect the ratio in the following manner:

- a ratio less than one indicates less *energy* is required to be scheduled at the downstream *linked forebay*;

- a ratio equal to one indicates the same quantity of *energy* is required to be scheduled at the downstream *linked forebay*; and

- a ratio greater than one indicates more *energy* is required to be scheduled at the downstream *linked forebay*.

2.1.9   Forbidden Regions

(MR Ch.7 s.3.5.24)

Additional submission instructions – For the purposes of **MR Ch.7 s.3.5.24**, each *forbidden region* registered during the equipment registration process is identified by a number from 1 to 5 (refer to **MM 1.5 s.3.3.2.1**). For the purposes of **MR Ch.7 s.3.5.24**, any submitted *forbidden region* must be within an acceptable range for any *forbidden region* registered for the *resource*. The numerical identifier used in the submission of *forbidden region* may be different from the numerical identifier used in registration.

2.1.10   Maximum Daily Energy Limit

(MR Ch.7 s.3.5.25)

Forebays – For the purposes of **MR Ch.7 s.3.5.25**, for a *dispatchable* hydroelectric *generation resource* that is registered to a *forebay*, the *maximum daily energy limit* is submitted on the *forebay* rather than on the individual *resources* registered to the *forebay*[3].

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[3] The *maximum daily energy limit* submitted on a hydroelectric *generation resource* registered to have a shared *forebay* represents the maximum amount of *energy* that can be scheduled in a

Pseudo-units – For the purposes of **MR Ch.7 s.3.5.25**, for a *pseudo-unit*, the *maximum daily energy limit* is submitted on the *pseudo-unit* rather than on the *resources* associated with the combustion and steam turbine *generation units* used to model the *pseudo-unit*. For the purposes of **MR Ch.7 s.3.5.25.3**, the *maximum daily energy limit* submitted on the *pseudo-unit* is validated against the *pseudo-unit minimum loading point* as described [section 2.2.2](#).

Dispatchable electricity storage – *Electricity storage participants* who are *offering energy* from an *electricity storage resource* should use the *maximum daily energy limit* to reflect their *state of charge* limitations. Doing so will limit the schedules they receive to inject from the *day-ahead market calculation engine* and the *pre-dispatch calculation engine,* as otherwise the schedules produced from these engines may exceed the ability of the *resource* to provide *energy*. *Electricity storage participants* entering a *maximum daily energy limit* should use 'fuel availability' as a reason code.

Default submission – For the purposes of **MR Ch.7 s.3.5.25**, where no *maximum daily energy limit* is submitted, a null value will apply for the *dispatch day*.

Reason codes – When submitting the *maximum daily energy limit* pursuant to **MR Ch.7 s.3.5.25**, *registered market participants* must select one of the following reason codes from the MAX DEL reason code field to be submitted with the *maximum daily energy limit* value:

- safety of any person;
- damage to equipment;
- violation of any *applicable law*; or
- fuel availability.

2.1.11   Minimum Daily Energy Limit

(MR Ch.7 s.3.5.26)

Forebays – For the purposes of **MR Ch.7 s.3.5.26**, for a *dispatchable* hydroelectric *generation resource* that is registered to a *forebay*, the *minimum daily energy limit* is submitted on the *forebay* rather than on the individual *resources* registered to the *forebay*.

Default submission – For the purposes of **MR Ch.7 s.3.5.26**, where no *minimum daily energy limit* is submitted, a null value will apply for the *dispatch day*.

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dispatch day across all hydroelectric *generation resources* registered to the same shared *forebay* (i.e., the sum of the hourly schedules over a *dispatch day* on all *resources* registered to a shared *forebay* will not exceed the specified limit).

Revisions to minimum daily energy limits – Following **MR Ch.7 s.3.5.26.2**, after the *dispatch day* has begun, revisions to the *minimum daily energy limit* must also take into account the total actual *energy* produced up to the last hour and the *real-time market* dispatch advisory for the current *dispatch hour*.

2.1.12   Maximum Number of Starts Per Day

(MR Ch.7 s.3.5.28)

Default submission – For the purposes of **MR Ch.7 s.3.5.28**, where no *maximum number of starts per day* is submitted on an eligible *resource*, a default value of null will apply.

Pseudo-units – For the purposes of **MR Ch.7 s.3.5.28**, for a *pseudo-unit*, the *maximum number of starts per day* is submitted on the *resource* for the associated combustion turbine *generation unit* rather than on the *resource* associated with the steam turbine *generation unit* or the *pseudo-unit*.

Additional submission instructions – For the purposes of **MR Ch.7 s.3.5.28**, the *maximum number of starts per day*, if submitted, must be greater than or equal to 1.

2.1.13   Minimum Loading Point

(MR Ch.7 s.3.5.29)

Pseudo-units – For the purposes of **MR Ch.7 s.3.5.29**, for a *pseudo-unit*, the *minimum loading point* is submitted on the *resources* for the associated combustion turbine and steam turbine *generation units* rather than on the *pseudo-unit*.

Resources for steam turbines – All steam turbine (ST) *generation resources* that are part of a *combined cycle plant* and are not physically aggregated (regardless of whether or not the *market participant* has elected to use the *pseudo-unit* model, or a *facility* using the *pseudo-unit* model and operating in *single cycle mode*) must provide each of their n-on-1 *minimum loading points* where applicable under **MR Ch.7 s.3.5.29**. The number of *minimum loading points* that must be submitted for an ST is dependent on the number of combustion turbines (CTs) in the *combined cycle plant*.

The additional n-on-1 *minimum loading points* is limited and equal to n, where n is equal to the number of CTs at the *combined cycle plant*. For example, a *combined cycle plant* with three CTs and one ST must provide a 2-on-1 and 3-on-1 *minimum loading point*, but may not submit a 4-on-1 *minimum loading point*. A *registered market participant* may only submit CT-to-ST configuration values for the number of CTs in the *combined cycle plant*.

Resources for steam turbines in the pseudo-unit model – For the purposes of **MR Ch.7 s.3.5.29.1**, for a steam turbine *generation resource* that is using the *pseudo-unit* model, the 1-on-1 *minimum loading point* submitted on the *resources* must not exceed the maximum registered generation capacity minus the registered

duct firing capacity, multiplied by the minimum of the registered steam turbine percentage shares from all associated *pseudo units*.

2.1.13.1   Minimum Loading Point after Day-Ahead Market Submission

(MR Ch.7 s.3.3.7)

Operating below the minimum loading point – To comply with **MR Ch.7 s.3.3.7**, after *day-ahead market expiration*, if a *resource* is required to operate below its *minimum loading point,* an *outage* request must be submitted to derate the *resource* to the desired output two hours prior to the derate.

Operating above the minimum loading point – If a *resource* is required to operate above its *minimum loading point* after *day-ahead market expiration,* the *market participant* must request a SEAL constraint[4] from the *IESO*.

Duration of outage or constraint – The *outage* or SEAL constraint start and end times should correspond to the period of time the *resource* expects to operate below or above *minimum loading point*.

Additional submission instructions – A revision of *offer price-quantity pairs* to economically schedule the *resource* to the desired output is required in conjunction with and at the same time as the *outage* request submission. *Operating reserve* cannot be provided when the *resource* operates below its *minimum loading point*.

2.1.14   Minimum Generation Block Run-Time

(MR Ch.7 ss.3.3.7 and 3.5.30)

Pseudo-units – For the purposes of **MR Ch.7 s.3.5.30**, for a *pseudo-unit*, the *minimum generation block run-time* is submitted on the *resource* for the associated combustion turbine *generation unit* rather than on the *resource* associated with the steam turbine *generation unit* or the *pseudo-unit*.

Revisions for minimum generation block run-time – **MR Ch.7 s.3.3.7** governs revisions to *minimum generation block run-time*.

2.1.15   Minimum Generation Block Down-Time

(MR Ch.7 s.3.5.31)

Pseudo-units – For the purposes of **MR Ch.7 s.3.5.31**, for a *pseudo-unit*, the *minimum generation block down-time* is submitted on the *resource* for the associated combustion turbine *generation unit* rather than on the *resource* associated with the steam turbine *generation unit* or the *pseudo-unit*.

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[4] A SEAL constraint is used to help prevent a situation that could potentially endanger the safety of any person, damage equipment or the environment, or violate any *applicable law*.

2.1.16   Single Cycle Mode

(MR Ch.7 ss.3.3.7 and 3.5.27)

Pseudo-units – For the purposes of **MR Ch.7 s.3.5.27**, *single cycle mode* is submitted on the *resource* for the associated combustion turbine *generation unit* rather than on the *resource* associated with the steam turbine *generation unit* or the *pseudo-unit*. The *registered market participant* should ensure that *dispatch data* submitted on the *pseudo-unit* supports the *single cycle mode* selection to avoid unintended scheduling results.

Revisions to single cycle mode – **MR Ch.7 s.3.3.7** governs revisions to *single cycle mode*, and the *IESO* will manually review and approve any revisions to *single cycle mode* submitted with the appropriate reason code. Refer to [section 7.3.3](#) and Appendix B for the process to submit revisions to the *single cycle mode*.

2.1.17   Lead Time

(MR Ch.7 s.3.5.32)

Pseudo-units – For the purposes of **MR Ch.7 s.3.5.32**, for a *pseudo-unit*, the *lead time* is submitted on the *resource* for the associated combustion turbine *generation unit* rather than on the *resource* associated with the steam turbine *generation unit* or the *pseudo-unit*.

2.1.18   Ramp Up Energy to Minimum Loading Point

(MR Ch.7 s.3.5.33)

Additional submission instructions – For the purposes of **MR Ch.7 s.3.5.33**, the *ramp up energy to minimum loading point* is submitted by providing an average quantity of *energy* in MWh for each ramp up hour for each thermal state.

Pseudo-units – For the purposes of **MR Ch.7 s.3.5.33**, for a *pseudo-unit*, the *ramp up energy to minimum loading point* is submitted on the *resources* for the associated combustion turbine and steam turbine *generation units* rather than on the *pseudo-unit*.

2.1.18.1   Energy per Ramp Hour

(MR Ch.7 s.3.5.33.3)

Additional submission instructions – For the purposes of **MR Ch.7 s.3.5.33.3**, the *energy per ramp hour* must be submitted for contiguous *ramp hours to minimum loading point* starting from the first ramp hour to the *minimum loading point*. *Energy per ramp hour* shall be submitted for all *ramp hours to minimum loading point* that a *resource* is expected to inject into the *IESO-controlled grid*.

2.1.18.2   Ramp Hours to Minimum Loading Point

(MR Ch.7 ss.3.5.33.1 and 3.5.33.2)

Additional submission instructions – For the purposes of **MR Ch.7 s.3.5.33**, *ramp hours to minimum loading point* is derived based on the number of submitted *energy per ramp hour* values.

Pseudo-units – For the purposes of **MR Ch.7 s.3.5.33**, for *resources* that are a steam turbine *generation unit* associated to a *pseudo-unit,* the *ramp hours to minimum loading point* must be less than or equal to the minimum of all the submitted *lead times* for the corresponding *thermal state* on the associated[5] *resources* for the combustion turbine *generation units.*

For a *pseudo-unit*, the submission on the associated *resources* for the combustion turbine and steam turbine *generation units* with the larger number of ramp hours represents the *resource* that will be ramped up first. For example, if the number of *ramp hours to minimum loading point* submitted on the *resource* for the steam turbine *generation unit* is greater than the number of *ramp hours to minimum loading point* submitted on the *resources* for the combustion turbine *generation units*, it indicates the steam turbine *generation unit* is ramping up first.

2.1.19   Thermal State

(MR Ch.7 s.3.5.35)

Pseudo-units – For the purposes of **MR Ch.7 s.3.5.35**, for a *pseudo-unit*, the *thermal state* is submitted on the *pseudo-unit* rather than on the *resources* associated with the combustion and steam turbine *generation units* used to model the *pseudo-unit*.

2.2   Computed Pseudo-Unit Technical Parameters

(MR Ch.7 s.2.2.6I)

Computation process – The *IESO* will compute *pseudo-unit* technical parameters for *pseudo-units* pursuant to **MR Ch.7 s.2.2.6I** using the daily *dispatch data* parameters submitted on the *resources* for the corresponding combustion turbine and steam turbine *generation units*. The computed technical parameter values are inputs to the *day-ahead calculation engine*, *pre-dispatch calculation engine*, and *real-time calculation engine* to determine the *pseudo-unit* schedules, commitments, and *dispatch instructions*.

---

[5] Specifically pertaining to the submission of *ramp up energy to minimum loading point* on the steam turbine *generation unit*, the combustion turbine *generation unit* is considered to be associated to the steam turbine *generation unit* when the *single cycle mode* is set to **False**.

Rounding computed values – All computed technical parameters will be rounded to the nearest single decimal value, if applicable.

Onus on registered market participants – The *registered market participant* submitting *dispatch data* for its *pseudo-unit* is expected to understand the impact of each *dispatch data* parameter submitted on the *resources* for the corresponding combustion turbine and steam turbine *generation units* and its effect on the *pseudo-unit* schedules and commitments.

The following table lists the *dispatch data* parameters for *pseudo-units*, and whether it is submitted on the *pseudo-unit* or the *resources* for the associated combustion turbine *generation unit* or steam turbine *generation unit*.

Table 2-2: Submitted Pseudo-Unit Daily Dispatch Data

Dispatch Data Parameter	Pseudo-Unit	Combustion Turbine Generation Unit	Steam Turbine Generation Unit
Daily energy ramp rate	x		
Maximum daily energy limit	x		
Maximum number of starts per day		x	
Minimum loading point		x	x
Minimum generation block run-time		x	
Minimum generation block down-time		x	
Single cycle mode		x	
Lead time		x	
Ramp up energy to minimum loading point		x	x
Thermal state	x		

This section provides additional information and formulae on how the IESO computes technical parameters pursuant to **MR Ch.7 s.2.2.6I.**

2.2.1   Single Cycle Mode for a Combustion Turbine of a Pseudo-Unit

Effect of single cycle mode selection – If the *registered market participant* submits its intent to operate in *single cycle mode* in accordance with **MR Ch.7 s.3.5.27**, the steam turbine *generation unit* contribution is removed for the *pseudo-unit*, and the computed technical parameters for the *pseudo-unit* will be equal to the parameters of the combustion turbine *generation unit*.

Availability of single cycle mode – The *single cycle mode* parameter is only available to a combustion turbine *generation unit* associated with a *pseudo-unit*, and will enable the *registered market participant* to continue submitting *offers* on the *pseudo-unit* when the steam turbine *generation unit* is derated or unavailable.

Computing single cycle mode – The *single cycle mode* is a single value applied to all hours of the *dispatch day*, or the remaining *dispatch hours* in the *dispatch day* if the *single cycle mode* selection is changed during the day due to an *outage* resulting in the *pseudo-unit resource* to only be available in *single cycle mode*.

> IF
> $\text{SingleCycleModeFlagPSU}(n) = \text{NO},$
>
> THEN
> PSU operates in combined cycle mode (ST contribution enabled)
>
> ELSE
> $\text{SingleCycleModeFlagPSU}(n) = \text{YES},$
>
> THEN
> PSU operates in *single cycle mode* (ST contribution disabled)

2.2.2   Computed Pseudo-Unit Technical Parameters

The following technical parameters are computed by the *IESO* based on the relevant daily *dispatch data* parameters submitted on the resource for the corresponding *generation unit*.

2.2.2.1   Pseudo-Unit Maximum Generator Capacity (PSU MGC)

PSU MGC is computed to be the sum of the MGC of the associated combustion turbine (CT) submitted during the facility registration process, plus the steam turbine (ST) contribution to PSU MGC (computed value).

> $\text{MaxCapacity}_{PSU(n)} = \text{MaxCapacity}_{CT(n)} + \text{MaxCapacity}_{ST\_to\_PSU(n)}$
>
> WHERE,
> IF
> $\text{SingleCycleModeFlag}_{PSU(n)} = \text{NO},$
> $\text{MaxCapacity}_{ST\_to\_PSU(n)} = \text{Share\%}_{PSU(n)} * \text{MaxCapacity}_{ST}$

ELSE
$MaxCapacity_{ST\_to\_PSU(n)} = 0.0$

2.2.2.2   Pseudo-Unit Minimum Loading Point (PSU MLP)

PSU MLP is computed to be the sum of the *minimum loading point* of the associated CT plus the 1-on-1 MLP of the ST submitted as *dispatch data*.

IF
$SingleCycleModeFlag_{PSU(n)} = NO,$
$MLP_{PSU(n)} = MLP_{CT(n)} + MLP_{ST}$

ELSE
$MLP_{PSU(n)} = MLP_{CT(n)}$

2.2.2.3   Pseudo-Unit Minimum Generation Block Run Time (PSU MGBRT)

PSU MGBRT is computed to be equal to the associated CT MGBRT submitted as *dispatch data*.

$MGBRT_{PSU(n)} = MGBRT_{CT(n)}$

2.2.2.4   Pseudo-Unit Minimum Generation Block Down Time (PSU MGBDT)

PSU MGBDT is computed to be equal to the associated CT MGBDT submitted as *dispatch data*.

$Hot\ MGBDT_{PSU(n)} = Hot\ MGBDT_{CT(n)};$

$Warm\ MGBDT_{PSU(n)} = Warm\ MGBDT_{CT(n)};$

$Cold\ MGBDT_{PSU(n)} = Cold\ MGBDT_{CT(n)}$

2.2.2.5   Pseudo-Unit Maximum Number of Starts (PSU MaxStarts)

PSU MaxStarts is computed to be equal to the associated CT *maximum number of starts per day* submitted as *dispatch data*.

$MaxStarts_{PSU(n)} = MaxStarts_{CT(n)}$

2.2.2.6   Pseudo-Unit Lower Operating Region Amount (PSU_OR_1)

PSU_OR_1, also known as the MLP Range, is defined as the capacity available from zero output to the MLP of the PSU. The PSU Lower Operating Region is computed to be equal to the computed value of the MLP of the PSU.

$PSU\_OR\_1_{PSU(n)} = MLP_{PSU(n)}$

2.2.2.7 Pseudo-Unit Upper Operating Region Amount (PSU_OR_3)

PSU_OR_3, also known as the Duct Firing Range, is defined as the capacity available from duct firing above the Middle Operating Region. The PSU Upper Operating Region is computed to be the product of ST percentage share per PSU and the ST duct firing capacity. Both input values are submitted during the facility registration process.

> IF
> SingleCycleModeFlag $_{PSU(n)}$ = NO,
> PSU_OR_3$_{PSU(n)}$ = Share%$_{PSU(n)}$ * DuctFiring$_{ST}$
>
> ELSE
> PSU_OR_3$_{PSU(n)}$ = 0.0

2.2.2.8 Pseudo-Unit Middle Operating Region Amount (PSU_OR_2)

PSU_OR_2, also known as the *Dispatchable* Range, is defined as the capacity available above the PSU MLP and below the start of duct firing. The PSU Middle Operating Region is computed as the difference of the PSU Maximum Generator Capacity, the Upper Operating Region and the Lower Operating Region.

> PSU_OR_2$_{PSU(n)}$ = MaxCapacity$_{PSU(n)}$ − PSU_OR_3$_{PSU(n)}$ − PSU_OR_1$_{PSU(n)}$

2.2.3 Computed Steam Turbine Portion of Pseudo-Unit Operating Regions

This subsection sets out computations for the steam turbine *generation unit* portion of *pseudo-unit* operating regions.

The following technical parameters are computed by the *IESO* based on the relevant daily *dispatch data* parameters submitted on the *resource* for the corresponding steam turbine *generation unit*.

The steam turbine (ST) portion of an operating region is the capacity the ST contributes to the *pseudo-unit* for a specified operating region. The *day-ahead calculation engine*, *pre-dispatch calculation engine* and *real-time calculation engine* require this input of the ST portions to be expressed as percentages.

2.2.3.1 Steam Turbine Portion of the Lower Operating Region Amount (ST_OR_1)

ST_OR_1 is equal to the 1-on-1 *minimum loading point* (MLP) of the ST.

> IF
> SingleCycleModeFlag$_{PSU(n)}$ = NO,
> ST_OR_1$_{PSU(n)}$ = MLP$_{ST}$

ELSE
ST_OR_1$_{PSU(n)}$ = 0.0

2.2.3.2 Steam Turbine Portion of the Upper Operating Region Amount (ST_OR_3)

ST_OR_3, expressed in MW, is computed as the product of steam turbine percentage share per *pseudo-unit* and the steam turbine duct firing capacity. Both input values are submitted during the *facility* registration process.

IF
SingleCycleModeFlag $_{PSU(n)}$ = NO,
ST_OR_3$_{PSU(n)}$ = Share%$_{PSU(n)}$ * DuctFiring$_{ST}$

ELSE
ST_OR_3$_{PSU(n)}$ = 0.0

2.2.3.3 Steam Turbine Portion of the Middle Operating Region Amount (ST_OR_2)

ST_OR_2, expressed in MW, is computed as the difference of the steam turbine contribution to a PSU MGC, the ST Portion of the Upper Operating Region and the ST Portion of the Lower Operating Region. All three input values are computed.

ST_OR_2$_{PSU(n)}$ = MaxCapacity$_{ST\_to\_PSU(n)}$ – ST_OR_3$_{PSU(n)}$ – ST_OR_1$_{PSU(n)}$

2.2.3.4 Steam Turbine (ST) Portions of Operating Regions

ST Portions of PSU Operating Regions, expressed as percentages, are computed as the share of the ST portion operating region divided by the corresponding PSU Operating Region. The percentages are denoted by K1, K2, and K3 to represent the ST portion of the PSU's MLP Range, Dispatchable Range, and Duct Firing Range, respectively. Both input values are computed.

K1 = ST_OR_1$_{PSU(n)}$ / PSU_OR_1$_{PSU(n)}$ * 100

K2 = ST_OR_2$_{PSU(n)}$ / PSU_OR_2$_{PSU(n)}$ * 100 where PSU_OR_2$_{PSU(n)}$ > 0, ELSE K2 = 0

K3 = ST_OR_3$_{PSU(n)}$ / PSU_OR_3$_{PSU(n)}$ * 100 where PSU_OR_3$_{PSU(n)}$ > 0, ELSE K3 = 0

2.3 Non-Dispatchable Generation

(MR Ch.7 ss.3.7 and 3.9)

Variable generation – A *registered market participant* for a *variable generation resource* that is a *self-scheduling generation resource* or *intermittent generation resource* must comply with **MR Ch.7 ss.3.7.1** or **3.9.1**, as applicable, by

submitting the total installed capacity of the *variable generation,* net any derates or *outages* that have been submitted through the *outage* process.

Refer to Appendix A for content requirements of *dispatch data* for non-dispatchable generation.

2.4   Dispatchable Loads, Dispatchable Electricity Storage Resources and Hourly Demand Response Resources

This subsection pertains to the submission of *dispatch data* for *dispatchable loads, dispatchable electricity storage resources* proposing to withdraw, and *hourly demand response resources*.

2.4.1   Price-Quantity Pairs

(MR Ch.7 ss.3.5.3, 3.5.5 and 3.5.6)

This subsection includes additional information related to *price-quantity pairs* for *dispatchable loads, hourly demand response resources,* and *dispatchable electricity storage resources* proposing to withdraw.

Status of electricity storage resources – A *market participant* registered as an *electricity storage resource* is not entitled to change its load status as set out in **MR Ch.7 s.3.3.3.1**. *Electricity storage units* intending to withdraw must follow the *outage* requirements contained in **MM 7.3** to signal planned unavailability and the requirements listed in Appendix B.4 for *state of charge* changes.

Dispatchable load energy bids and operating reserve offers – For a *dispatchable load* that expects to be consuming *energy* for only part of the *dispatch hour,* the *bid* quantity under **MR Ch.7 s.3.5.5** shall reflect its average value at normal production when operating. To comply with **MR Ch.7 s.7.4.2**, its *operating reserve offer* shall reflect its minimum *dispatchable* consumption during the *dispatch hour,* or zero if the entire *bid* is at *MMCP.*

Operating as non-dispatchable load – A *dispatchable load* that intends to operate its load in whole as non-dispatchable can, pursuant to **MR Ch.7 ss.3.2.3** and **3.3.3.1**, refrain from submitting *bids* or remove all *bids* as necessary for the hours in which it intends to be non-dispatchable, in which case the *dispatchable load* will have no schedule and have "zero" *dispatchable* quantity.

In the *real-time market,* 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 disregard 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.*

Alternatively, the *dispatchable load* may identify all or a portion of its consumption as non-dispatchable by bidding the consumption at the *maximum market clearing price* in accordance with **MR Ch.7 s.3.5.5**.

Changing status after the day-ahead market submission window – If a *dispatchable load* requires a change to *dispatchable* status in the *real-time market* from non-*dispatchable* status in the *day-ahead market,* or an increase to its *dispatchable bid* quantity after the *day-ahead market submission window* the change or increase must meet the requirements for expanding the *availability declaration envelope* under **MR Ch.7 s.3.1.13**. Refer to section 7.5 for details.

Changing status during the real-time market mandatory window – If a *dispatchable load* requires a change to or from *dispatchable* status by submitting or removing *bids* during the *real-time market mandatory window* under **MR Ch.7 s.3.3.5**, the *registered market participant* is required to contact the *IESO* to indicate the reason for its 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 disregard the 0 MW *dispatch instruction* to confirm its intention to becoming non-dispatchable. The *IESO* will consider the *dispatchable load* as non-dispatchable until new *bids* are submitted, resulting in a new *dispatch instruction* (refer also to Appendix B.4: Hourly Dispatch Data Submissions or Revisions during the Real-Time Market Mandatory Window).

Demand response bid price threshold – For the purposes of **MR Ch.11 "demand response bid price threshold"**, the *demand response bid price threshold* is $100/MWh. A *capacity market participant* intending to meet its *capacity obligation* for a *demand response resource* must submit a *demand response energy bid* quantity equal to the *capacity obligation* for their *demand response resource* for all hours of the *availability window* of the *obligation period* (as specified in **MM 12**: Capacity Auctions).

2.4.2   Energy Ramp Rate

(MR Ch.7 s.3.5.7)

This subsection includes additional information related to submitting *energy* ramp rates for *hourly demand response resources*.

Energy ramp rates for hourly demand response resources – Pursuant to **MR Ch.7 s.3.5.7**, *capacity market participants* must submit ramp up rates and ramp down rates for each hourly demand response *resource* that is equal to the *demand response capacity* of the *hourly demand response resource*. For example, an hourly demand response *resource* with a *demand response capacity* of 10 MW would submit ramp up rates and ramp down rates of 10 MW/minute.

2.5   Price Responsive Loads and Self-Scheduling Electricity Storage Resources Intending to Withdraw

(MR Ch.7 ss.3.8 and 3.11)

Bids automatically excluded from real-time market – *Price responsive loads* and *self-scheduling electricity storage resources* intending to withdraw are evaluated in the *day-ahead market* only. After *day-ahead market expiration*, the *registered market participant* is not required to remove its *energy bid from* the *real-time market*. The *energy bids* are automatically excluded from the pre-dispatch scheduling process and real-time scheduling process.

– End of Section –

3 Dispatch Data to Supply Operating Reserve

(MR Ch.7 s.3.6)

Overview – Subject to eligibility requirements for applicable *resource* types (refer to MM 1.5), there are three classes of *operating reserve* that may be offered. The Register Equipment process establishes the classes of *operating reserve* that a *registered market participant* may submit for a given *resource.*

Standing dispatch data – *Standing dispatch data* may be submitted for *operating reserve*.

3.1 Dispatchable Resources

(MR Ch.7 s.3.6)

Pseudo-units – For the purposes of **MR Ch.7 s.3.6**, for a *pseudo-unit*, *operating reserve* offers are submitted on the *pseudo-unit* rather than on the *resources* associated with the combustion turbine and steam turbine *generation units* used to model the *pseudo-unit*.

3.1.1 Supply Operating Reserve Price-Quantity Pairs

(MR Ch.7 s.3.3.3.12)

Timing of operating reserve price revisions – After the *pre-dispatch calculation engine* has initialized at the top of each hour, the *IESO* tool will reject any revisions to increase *operating reserve offer* prices for *GOG-eligible resources* until 30 minutes past the hour to enable compliance with **MR Ch.7 s.3.3.3.12**. The *operating reserve offer* price revision restrictions are based on the latest *dispatch data* accepted and approved in the system at the top of each hour when the *pre-dispatch calculation engine* is initialized.

Offering additional operating reserve quantities previously not offered in hours subject to price restrictions – The *registered market participant* for *GOG-eligible resources* may *offer* additional MW quantities previously not offered for a *dispatch hour* that is subject to *operating reserve offer* price revision restrictions in **MR Ch.7 s.3.3.3.12**. The *offer* price for additional MW quantities previously not offered must not exceed the maximum *offer* price submitted for the *dispatch hour* (if a submission was made) at the time the revision restriction is applied, unless circumstances exists whereby the *market participant* may increase the *operating reserve offer* price.

Conditions for operating reserve price increase after a commitment – **MR Ch.7 s.3.3.3.13** set out the conditions required for a *registered market participant* to increase its *operating reserve offer* price after a *day-ahead operational commitment*. All submissions are subject to the applicable restrictions in the *real-time market unrestricted window* and *real-time market mandatory window*.

Related provisions – Refer to Appendix A for content requirements of *dispatch data*.

3.1.2   Operating Reserve Class

(MR Ch.7 ss.3.6.0 and 3.6.1)

Classes of operating reserve – Pursuant to **MR Ch.7 ss.3.6.0** and **3.6.1**, the *registered market participant* must select one of the following *operating reserve* classes, to the extent it is eligible to provide it, with each *offer* to supply *operating reserve*:

- *ten-minute operating reserve* synchronized;

- *ten-minute operating reserve* non-synchronized; or

- *thirty-minute operating reserve*.

3.1.3   Operating Reserve Ramp Rate

(MR Ch.7 s.3.5.8)

Ramp rate submission – The *operating reserve* ramp rate is expressed in megawatts per minute (MW/min), up to one decimal place, must be greater than zero, and cannot exceed 999.9.

3.1.4   Reserve Loading Point

(MR Ch.7 s.3.6.5)

Dispatchable loads and dispatchable electricity storage resources registered to withdraw – For *dispatchable loads* and *dispatchable electricity storage resources* registered to withdraw, the *reserve loading point* is not applicable and the value submitted for any class of *operating reserve offers* under **MR Ch.7 s.3.6.5** must equal zero.

Reserve loading point submission – The *reserve loading point* is to be expressed in MW, up to one decimal place, greater than or equal to zero and cannot exceed 9,999.9. The *reserve loading point* value submission for:

- synchronized *ten-minute operating reserve offers* must be greater than zero and less than or equal to the registered maximum *generation capacity* or *electricity storage capacity* of the *resource* registered to inject;

- non-synchronized *ten-minute operating reserve offers* must equal zero; and

- *thirty-minute operating reserve offers* must be greater than or equal to zero and less than or equal to the registered maximum *generation capacity* or *electricity storage capacity* of the *resource* registered to inject.

Effect of submission – The quantity of *operating reserve* scheduled will respect the *reserve loading point* for the *resource* based on the quantity of *energy* scheduled and is prorated[6] if the quantity of *energy* scheduled is below the *reserve loading point*.

3.2   Operating Reserve Offers for Electricity Storage Resources

(MR Ch.7 s.21.6)

Duration requirements for injecting component – When the *electricity storage resource* is *offering operating reserve* exclusively from the injecting component of an *electricity storage unit*, the *remaining duration of service* until the *resource* is depleted of *energy* must be greater than or equal to 130 minutes at the end of the *real-time market mandatory window* (i.e. minute 50) for the applicable *dispatch hour*.

Duration requirements for withdrawing components – When the *electricity storage resource* is offering to provide *operating reserve* exclusively from the withdrawing component of the *electricity storage unit*, the *remaining duration of service* to full *state of charge* is greater than or equal to 70 minutes at the end of the *real-time market mandatory window* (i.e. minute 50) for the applicable *dispatch hour*.

Related provisions – Refer to Appendix A.3 for further details, examples, and rationale for electricity storage *dispatch data* requirements.

– End of Section –

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[6] For example, assuming a *reserve loading point* of 100 MW, an *energy* schedule of 60 MW, and a maximum *offered* quantity of 20 MW of *thirty-minute operating reserve*. The schedule of *thirty-minute operating reserve* will be limited to a maximum of (60/100) multiplied by 20 MW = 12 MW. Note that this example assumes that the submitted *operating reserve* ramp rate does not limit the amount of *operating reserve* that can be scheduled.

4   Dispatch Data for Boundary Entity Resources

(MR Ch.7 s.3.4.1.5)

Overview – *Energy traders* submit *dispatch data,* for the purposes of trading between the *IESO physical markets* and other jurisdictions, by following a similar process to that used to submit *dispatch data* for the *day-ahead* and real-time *energy* and *operating reserve markets* within Ontario. An eligible *energy trader* may submit *dispatch data* on a *boundary entity resource* to conduct the following types of *physical transactions*:

- *offer* to import *energy* into the *IESO-administered markets*;

- *bid* to export *energy* from the *IESO-administered markets*;

- *offer* to provide *operating reserve* into the *IESO-administered markets* through *energy* imports or exports. *Bids* to export *operating reserve* out of the Ontario market are not accepted; and

- *linked wheeling through transaction* in the *IESO-administered markets* through an *offer* to import and *bid* to export *energy*.

Energy traders may export *energy* to the United States only if they have a valid Canada Energy Regulator electricity export permit.

Refer to **MM 1.5** for more information on the process of registering an *energy trader* and for using a *boundary entity resource*.

Standing dispatch data – *Standing dispatch data* may be submitted on a *boundary entity resource* for *energy* and *operating reserve*.

4.1   Energy Import, Energy Export, and Supply Operating Reserve Transactions

(MR Ch.7 ss.3.5 and 3.6)

The table below sets out the *dispatch data* parameters submitted by a *registered market participant* for an *energy trader* to import and export *energy*, and supply *operating reserve*.

Table 4-1: Applicable Dispatch Data by Intertie Transaction Type

Subsection	Import Energy	Export Energy	Supply Operating Reserve
4.1.1 Boundary Entity Resource and Tie Point ID	x	x	x
4.1.2 Interjurisdictional Capacity Transactions	x	x	
4.1.3 e-Tag	x	x	
4.1.4 Operating Reserve Class			x

4.1.1   Boundary Entity Resource and Tie Point ID

(MR Ch.7 ss.3.5 and 3.6)

Obligation to specify boundary entity resource and tie point ID – Each *offer* or *bid* to import or export *energy* or *operating reserve*, as applicable, must specify a *boundary entity resource* and tie point ID.

Sink and source – Appendix C lists the available *boundary entity resources* and corresponding tie point IDs that eligible *registered market participants* must use to submit *offers* and *bids* to import or export *energy* or supply *operating reserve*. *Registered market participants* must select *boundary entity resources* identified as "Source" when submitting *offers* to import *energy*, and must select *boundary entity resources* identified as "Sink" when submitting *bids* to export *energy*.

Additional submission instructions to supply operating reserve – *Registered market participants* offering to supply *operating reserve* must select the "Source" or "Sink" *boundary entity resource* and tie point ID that corresponds with the *energy* import *offer* or export *bid* used to support the *operating reserve* transaction pursuant to **MR Ch.7 s.3.6.3**.

Submission restrictions – There are restrictions on the *boundary entity resources* that can be used for submission of *dispatch data* for capacity import *resources* and imports on the Beauharnois *boundary entity*:

All capacity import *resources* must be offered on the designated *boundary entity* associated with the *control area* for which the capacity import *resource* originates.

- *Capacity market participants* scheduling a *system-backed capacity import* in accordance with **MR Ch.7 s.19.9** are required to use one of the following *boundary entity resources*:

    o MB.WHITESHEL.SOURCE.SBACK.01

   o PQ.OUTAOUAIS.SOURCE.SBACK.01.

- *Capacity market participants* scheduling a *generator-backed capacity import* in accordance with **MR Ch.7 s.19.9B** are required to use one of the following *boundary entity resources*:

   o NY.ROSETON.SOURCE.GBACK.01

   o PQ.MACLAREN.SOURCE.GBACK.01

For imports on the Beauharnois *boundary entity*, due to scheduling restrictions[7] imposed by the *IESO*, *registered market participants* offering imports from the Beauharnois *boundary entity* are required to use only the *boundary entity resources* PQ.BEAUHARNOIS.SOURCE.01-10.

Submission requirements – An *offer* or *bid* submitted on a *boundary entity resource* must specify whether the *boundary entity resource* will be conducting an import ('INJECTION') or an export ('OFF-TAKE') in the "Bid Offer" field of the submission.

4.1.2 Interjurisdictional Capacity Transactions

(MR Ch.7 ss.19.9, 19.9B and 20.1)

Capacity transaction parameter – A *registered market participant* that is submitting *dispatch data* on a *boundary entity resource* may select the capacity transaction parameter to indicate the *offer* or *bid* is for an interjurisdictional capacity transaction in accordance with **MR Ch.7 ss.19.9**, **19.9B** or **20.1**. The capacity transaction parameter may also be selected for imports and exports to implement the *IESO*-Hydro Quebec capacity sharing agreement.

Registration – *Energy traders* that intend to import *energy* or export *energy* for an interjurisdictional capacity transaction must register the capability to do so with the *IESO* as part of the participant authorization process. Refer to **MM 1.5** for more information on the process of registering an *energy trader* to submit interjurisdictional capacity transactions.

4.1.3 e-Tags

(MR Ch.7 App.7.1 s.1.2)

Overview – An e-Tag represents a transaction scheduled to flow between or across *control areas*. This subsection includes additional information related to e-Tags.

Obligation to submit – e-Tags are required to facilitate the checkout of *interchange* schedules with external *control areas* in accordance with *NERC reliability standards,* and must be submitted through the e-Tagging system. Operation in segregated mode

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[7] 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.

with Hydro Quebec also requires the submission of e-Tags in accordance with *IESO* requirements.

An e-Tag ID[8] must be submitted for each *boundary entity resource offer* and *bid* to establish a link between that *offer* or *bid* to its associated e-Tag in the *IESO* systems.

Related provision – Appendix D comprises some Ontario-specific requirements for e-Tags.

4.1.3.1   e-Tag Submission Process

Timing of e-Tag ID submission – e-Tag IDs must be submitted at least 32 minutes[9] prior to the *dispatch hour*. However, *registered market participants* are encouraged to submit e-Tag IDs as soon as possible after submitting their *bid* or *offer* to support the validation processes described below.

Typically*, registered market participants* submitting *dispatch data* on a *boundary entity* are required to submit all *offers* or *bids* by two hours prior to the *dispatch hour*. However, *registered market participants* may make short notice changes, if necessary, to the e-Tag ID up to 32 minutes prior to *dispatch hour* as specified in Appendix B.4.2.

Submitting to the e-Tag system – In addition to the *IESO* submission, *registered market participants* are required to submit the e-Tag(s) and scheduled MW quantity to the e-Tag system at least 32 minutes prior to the *dispatch hour*.

Extenuating circumstances – If the *IESO* fails to issue the "Pre-Dispatch Intertie Transactions and NQS Resource Extensions Report" 45 minutes before the *dispatch hour*, the *IESO* will allow additional time for e-Tag submissions equal to the delay after the 32-minute e-Tag submission timeline, up until 10 minutes before the *dispatch hour*. However, in such situations, the *IESO* encourages the *registered market participants* to submit the e-Tag 32 minutes prior to the *dispatch hour* based on the expected *interchange schedule* and to subsequently make necessary changes as required.

NYISO requirements – With respect to *interchange schedules* with NYISO, and notwithstanding the obligation stated above, *registered market participants* shall not revise their e-Tag MW schedule according to the *IESO* "Pre-Dispatch Intertie Transactions and NQS Resource Extensions 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 *registered market participants*.

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

[9] *Market participants* are responsible for submitting or adjusting impacted e-Tags early enough for the tags to be in the Interchange Distribution Calculator (IDC) database by 35 minutes prior to the *dispatch hour* when a transmission loading relief (TLR) procedure has been activated.

e-Tag replacement during the real-time market mandatory window – Pursuant the **MR Ch.7 s.3.3.5** the *registered market participants* may not change the *boundary entity resource* associated with a given *bid* or *offer* to reflect an e-Tag replacement without *IESO* approval.

Interjurisdictional capacity transactions – System backed capacity import *offers* will be required to include the letters "SCAP" in between the Balancing Authority identification. Generator-backed capacity import *offers* will be required to include the letters "GCAP" in between the Balancing Authority identification.

4.1.3.2   Intertie Transaction Failures

Missing or late e-Tag submission – Missing or late e-Tags 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 *registered market participant* by automated email[10] with "Missing e-Tag" indicated as the reason.

If an e-Tag:

- is submitted late;

- has incorrect data (MW quantity does not match *dispatch instruction*); or

- has yet to be submitted after 32 minutes prior to the *dispatch hour*;

but is required by the *IESO* for internal *reliability* purposes, the *interchange schedule* may be approved on a reasonable effort basis.

Note: Although the *interchange schedule* may be approved for *reliability* reasons after 32 minutes prior to the *dispatch hour*, it is still deemed a breach of the *market rules*.

4.1.3.3   IESO Actions when an e-Tag is Required for Reliability

Table 4-2 lists the *IESO* actions in situations where an e-Tag is required for *reliability* reasons.

Table 4-2: IESO Actions when an e-Tag is Required for Reliability

Situation	IESO Actions
• Missing or late e-Tag (no e-Tag corresponding to the *dispatch data* [e-Tag ID]), or	Notify the *registered market participant* of the required change by telephone**,** identifying that the *registered market participant* must:

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

Situation	IESO Actions
• No e-Tag submitted by 32 minutes prior to the *dispatch hour*	• identify the correct e-Tag; • submit or enter the corrections into the e-Tag system to ensure the *interchange schedule* will flow[11]; and • notify the *IESO* when complete,
Missing e-Tag ID	Link the correct e-Tag ID in the market tools, provided it is identified by the *registered market participant*.
Incorrect e-Tag data (MW quantity does not match *dispatch instruction*, or the *interchange schedule* is curtailed)	Adjust the e-Tag to coincide with the *dispatch instruction* or the curtailed *interchange schedule* and, except for MW quantity mismatches, notify the *registered market participant* of the change by automated email with the reason as one of the following: • 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 reason "IESO Market Results".
• The e-Tag data and *dispatch instruction* agree, and • The *interchange schedule* is curtailed down due to *reliability* reasons within the *IESO-controlled grid*	1. Enter the adjusted MW quantity into the e-Tag system on behalf of the *registered market participant*. 2. Notify the *registered market participant* of the adjusted amount by automated email with the reason "Internal Curtailment".
The *registered market participant* is unable to flow the *interchange schedule* as adjusted by the *IESO*	Consider a further change to the *interchange schedule*. If a further change is not feasible, then the *interchange schedule* will be deemed to have failed.
The *interchange schedule* is denied by another *control area* as a result of a change due to the *IESO reliability* concerns	1. Record the *interchange schedule* as an *IESO curtailment*. 2. Notify the *registered market participant* of the change by automated email with the reason "Internal Curtailment".

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[11] If the e-Tag is denied by another *control area* the *interchange schedule* will be removed.

Situation	IESO Actions
The *interchange schedule* is failed by another *control area* for reasons other than *IESO reliability* concerns (e.g., TLR)	1. Record the *interchange schedule* as an external *curtailment*.(e.g., external *control area* TLR) 2. Notify the *registered market participant* of the change by automated email with the reason "External Curtailment".

4.1.4   Operating Reserve Class

(MR Ch.7 ss.3.6.0 and 3.6.1)

Classes of operating reserve – Pursuant to **MR Ch.7 ss.3.6.0** and **3.6.1**, the *registered market participant* must select one of the following *operating reserve* class types for each *offer* to supply *operating reserve*:

- *ten-minute operating reserve*- non-synchronized; or

- *thirty-minute operating reserve*.

4.2   Linked Wheeling Through Transactions

(MR Ch.7 s.3.5.19)

Overview – *Registered market participants* submitting a *linked wheeling through transaction* must submit the *energy* import and *energy* export as independent transactions or linked transactions following the formatting requirements as described in section 4.2.2.

4.2.1   Linked Wheeling Through Transactions as Independent Import and Export

(MR Ch.7 s.3.5.19.1)

Independent import and export schedules – Pursuant to **MR Ch.7 ss.3.5.19.1**, *linked wheeling through transactions* will be implemented as independent import and export transactions:

- 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*.

Scheduled quantities may differ – The *IESO* will consider the submissions of *dispatch data* for the import *offer* and export *bid* to be independent of each other,

meaning that their scheduled quantities may not be the same. In addition, the *IESO* may manually curtail the import and/or the export transaction independently from the other.

4.2.2   Linked Wheeling Through Transactions as Linked Import and Export

(MR Ch.7 s.3.5.19.2)

E-tag submission – Pursuant to **MR Ch.7 ss.3.5.19.2**, *registered market participants* may ensure that the import and export schedule of a *linked wheeling through transaction* obtains the same scheduled quantity by submitting the same e-Tag ID for both the import *offer* and the export *bid.* This will indicate that the import *offer* and the export *bid* are linked*.*

e-tag format – *Registered market participant* must submit the same e-Tag IDs in the following formatting convention for the import *offer* and the export *bid* to be linked, subject to the e-Tag ID format requirement for *linked wheeling through transaction* involving the Hydro Quebec TransEnergie (HQT).

- for the import: WI_SourceCA…SinkCA

- for the export: WX_SourceCA…SinkCA

Where:
- "SourceCA…SinkCA" is the unique e-Tag ID from the e-Tag system for the *interchange schedule* for a *linked wheeling through transaction* treated in this manner, Ontario would not be listed as a source *control area* (SourceCA) or as the sink *control area* (SinkCA) 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 component of a *linked wheeling through transaction*, the delimiter is added by the *registered 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 component of a *linked wheeling through transaction*, the delimiter is added by the *registered market participant* to the e-Tag ID submitted to the *IESO* as *dispatch data* for the export.

Related provisions – Refer to Appendix D.2 for an example of an e-tag for a *linked wheeling through transaction* (Example 1).

Revise e-Tag quantity – The *IESO* will consider the submissions of *dispatch data* for the import component and the export component of the *linked wheeling through transaction*, and will schedule the import and export of the *linked wheeling through transaction* to the lowest economic quantity. It is the *registered market participant*'s

responsibility to revise the e-Tag quantity to the lowest scheduled quantity of the import/export.

Curtailments to *linked wheeling through transactions* will be applied equally to both the import component and export component such that their schedules will remain equal to each other.

E-tag format for transactions Hydro Quebec TransEnergie – For an *interchange schedule* for a *linked wheeling through transaction* involving the HQT *control area*, the e-Tag must identify, in addition to the general e-Tag formatting requirements, HQT is identified as the SOURCE, SINK or intermediate *control area*, failing which the *IESO* will deny the e-Tag.

Related provision – Refer to Appendix D.2 for an example of an e-tag for a *linked wheeling through transaction* pertaining to the HQT *control area* (Example 2).

4.3   Capacity Exports

(MR Ch.7 s.20.1.2)

Eligibility – *Registered market participants* with Ontario-based *generation resources* and the injecting component of *electricity storage resources* may be eligible to export capacity to designated external *control areas* during specified periods of time, subject to *IESO* pre-approval under **MR Ch.7 s.20.1.2**.[12]

4.3.1   Dispatch Data Requirements for Scheduling a Called Capacity Export

(MR Ch.7 s.20)

Responsibility of registered market participant – Where the *registered market participant* for a *resource* has committed capacity to an external *control area*, it assumes the responsibility of responding to capacity calls from that external *control area*.

Dispatch data requirements – In order to receive export curtailment treatment as a *called capacity export* the *registered market participant* is required to:

*   Submit an *energy bid* to export for delivery to the external *control area* for the duration of the capacity call by *bidding* at *MMCP* prior to the closing of the *real-time market mandatory window* for the *dispatch hour*[13], where, in

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[12] Capitalized terms in this section are defined in Market Manual 13.1: Capacity Export Requests, Appendix A: Glossary of Capacity Export Terms. Also, refer to **MM 13.1** for an explanation of capacity export eligibility and approval requirements.

[13] External *control areas* 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 *control areas* and *market participants* are also required to respect the mandatory window

addition to the requirements for energy export *bids*, the *bid* must comply
with the following requirements:

- o the *bid* quantity must be in a single lamination and must not exceed the
  called export MW quantity;

- o "Tie Point ID" must be selected in the direction of the calling external
  control area; and

- o "Delivery Date" and "Delivery Hour" must span the period (between start
  and end date) of the call as stipulated by the calling jurisdiction;

- o "Capacity Transaction" flag must be selected;

- o "Other Reason" field must include a six-digit *resource* ID (format
  ######) identifying the *resource* that has committed capacity to the
  external *control area*; and

- o "e-Tag ID" field must include the correct tag naming convention as
  described in section 4.1.3;

- Submit an e-Tag containing the name of the *resource* that is the subject of
  the capacity call, in the **Comments** section; and

- Telephone the *IESO* Control Room and indicate the e-Tag ID number of the
  export, the *resource*, and the expected duration of the capacity call during
  which the export is to be treated as a *called capacity export*.

Operating reserve offers – *Registered market participants* with *resources* that have
committed capacity to an external *control area* may *offer* to provide *operating reserve*
provided they manage any *operating reserve offers* from their *resource* for the
duration of capacity call to ensure that there is sufficient *energy* available satisfy the
called capacity export and any *operating reserve* activations.

4.3.2   Changes/Updates to Called Capacity Exports or Capacity Resources

(MR Ch.7 s.20)

Communication requirements – The *registered market participant* for a *resource*
with committed capacity to an external *control area* must telephone the *IESO*
Control Room in the following circumstances:

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requirements outlined within this manual, as they pertain to changes/updates to the capacity call
(e.g. changes in end times, MW quantities etc.).

- if the quantity of *energy* called changes or if the expected duration of the capacity call changes;

- if the *resource* becomes unavailable at any time throughout the duration of the capacity call; or

- when the end time of the capacity call is confirmed to the *registered market participant* by the external *control area*.

4.4   Validation of Bids and Offers for Imports and Exports

(MR Ch.7 App.7.1 s.1.2)

4.4.1   Requirements for Bids and Offers

Bids and *offers* 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 *registered market participant* has the necessary licenses and authorizations;

- the e-Tag source/sink corresponds with the *boundary entity resource*, as set out in Appendix D;

- the e-Tag is consistent with the tie point ID in the *dispatch data* submission;

- the e-Tag IDs submitted for an *interchange schedule* from a *linked wheeling through transactions* are correctly formatted;

- the *registered 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.

4.4.2   Validation Process

Timing – The *IESO* typically validates *bids* and *offers* between one and two hours prior to the *dispatch hour* but will exercise reasonable efforts to do so earlier. This may prevent a *registered market participant* from resubmitting its *bid* or *offer*, depending on the nature of the change that is required to address the validation failure.

Outcome of the process – The *IESO* will also seek to notify *registered market participant*s of validation failures on a reasonable effort basis. Further, *registered market participants* will be able to determine that there has been a failure in the validation process based on the revised *pre-dispatch schedule*.

– End of Section –

5   Dispatch Data for Virtual Transactions

(MR Ch.7 s.3.10)

Overview – The submission of *dispatch data* for *virtual transactions* shall follow the same process that is generally used for *physical transactions* in the *day-ahead market*. A *registered market participant* for a *virtual trader* may submit *energy offers* and *energy bids* in the *day-ahead market*. *Dispatch data* with respect to *virtual transactions* must be associated with one of the *virtual zonal resources,* corresponding to a *virtual transaction zone*, which have been established in the *IESO's* market systems.

Standing dispatch data – *Standing dispatch data* may be submitted on a *virtual zonal resource* for *energy*.

Obligation to specify virtual zonal resource and virtual transaction zone – For each *offer* or *bid*, the *registered market participant* must specify *the virtual zonal resource* and *virtual transaction zone* for the *virtual transaction*.

Virtual zonal resources – The *IESO* has established two *virtual zonal resources* for each *virtual transaction zone*, one *resource* for *offers* and one *resource* for *bids*, for which *dispatch data* can be submitted to facilitate *virtual transactions*. This means a *registered market participant* may submit no more than one *energy offer* or *bid*, as applicable, for each *virtual zonal resource* for a *dispatch hour*.

Identification of virtual transactions – Since multiple *virtual traders* may submit an *offer* or *bid* on a given *virtual zonal resource*, the *virtual traders'* names will be used to identify the *dispatch data* on the *virtual zonal resource*.

Offer hub or bid hub – Appendix E lists the available *virtual zonal resources* and corresponding *virtual transaction zones* on which *registered market participants* for *virtual traders* submit *offers* and *bids* for *virtual transactions*. *Registered market participants* must select *virtual zonal resources* identified as "OFFER:HUB" when submitting *energy offers*, and must select *virtual zonal resources* identified as "BID:HUB" when submitting *energy bids*.

Submission requirements – An *offer* or *bid* submitted on a *virtual zonal resource* must specify whether the *virtual zonal resource* will be conducting a virtual sale ('VIRTUAL-GENERATOR') or a virtual purchase ('VIRTUAL-LOAD') of *energy* in the "Bid Offer" field of the submission.

Price Quantity Pairs – Following **MR Ch.7 ss.3.5.5.3** and **3.10.1.2**, the minimum quantity that must be submitted in the second quantity of the *price-quantity pair* for an *offer* or *bid* is 1.0 MW.

The total number of *price-quantity pairs* that may be submitted in accordance with **MR Ch.7 s.3.10.1.5** includes the first price-quantity within each *offer* and *bid*.

Offer/bid screen for submitted but not cleared exposure – The *IESO*-estimated daily cumulative submitted but not cleared dollar exposure for each *virtual trader* in accordance with **MR Ch.7 s.3.10.1.4** is calculated by:

(a)   multiplying the maximum quantity submitted for each *virtual transaction* for the *dispatch day* by the *IESO*-determined price delta for the associated *virtual transaction zone*;

(b)   multiplying the maximum quantity submitted for each *virtual transaction* for the *dispatch day* by the *virtual transaction* uplift estimation; then

(c)   taking the sum of (a) and (b).

In the event the prudential system becomes unavailable, the *IESO's* ability to accept *virtual transaction* submissions can be limited.

– End of Section –

6   Standing Dispatch Data

(MR Ch.7 s.3.3.9)

Overview – If the *dispatch data* submitted for a *resource* for a given *trading day* of a *trading week* will not change from *trading week* to *trading week*, the *registered market participant* may consider submitting *standing dispatch data*.

6.1   Submitting Standing Dispatch Data

(MR Ch.7 s.3.3.9)

Timing of submission – *Standing dispatch data* for hourly *dispatch data,* daily *dispatch data,* or both may be submitted to the *IESO* or revised at any time. The *IESO* registers *standing dispatch data* and does not consider such *dispatch data* for the current *dispatch day* being processed nor the next *dispatch day* if the *standing dispatch data* is registered after 06:00 EPT of the current *dispatch day*.

Dispatch day type – The submission must include a *dispatch day* type, 'Mon.' through 'Sun.' or 'All', that specifies the day of the week with respect to which the *standing dispatch data* applies.

Expiration date – If an expiration date for the *standing dispatch data* is submitted, it represents the last *dispatch day* accepted *standing dispatch data* will be converted to *dispatch data* at 06:00 EPT on the day prior to the *dispatch day*.

Validation and revision – *Standing dispatch data* is validated at the time of submission, and is entered into the *IESO* system if it complies with applicable requirements. The *standing dispatch data* that has been entered into the *IESO* system is subsequently validated once it is converted to *dispatch data* at 06:00 EPT each day of the day prior to the *dispatch day*. Submissions, revisions, and withdrawals of *standing dispatch data* received after 06:00 EPT of the day prior to the *dispatch day* will be processed on the next day or another day as specified in the *dispatch day* type. The revision of *dispatch data* after it has been converted from *standing dispatch data* follow the timelines and procedure outlined in section 7.

Day-ahead market only data – For *price responsive loads, self-scheduling electricity storage resources* registered to withdraw, and *virtual* zonal *resources*, *standing dispatch data* is converted for use in the *day-ahead market* only.

Related provisions – Refer to Appendix A for content requirements of *dispatch data*.

6.1.1   Procedure for Submitting and Revising Standing Dispatch Data

(MR Ch.7 s.3.3.9)

This subsection includes additional information related to the process for submitting and revising *standing dispatch data*.

Process for submission and revision – Table 6-1 contains the steps for the submission and revision of *standing dispatch data*.

Table 6-1: Procedure for Submitting and Revising Standing Dispatch Data

Step	Completed by...	Action
1	*Registered market participant*	Before 06:00 EPT on the day prior to the *dispatch day,* submits or revises *standing dispatch data*.
2	*IESO*	Timestamps and performs validation on the received *standing dispatch data*.
		If the *standing dispatch data* passes validation, then the *IESO*:
		o confirms receipt of the submitted *standing dispatch data*; and
		o accepts and approves the *standing dispatch data*.
		If the *standing dispatch data* fails validation, then the *IESO*:
		o rejects the *standing dispatch data*; and
		o notifies *registered market participant* that the *standing dispatch d*ata has failed validation.
3	*Registered market participant*	Receives from the *IESO:*
		o confirmation of *standing dispatch data* receipt, or
		o notification of *standing dispatch data* validation failure.
		Corrects the standing *dispatch data* and resubmits, then continue from step 2 (if applicable)
4	*Registered market participant*	Contacts the *IESO* immediately if neither confirmation nor notification is received.
5	*Registered market participant* and *IESO*	Resolves the status of submitted or revised standing *dispatch data*.

– End of Section –

7   Submitting Dispatch Data

(MR Ch.7 ss.3.1-3.3)

Overview – The *dispatch data* submission process applies to daily and hourly *dispatch data* parameters for use in the *day-ahead market* and *real-time market*. *Registered market participants* submit daily and hourly *dispatch data* for its *resources* for any or all hours of a *dispatch day*, as specified, subject to the limitations set out in the *market rules* and this manual. The timelines within the process for submitting daily and hourly *dispatch data* for the *day-ahead market* and *real-time market* are illustrated in Figure 7-1 and Figure 7-2, respectively.
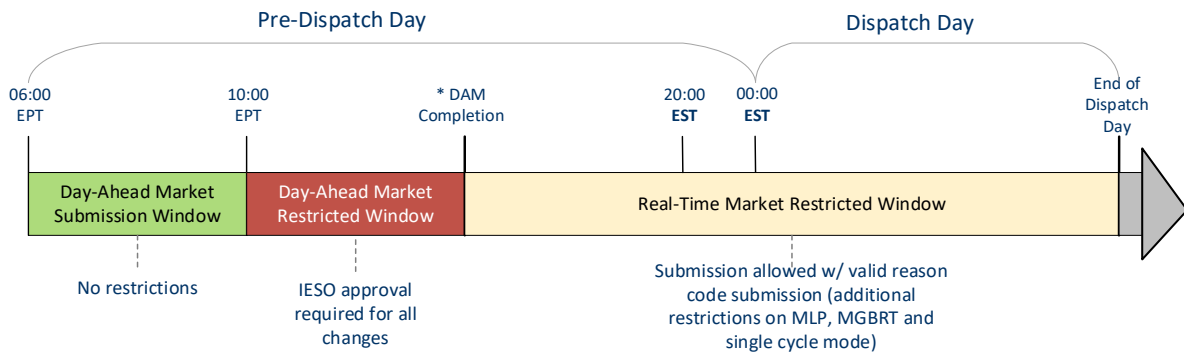
Figure 7-1: Data Submission Timeline for Daily Dispatch Data

*The *day-ahead market* is usually completed at 13:30 EPT, and must be completed by 15:30 EPT.
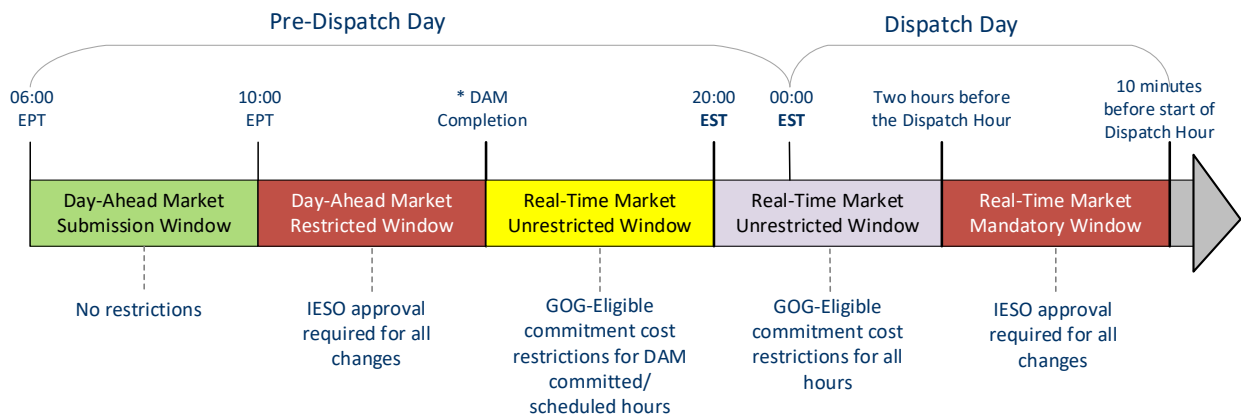
Figure 7-2: Data Submission Timeline for Hourly Dispatch Data

7.1   Dispatch Data Submissions by Resource Type

(MR Ch.7 ss.3.2-3.10)

Resource types – Table 7-1 lists the *resource* types for which a *registered market participant* may submit *dispatch data* in the *day-ahead market* and *real-time market* (**MR Ch.7 ss.3.4.1.1-3.4.1.2**).

Table 7-1: Dispatch Data Submissions by Resource Type

Resource Type	Energy	Operating Reserve
Dispatchable generation resource	*Offer*	*Offer*
Self-scheduling generation resource	*Self-schedule*	N/A
Intermittent generation resource	*Forecast of intermittent generation*	N/A
Dispatchable load	*Bid*	*Offer*
Hourly demand response resource	*Bid*	N/A
Price responsive load	*Bid*	N/A
Dispatchable electricity storage resource	*Bid | Offer*	*Offer*
Self-scheduling electricity storage resource	*Bid | Self-schedule*	N/A
Boundary entity resource	*Bid/Offer*	*Offer*
Virtual transaction zonal trading entity resource	*Bid/Offer*	N/A

Day-ahead market only data – Note that *registered market participants* for *price responsive loads, self-scheduling electricity storage resources* intending to withdraw, and *virtual transactions* do not submit *dispatch data* in the *real-time market*.

Variable generation resource – *Registered market participants* for *variable generation resources* must submit *dispatch data* indicating the total installed capacity net any derates or *outages* in each *dispatch hour*.

Self-scheduling electricity storage resources must submit *self-schedules* for the injecting *resource* indicating the amount of *energy* to be provided. The withdrawing *resource* for such *resources* submit *energy bids* as a *price responsive load*.

Physical bilateral contracts – A *registered market participant* must provide *dispatch data* to the *IESO* for all *resources* for which *dispatch data* is required even

if all of the *registered market participant's* sales or purchases of *energy* are subject to a *physical bilateral contract* pursuant to **MR Ch.8 s.2**.

Related provisions – Refer to Appendix A for *dispatch data* content requirements.

Timing of submission – Table 7-2 provides a timeline for submitting and revising hourly and daily *dispatch data*.

Table 7-2: Timing of Dispatch Data Submission

Time	Events
06:00 to 10:00 EPT on the day prior to the *dispatch day*	• *standing dispatch data* accepted by the *IESO* for the applicable *dispatch day* is validated and converted to *dispatch data* by the *IESO* at 06:00 EPT. • *day-ahead market submission window*: *registered market participants* can submit and revise daily and hourly *dispatch data* for the next *dispatch day* to the extent authorized by **MR Ch.7 ss.3.2.1** to **3.2.3**. • prior to 08:00 EPT: *registered market participants* submit requests for segregation for any of their *resources* that require an *outage* to a critical transmission element for any or all hours of the *dispatch day*; *dispatch data* is submitted or revised as required (refer to [section 10](#) and **MR Ch.7 App.7.7**). • prior to 09:00 EPT: *registered market participants* submit requests for segregation for any of their *resources* that do not require an *outage* to a critical transmission element for any or all hours of the *dispatch day* for inclusion in the *day-ahead market*; *dispatch data* is submitted or revised as required (refer to [section 10](#) and **MR Ch.7 App.7.7**).
10:00 EPT to *DAM expiration* on the day prior to the *dispatch day*	• *day-ahead market restricted window*: *registered market participants* must not submit or revise daily and hourly *dispatch data* for the next *dispatch day*, unless authorized by **MR Ch.7 ss.3.2.4** and **3.2.5**. • *day-ahead market* process begins and initializes using the latest *dispatch data* submitted to and accepted by the *IESO*, which is also used to establish the *availability declaration envelope* for *dispatchable resources*. The *day-ahead market* is typically completed at 13:30 EPT on the *day prior to the dispatch day*, but may be delayed up to 15:30 EPT in the event of an *IESO* tool issue.
DAM expiration to 20:00 EST on the day prior to the *dispatch day*	• *real-time market restricted window*: *registered market participants* may submit and revise daily *dispatch data* parameters to the extent authorized by **MR Ch.7 s.3.3.7**. • *real-time market unrestricted window*: *registered market participants* may submit and revise hourly *dispatch data* parameters to the extent authorized by **MR Ch.7 ss.3.3.3.1** to **3.3.3.4** and **3.3.3.6**.

Time	Events
20:00 EST on the day prior to the *dispatch day* to two hours before the *dispatch hour*	• *real-time market restricted window* continues. • *real-time market unrestricted window*: registered market participants may submit and revise hourly *dispatch data* parameters to the extent authorized by **MR Ch.7 s.3.3.3**. • at least two hours prior to the start of the *outage*, registered *market participants* submit requests for segregation for any of their *resources* that do not require an *outage* to a critical transmission element for any or all hours of the *dispatch day* for inclusion in the *pre-dispatch process*; *dispatch data* is submitted or revised as required (refer to [section 10](#) and **MR Ch.7 App.7.7**). • *pre-dispatch process* begins, runs every hour and initializes at the top of the hour using the latest *dispatch data* submitted to and accepted by the *IESO*.
Two hours to 60 minutes before the *dispatch hour*	• *real-time market restricted window* continues. • *real-time market mandatory window*: submissions and revisions to hourly *dispatch data* parameters require the *IESO's* approval in accordance with **MR Ch.7 s.3.3.5**. • *pre-dispatch process* continues.
60 to 10 minutes before the *dispatch hour*	• *real-time market restricted window* continues. • for *resources* other than *boundary entity resources*, the *real-time market mandatory window* continues • for *boundary entity resources*, registered market participants must not submit or revise hourly *dispatch data*. • *pre-dispatch process* continues and determines *pre-dispatch schedules* for the final hour before the *dispatch hour*.
10 minutes before the *dispatch hour* and beyond	• *real-time market restricted window* continues. • for all *resources*, registered market participants must not submit or revise hourly *dispatch data*. • *real-time dispatch process* begins, runs every five minutes and initializes approximately 10 minutes before the five-minute interval using the latest *dispatch data* submitted to and accepted by the *IESO*.
End of *dispatch day*	• registered market participants must not submit or revise *daily dispatch* data.

7.2   Dispatch Data Submissions or Revisions for the Day-Ahead Market

(MR Ch.7 ss.3.1.11, 3.1.12 and 3.2)

Eligibility – *Dispatch data* in the *day-ahead market* may be submitted for *dispatchable* and *non-dispatchable generation resources*, *dispatchable loads*, hourly *demand response resources*, *dispatchable electricity storage resources*, *self-scheduling electricity storage resources*, *boundary entity resources*, *price responsive loads*, and *virtual zonal resources*.

Boundary entity resources – *Registered market participants* submitting *dispatch data* on *boundary entity resources* may submit *dispatch data* into the *real-time market* without having to first submit the *dispatch data* into the *day-ahead market* or establish an *availability declaration envelope* **(MR Ch.7 ss.3.1.11** and **3.1.12).**

7.2.1 Dispatch Data Submission or Revisions During the Day-Ahead Market Submission Window

(MR Ch.7 s.3.2)

Process for submission and revision – Table 7-3 lists the steps for the submission of *dispatch data* and revisions in the *day-ahead market*.

Table 7-3: Procedure for Submitting or Revising Dispatch Data during the Day-Ahead Market Submission Window

Step	Completed by…	Action
1	*IESO*	At 06:00 EPT on the day prior to the *dispatch day*, performs validation on existing *standing dispatch data*.
		If the *standing dispatch data* passes validation, then the *IESO*:
		• converts it to *dispatch data* for the *dispatch day*.
		If the *standing dispatch data* fails validation, then:
		• *standing dispatch data* is not converted to *dispatch data* for the *dispatch day*; and
		• the *IESO* notifies the *registered market participant* that the standing *dispatch data* has failed validation.
2	*Registered market participant*	Between 06:00 EPT and 10:00 EPT on the day prior to the *dispatch day*, submits or revises *dispatch data*.
		Note: Between 06:00 EPT and 08:00 EPT on the day prior to the *dispatch day*, submits *request for segregation* for any of their *resources* that require an *outage* to a critical transmission element for any or all hours of the *dispatch day*.
		Note: Between 06:00 EPT and 09:00 EPT on the day prior to the *dispatch day*, submits *request for segregation* for any of their *resources* that do not require an *outage* to a critical transmission element for any or all hours of the *dispatch day*.

Step	Completed by...	Action
3	*IESO*	Timestamps and performs validation on received *dispatch data*. If the *dispatch data* passes validation, then the *IESO*: • confirms receipt of the submitted *dispatch data*; and • accepts and approves the *dispatch data*. If the *dispatch data* fails validation, then the *IESO*: • rejects the *dispatch data*; and • notifies the *registered market participant* that the *dispatch data* has failed validation.

4	*Registered market participant*	• Receives from the *IESO:*
		  o confirmation of *dispatch data* receipt; or
		  o notification of *dispatch data* validation failure.
		• Corrects the *dispatch data* and resubmits, then continue from step 3 (if applicable)
		• Contacts the *IESO* immediately if neither confirmation nor notification is received.

5	*Registered market participant* and *IESO*	Resolves outstanding issues, if any, regarding submitted or revised *dispatch data*.
6	*IESO*	At 10:00 EPT (barring any tool issues), uses the latest accepted and approved *dispatch data* in the *day-ahead market*.

7.2.2   Dispatch Data Submission or Revisions During the Day-Ahead Market Restricted Window

(MR Ch.7 ss.3.2.4 – 3.2.6)

Reason Code – For the purposes of **MR Ch.7 ss.3.2.4**, the *registered market participant* must provide a reason for the submission or revision via the REASON CODE field. If the *registered market participant* selects the 'OTHER' reason code, a free text reason must be entered in the OTHER REASON field. Refer to Appendix B.4 for additional information.

Tool failure – In the event of an *IESO* tool failure whereby the *registered market participant* is submitting *dispatch* in the *day-ahead market restricted window* in accordance with **MR Ch.7 ss.3.2.4** and **3.2.5**, the *registered market participant* should use the alternate method for the submission of *dispatch data* during such events. Refer to section 7.4.

Day-ahead market cancellation – Refer to **MM 4.5 s.2**.

7.3   Dispatch Data Submissions or Revisions for the Real-Time Market

(MR Ch.7 s.3.3)

Day-ahead market data continuation – *Dispatch data* received by the *IESO* for the *day-ahead market* continues to be valid and used for the *real-time market* until it is revised by the *registered market participant*. *Dispatch data* submitted during the *day-ahead market restricted window* and not approved by the *IESO* in accordance with **MR Ch.7 ss.3.2.4** and **3.2.5** is deleted upon *DAM expiration* and will not be valid for the *real-time market*.

Revision requirements – For the purposes of **MR Ch.7 s.3.3.8**, hourly *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 *registered market participant* is required to notify the *IESO* of such *dispatch data* deviation.

Hourly demand response resources – If the quantity of *demand response capacity* that can be delivered by an *hourly demand response resource* differs from the submitted *demand response energy bid* by 5 MW for any *dispatch hour*, the *capacity market participant* must submit revised *dispatch data* to the *IESO* as soon as practicable. The *capacity market participant* must also notify the *IESO* via telephone as soon as practicable of such *dispatch data* revisions when the *IESO* has issued an activation notice to the *capacity market participant* for that *hourly demand response resource*.

7.3.1   Hourly Dispatch Data Submissions or Revisions during the Unrestricted Window

(MR Ch.7 s.3.3.3)

GOG-eligible resources – Specific submission and revision restrictions apply to *GOG-eligible resources* under **MR Ch.7 s.3.3.3** after the *day-ahead market* is completed. For the purposes of **MR Ch.7 ss.3.3.3.9(b)**, **3.3.3.11(b)**, **3.3.3.11(c)**, and **3.3.3.13(b)** the *registered market participant* must provide the appropriate reason for the submission or revision via the REASON CODE field, refer to Appendix F.8 for more information.

Process for submission and revision – Table 7-4 contains the general procedure for submitting and revising hourly *dispatch data* during the *real-time market unrestricted window* for hourly *dispatch data*.

Table 7-4: Procedure for Submitting or Revising Hourly Dispatch Data during the Real-Time Market Unrestricted Window

Step	Completed by...	Action
1	*IESO*	After *DAM expiration*, transfers all accepted and approved *dispatch data* used in the *day-ahead market*, installed capacity net derates or *outages* (for *variable generation resources*), and *IESO* approved segregation requests to the *real-time market*.
2	*Registered market participant*	After *DAM expiration* and up to two hours before the *dispatch hour*, submits or revises *dispatch data*. If the submission or revision expands the *availability declaration envelope*, refer to the process in [section 7.5.2](#) for additional steps required for the submission/revision. If the submission or revision is within two hours before the *dispatch hour*, refer to the process in [section 7.3.2](#) for additional steps required for the submission/revision. If the submission or revision is to a *start-up offer*, *speed no-load offer*, *energy offer* price, or *operating reserve offer* price for a *GOG-eligible resource*, ensure the submission/revision conforms to the requirements specified in **MR Ch.7 s.3.3.3**.
3	*IESO*	Timestamps and performs validation on received *dispatch data*. If the *dispatch data* passes validation, then the *IESO*: • confirms receipt of the submitted *dispatch data*; and • accepts and approves the *dispatch data*. If the *dispatch data* fails validation, then the *IESO*: • rejects the *dispatch data*; and • notifies the *registered market participant* that the *dispatch data* has failed validation.

4	*Registered market participant*	• Receives from the *IESO:*
		  ○ confirmation of *dispatch data* receipt; or
		  ○ notification of *dispatch data* validation failure.
		• Corrects the *dispatch data* and resubmits, then continue from step 3 (if applicable)
		• Contacts the *IESO* immediately if neither confirmation nor notification is received.

5	*Registered market participant* and *IESO*	Resolves outstanding issues, if any, regarding submitted or revised *dispatch data*.

Step	Completed by…	Action
6	*IESO*	*Publishes* advisory notices to notify *market participants* of any advisories, warnings, and problems (if applicable).
		If the *IESO* rejects *dispatch data* previously accepted and approved, then the *IESO*:
		• rejects the *dispatch data*; and
		• notifies the *registered market participant* that the *dispatch data* previously accepted and approved has been rejected.
		If the *IESO* requires *dispatch data* to be resubmitted, then the *IESO* directs the *registered market participant* to submit *dispatch data*.
		If the *IESO* requires the quantity element of the *dispatch data* to be resubmitted, then the *IESO* directs the *registered market participant* to resubmit the quantity element of the *dispatch data*.
		The above actions may be taken by the *IESO* based on the results of the *pre-dispatch calculation engine* and the need to maintain the *reliability* of the *IESO-controlled grid*.
7	*Registered market participant*	Receives from the *IESO*:
		• rejection of previously accepted and approved dispatch data;
		• direction to submit dispatch data; or
		• direction to resubmit the quantity element of dispatch data.
		Updates *dispatch data* and resubmits, then continue from step 3 (if applicable).
8	*IESO*	At the top of each hour, uses the latest accepted and approved *dispatch data* in the *pre-dispatch calculation engine*.

7.3.2   Hourly Dispatch Data Submissions or Revisions during the Real-Time Market Mandatory Window

(MR Ch.7 ss.3.3.5 and 21.5)

Submission and revision – Submissions and revisions during the *real-time market mandatory window* are accepted only if the conditions in **MR Ch.7 ss.3.3.5** or **21.5**, as applicable, are met and if the change complies with the IESO Short Notice Change Criteria (see Appendix B.4).

Timing of submission and revision – The *IESO* will not accept any *dispatch data* submissions and revisions for *boundary entity resources* within 60 minutes before

start of the *dispatch hour*, and for other *resources,* within 10 minutes before start of the *dispatch hour*.

Reason codes – For the purposes of **MR Ch.7 ss.3.3.5** and **21.5**, the *registered market participant* must provide a reason for the submission or revision via the REASON CODE field. If the *registered market participant* selects the 'OTHER' reason code, a free text reason must be entered in the OTHER REASON field. Refer to Appendix B.4 for additional information.

Process for submission and revision – Table 7-5 lists the steps for submitting and revising hourly *dispatch data* during the *real-time market mandatory window*.

Table 7-5: Procedure for Submitting or Revising Hourly Dispatch Data Within Two Hours of the Dispatch Hour

Step	Completed by...	Action
1	*IESO*	Starting two hours before the *dispatch hour*, submissions and revisions that are validated are accepted but not automatically approved in the *IESO* tool.
2	*Registered market participant*	Within two hours before the *dispatch hour*, submits or revises *dispatch data*. Submissions or revisions for *resources* other than *boundary entity resources*: • may be made up to 10 minutes prior to the *dispatch hour*; and • that expand the *availability declaration envelope*, refer to [section 7.5.2](#) for additional steps required for the submission/revision. Submissions or revisions for *boundary entity resources* may be made up to 60 minutes prior to the *dispatch hour*. • All submissions or revisions must include a reason code.
3	*IESO*	Timestamps and performs validation on received *dispatch data*. If the *dispatch data* is validated, then the *IESO*: • confirms receipt of the submitted *dispatch data*; and • accepts the *dispatch data*. If the *dispatch data* fails validation, then the *IESO*: • rejects the *dispatch data*; and • notifies the *registered market participant* that the *dispatch data* has failed validation.

Step	Completed by...	Action
4	*Registered market participant*	Receives from the *IESO*: • confirmation of *dispatch data* receipt, or • notification of *dispatch data* validation failure. Corrects the *dispatch data* and resubmits, then continue from step 3 (if applicable). Contacts the *IESO* immediately if neither confirmation nor notification is received.
5	*Registered market participant* and *IESO*	Resolves outstanding issues, if any, regarding submitted or revised *dispatch data*.
6	*Registered market participant*	Contacts the *IESO* to provide additional information pertaining to reason. This step is not required but doing so could facilitate the *IESO's* assessment and expedite receiving the *IESO's* approval.
7	*IESO*	Reviews accepted *dispatch data* to manually assess if submission or revision meets the applicable requirements for manual approval during the *real-time market mandatory window*. If the accepted *dispatch data* meets the applicable requirements, the *IESO* approves the *dispatch data*. If the accepted *dispatch data* does not meet the applicable requirements the *IESO*: • rejects the *dispatch data*; and • notifies the *registered market participant* that the *dispatch data* has been rejected. Refer to Appendix B.4 for additional information.
8	*Registered market participant*	Receives from the *IESO* a notification of *dispatch data* rejection. Updates the *dispatch data* and resubmits, then continue from step 3 (if applicable).
9	*IESO*	*Publishes* advisory notices to notify *market participants* of any advisories, warnings and problems (if applicable). If it is necessary for the *IESO* to reject *dispatch data* that has previously been accepted and approved, then the *IESO*: • rejects the *dispatch data*; and • notifies the *registered market participant* that the *dispatch data* previously accepted and approved has been rejected. If the *IESO* requires *dispatch data* to be submitted, then the *IESO* directs the *registered market participant* to submit the *dispatch data*.

Step	Completed by...	Action
		If the *IESO* requires the quantity element of *dispatch data* to be resubmitted, then the *IESO* directs the *registered market participant* to resubmit the quantity element of *dispatch data*.
		The above actions may be taken by the *IESO* based on the results of the *pre-dispatch calculation engine* and the need to maintain the *reliability* of the *IESO-controlled grid*.
10	*Registered market participant*	Receives from the *IESO*: • rejection of previously accepted and approved *dispatch data*; • direction to submit *dispatch data*; or • direction to resubmit the quantity element of *dispatch data*. Updates *dispatch data* and resubmits, then continue from step 3 (if applicable).
11	*IESO*	At the top of each hour up to 60 minutes prior to the *dispatch hour*, uses the latest accepted and approved *dispatch data* in the *pre-dispatch calculation engine*.
		Starting at 10 minutes prior to the *dispatch hour,* uses the latest accepted and approved *dispatch data* in the *real-time calculation engine*.

7.3.3 Daily Dispatch Data Submissions or Revisions during the Real-Time Market Restricted Window

(MR Ch.7 s.3.3.7)

Single cycle mode revisions- The *IESO* will manually approve submissions that include a revision to *single cycle mode* during the *real-time market restricted window* to enable compliance with **MR Ch.7 s.3.3.7.3**.

Timing of submission and revision – The *IESO* will not accept any *dispatch data* submissions and revisions after the *dispatch day*.

Reason codes – For the purposes of **MR Ch.7 s.3.3.7**, the *registered market participant* must provide a reason for the submission or revision via the REASON CODE field. If the *registered market participant* selects the 'OTHER' reason code, a free text reason must be entered in the OTHER REASON field. Refer to Appendix B.2 for additional information.

Process for submission or revision – Table 7-6 lists the steps for submitting and revising daily *dispatch data* during the *real-time market restricted window*.

Table 7-6: Procedure for Submitting or Revising Daily Dispatch Data during the Real-Time Market Restricted Window

Step	Completed by…	Action
1	*IESO*	After *DAM expiration*, transfers all accepted and approved daily *dispatch data* used in the *day-ahead market* to the *real-time market*.
2	*Registered market participant*	After *DAM expiration* until the end of the *dispatch day*, submits or revises daily *dispatch data*. The *IESO* tool accepts the submission and revision of daily *dispatch data* parameters except for *minimum loading point* and *minimum generation block run-time.* Refer to Appendix B.2 for additional information on daily *dispatch data* submissions during the *real-time market restricted window*.
3	*IESO*	Timestamps and performs validation on received daily *dispatch data*. If the daily *dispatch data* is validated, then the *IESO*: • confirms receipt of the submitted daily *dispatch data*; and • accepts and approves the *dispatch data* (note the *IESO* tool automatically approves the *dispatch data* except when a submission or revision to *single cycle mode* is made, in which case the approval is manually performed by the *IESO*). If the daily *dispatch data* fails validation, then the *IESO*: • rejects the daily *dispatch data*; and • notifies the *participant* that the daily *dispatch data* has failed validation.
4	*Registered market participant*	Receives from the *IESO:* • confirmation of daily *dispatch data* receipt, or • notification of daily *dispatch data* validation failure. Corrects the daily *dispatch data* and resubmits, then continue from step 3 (if applicable). Contact the *IESO* immediately if neither a confirmation nor notification is received.
5	*Registered market participant* and *IESO*	Resolves outstanding issues, if any, regarding submitted or revised *dispatch data*.
6	*IESO*	*Publishes* advisory notices to notify *market participants* of any advisories, warnings and problems (if applicable). If it is necessary for the *IESO* to reject daily *dispatch data* that has previously been accepted and approved, then the *IESO*:

Step	Completed by…	Action
		• rejects the daily *dispatch data*; and
		• notifies the *registered market participant* that the daily *dispatch data* previously accepted and approved has been rejected.
		If the *IESO* requires daily *dispatch data* to be submitted, then the *IESO* directs the Participant to submit the daily *dispatch data*.
		The above actions may be taken by the *IESO* based on the results of the *pre-dispatch calculation engine* and the need to maintain the *reliability* of the *IESO-controlled grid*.
7	*Registered market participant*	Receives from the *IESO*:
		• rejection of previously accepted and approved daily *dispatch data*; or
		• direction to submit daily *dispatch data*, or
		Updates daily *dispatch data* and resubmits, then continue from step 3 (if applicable).
8	*IESO*	At the top of each hour, uses the latest accepted and approved daily *dispatch data* in the *pre-dispatch calculation engine*.

7.4   Alternate Means of Submitting or Revising Dispatch Data during a Tool Failure

(MR Ch.7 s.3.1.2.3)

This section contains information on the *IESO's* plan for operating the *day-ahead market* and *real-time market* in the event that the *electronic information system* is unavailable, including due to tool failures.

Contingency plan – The *IESO* may implement the contingency plan when there is a failure of the hardware, software, or communications to the *market participant* system or the *IESO* market systems, preventing *registered market participants* from submitting or revising *dispatch data* while the market systems remain operational. The latest *dispatch data* that has been accepted and approved by the *IESO* remains valid, including *standing dispatch data* that has been converted to *dispatch data* for a *dispatch day* if it has not been subsequently revised.

Alternative means of submission – When a *registered market participant* is unable to submit *dispatch data* to the *day-ahead market* or *real-time market* as a result of a tool failure that affects the Participant Network while the market systems remain operational, it may submit or revise *dispatch data* by email or telephone. The *IESO* will use the administrative capabilities within the tools to submit, revise, or cancel *dispatch data* on behalf and on the instruction of the *registered market participant*.

Processing of submission by alternative means – The ability of the *IESO* to act on behalf of the *registered market participant* will depend on the extent and severity of the tool failure. It may take up to an hour for the *IESO* to process *dispatch data* received by telephone or email. Therefore, it is strongly recommended that *registered market participants* submit their *dispatch data* well in advance, at least one hour prior to the *dispatch hour*.

SEAL and reliability – The *IESO* will attempt to use the administrative capabilities within the tools to submit or revise *dispatch data* on the *registered market participant*'s behalf to prevent any of following circumstances:

- endangerment to the safety of any person;

- damage to property or equipment;

- violation of any *applicable law*; or

- risks to *reliability*.

7.4.1   Overriding Concerns/Principles for a Tool Failure

(MR Ch.7 s.13.2.4.1)

Market participant responsibilities – *Market participants* are responsible for risk assessment and contingency preparation for tool failures pertaining to their equipment. This includes providing alternative communications pathways, business continuity plans, control centres, etc. *Market participants* may also choose to use *standing dispatch data*, default *bids/offer*s, or zero *bids/offer*s.

Day-ahead market suspension for tool failures – The *IESO* may suspend the *day-ahead market* in the event of a tool failure under **MR Ch.7 s.13.2.4.1** if the volume of data received by alternative means is impracticable for the *IESO* to process.

Restriction of dispatch data inputs – The *IESO* may restrict the volume of *dispatch data* inputs based on factors including the nature (hardware, software, communications), location (*IESO* or *registered market participant*) and duration of the failure.

7.4.2   IESO Actions During Tool Failure

Extent and duration – When a tool failure event occurs, the *IESO* evaluates its expected 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 (up to two hours in length), medium-term (two to four hours in length) or long-term (more than four hours in length).

Market system failure – For an *IESO* tool failure, the *IESO* may:

- accept and approve *dispatch data* by telephone and data files provided through email;

- inform *market participants* to continue to comply with current *dispatch instructions*;

- continue using current *offers* and *bids* available from the *pre-dispatch process* in the first two hours following the tool failure;

- instruct *registered market participants* to resubmit *dispatch data* in the *real-time unrestricted window* if market system tools return to service;

- suspend the market in accordance with **MR Ch.7 s.13.2.4.1** and instruct *market participants* to remain at the last *dispatch instruction* if the *IESO* tools have not returned to service within two hours of the tool failure;

- approve revisions to *dispatch data* in accordance with the Short Notice Change Criteria in Appendix B.4; or

- allow revisions to *bids/offers* in order to fix a constraint problem.

Communications failure – For a tool failure event affecting communications with a *market participant* (Participant Network), the *IESO* will instruct the *market participant* to submit *dispatch data* by email. If the volume of emails exceeds the parameters of an orderly market operation, the *IESO* will suspend the *IESO-administered markets.*

7.4.3   Dispatch Data Submissions and Revisions by Telephone

Limitations to submission by telephone – The *IESO* will use reasonable effort to accept *dispatch data* through the alternative methods. However, if a widespread failure occurs that impacts the *IESO's* ability to receive *dispatch data* by telephone, including due to the large volume of information, the *IESO* will only accept data files submitted by email.

Price-quantity pair simplification – The *IESO* reserves the right to accept only simplified *price-quantity pairs*, which include at least two and up to a maximum of five *price-quantity pairs* for each *dispatch hour*.

Process for telephone submission and revision – Table 7-7 lists the steps for submitting *dispatch data* to the *IESO* by telephone during a tool failure.

Table 7-7: Procedure for Submitting Dispatch Data by Telephone during a Tool Failure

Step	Completed by...	Action
1	*Registered market participant*	Determines that *dispatch data* cannot be submitted as a result of a tool issue.
2	*Registered market participant*	Submits request to the *IESO* via telephone to submit *dispatch data* by telephone: • During the *day-ahead market*, by contacting the *IESO* Day-Ahead Operator; or • During the *real-time market*, by contacting the *IESO* Control Room Operator.
3	*IESO*	Receives request to submit *dispatch data* by telephone from the *registered market participant*. If the tool failure is a local tool failure, the *IESO* informs the *registered market participant* that *dispatch data* may be submitted by telephone. If the tool failure is a widespread tool failure or if there are extenuating circumstances, in the *IESO's* discretion, the *IESO* informs the *registered market participant* that *dispatch data* may only be submitted by emailing a data file (proceed to step 4 of Table 7-8: Procedure for Submitting Dispatch Data by Email during a Tool Failure).
4	*Registered market participant*	Submits the *dispatch data* by telephone, up to five *energy price-quantity pairs*.
5	*IESO*	Receives the *registered market participant's dispatch data* and enters it into the Market Information Management System on its behalf.
6	*IESO*	The *day-ahead market calculation engine*, *pre-dispatch calculation engine*, or *real-time market calculation engine* uses the latest accepted and approved *dispatch data*.

7.4.4 Dispatch Data Submissions and Revisions by Email

Prior notice by telephone – *Registered market participants* are required to notify the *IESO* by telephone prior to submitting or revising *dispatch data* via email.

Data file format – The format requirements for the data files are contained in **MM 6**: Participant Technical Reference Manual, **s.5.1.2**: Energy Market Application. For unexpected tool failures, *registered market participants* are encouraged to have the *dispatch data* readily available in XML format.

Price-quantity pairs – The data file allows up to 20 *price-quantity pairs* to be submitted.

Process for email submission and revision – Table 7-8 lists the steps for the tool failure procedure for submitting *dispatch data* to the *IESO* by email.

Table 7-8: Procedure for Submitting Dispatch Data by Email during a Tool Failure

Step	Completed by...	Action
1	*Registered market participant*	Determines that *dispatch data* cannot be submitted as a result of a tool issue.
2	*Registered market participant*	Submits requests to the *IESO* via telephone to submit *dispatch data* by email: • During the *day-ahead market*, contact the *IESO's* Day-Ahead Operator; or • During the *real-time market*, contact the *IESO's* Control Room Operator.
3	*IESO*	Receives request to submit *dispatch data* by email from the *registered market participant*. • The *IESO* provides the *registered market participant* with the applicable *IESO* email address to submit dispatch data via email for the *day-ahead market*.
4	*Registered market participant*	Prepares the data file.
5	*Registered market participant*	Submits the data file via email. • During the *day-ahead market*, use the email address provided by the *IESO's* Day-Ahead Operator. • During the *real-time market*, use the email address provided during registration for participation in the *IESO-administered markets*.
6	*IESO*	Receives the *registered market participant's* data file and uploads it into the Market Information Management System on its behalf.
7	*IESO*	The *day-ahead market calculation engine*, *pre-dispatch calculation engine*, or *real-time market calculation engine* uses the latest accepted and approved *dispatch data*.

7.5   Availability Declaration Envelope

(MR Ch.7 ss.3.1.11 and 3.1.14)

This section includes additional information related to the *availability declaration envelope*.

7.5.1   Enforcement of the Availability Declaration Envelope

(MR Ch.7 ss.3.1.14, 3.3.3.2, and 3.3.3.3)

Materiality threshold – For the purposes of **MR Ch.7 ss.3.1.14.5**, **3.3.3.2** and **3.3.3.3**, if a *registered market participant* has established an *availability declaration envelope* (i.e., above 0 MW) it may increase the quantity of an *energy offer* or *bid* during the *real-time market* above the *availability declaration envelope* without formally requesting the *IESO's* approval provided the revised *offer* or *bid* quantity does not exceed the lesser of (i) 15% of the existing *availability declaration envelope*, or (ii) 10 MW. The *IESO* will automatically approve revisions in such circumstances.

No automated check – There is no automated enforcement mechanism of the *availability declaration envelope* for *dispatch data* submission in the *IESO* tool. The *IESO* will manually detect and process unauthorized expansions of a *resource's availability declaration envelope*.

MACD enforcement – If the *registered market participant* submits an *offer* or *bid* that exceeds its *resource's availability declaration envelope* in a manner that contravenes the applicable provisions of **MR Ch.7 ss.3.3.3.2** and **3.3.3.3** or operates in a manner that breaches **MR Ch.7 ss.3.1.12** and **3.1.13**, the *registered market participant* may be subject to compliance actions for breach of the *market rules*.

Generation units connecting radially for operations in Ontario – For *resources* that represent *generation units:*

- located outside Ontario but have the ability to connect radially for operation in Ontario; and

- not part of Ontario's total capacity,

If the *IESO* has approved the *resources* to operate in the *IESO-administered markets*, the *IESO* will accept and approve the *registered market participant* to submit *dispatch data* for the *resources* even when no *dispatch data* was submitted for these *resources* in the *day-ahead market*. Submission of *dispatch data* is subject to the applicable requirements as specified in **MR Ch.7.**

Generation units with the ability to connect through the 115 kV or 230 kV system – *Generation units* that have the option to be configured on the *transmission system*, to connect to either the 115 kV or 230 kV system, is modelled using two *resources* to represent the connection to the 115 kV and 230 kV system. The *registered market participant* submits *offers* on the appropriate *resource* based on

the configuration. For these resources, subject to *IESO* approval, for a change in configuration, the *registered market participant* may revise *offers* in *the real-time market* between the resource on the 115 kV system and the resource on the 230 kV systems without changing the quantities established in the original *day-ahead market* offers.

7.5.2   Process to Expand the Availability Declaration Envelope

(MR Ch.7 s.3.1.14)

Reason codes – *Registered market* participants that seek to expand the *availability declaration envelope* must provide a reason for the submission or revision via the REASON CODE field. If the *registered market participant* selects the "OTHER" reason code, a free text reason must be entered in the OTHER REASON field. Refer to Appendix B.3 for additional information.

Process for Availability Declaration Envelope expansion – Table 7-9 lists the steps for *registered market participants* to submit or revise *dispatch data* that expands the *availability declaration envelope* beyond the materiality threshold in the *real-time market*.

Table 7-9: Procedure Expanding the Availability Declaration Envelope

Step	Completed by…	Action
1	*Registered market participant*	After *DAM* expiration, submits or revises *dispatch data* that expands the *availability declaration envelope*. If the submission or revision expands the *availability declaration envelope* above the applicable materiality threshold: • the submission or revision must include a reason code, and • all the steps of this procedure apply. If the submission or revision expands the *availability declaration envelope* below the applicable materiality threshold: • the submission or revision does not require a reason code; and • steps 5 through 7 of this procedure do not apply. If the submission or revision is in *response* to an *IESO* request for additional *bids* or *offers*: • the submission or revision must include a reason code, and • steps 5 through 7 of this procedure do not apply. Refer to Appendix B.3 for additional information.

Step	Completed by...	Action
2	*IESO*	Timestamps and performs validation on received *dispatch data*.
		If the *dispatch data* is validated, then the *IESO*:
		• confirms receipt of the submitted *dispatch data*; and
		• accepts and approves the *dispatch data*.
		If the *dispatch data* fails validation, then the *IESO*:
		• rejects the *dispatch data*; and
		• notifies the *registered market participant* that the *dispatch data* has failed validation.
3	*Registered market participant*	Receives from the *IESO*:
		• confirmation of *dispatch data* receipt; or
		• notification of *dispatch data* validation failure.
		Corrects the *dispatch data* and resubmits, then continue from step 2 (if applicable).
		Contacts the *IESO* immediately if neither confirmation nor notification is received.
4	*Registered market participant* and *IESO*	Resolves outstanding issues, if any, regarding submitted or revised *dispatch data*.
5	*Registered market participant*	Contacts the *IESO* to indicate that it has submitted or revised its *offer* or *bid* quantity in a manner that has expanded the *availability declaration envelope* above the applicable materiality threshold, and provides additional information pertaining to the reason if required.
6	*IESO*	Assesses whether to approve the submission given the reason and applicable requirements under the Market Rules.
7	*IESO*	Logs its decision to approve or reject the submission.
		Notifies the *registered market participant* of the decision.
8	*Registered market participant*	Receives from the *IESO* notification of approval or rejection decision.
		If the *IESO* issued an approval notification, the *registered market participant* continues with step 9 of this procedure.
		If the *IESO* issued a rejection notification, the *registered market participant* re-submits its *offer* or *bid* with a quantity that is permissible under the *Market Rules*. Refer to Appendix B.3 for additional information.

Step	Completed by...	Action
9	*IESO*	The *pre-dispatch calculation engine* and *real-time calculation engine* use the latest accepted and approved *dispatch data*.

– End of Section –

8 Accessing Submitted Dispatch Data

8.1 Dispatch Data Reports

(MR Ch.7 ss.4.8.1, 5.8.2.10, and 6.7.4)

Table 8-1 lists the *dispatch data* reports that the *IESO issues*.

Table 8-1: Confidential Dispatch Data Reports Description

Report Name	Report Description
Dispatch Data Report for Day-ahead Market Scheduling Process (**MR Ch.7 s.4.8.1.1**)	The Dispatch Data Report for Day-ahead Market Scheduling Process: • contains a summary the *dispatch data* submitted for the *day-ahead market* for each of the *market participant's resources*; • is typically issued at approximately 13:30 EPT; and • presents information with hourly and daily granularity, respectively.
Day-ahead Operating Reserve Bid Offer Report	The Day-ahead Operating Reserve Bid Offer Report: • contains the *offers* for *operating reserve* used by the *day-ahead market calculation engine*; • is typically issued at approximately 13:30 EPT; and presents information with hourly granularity.
Dispatch Data Report for the Real Time Scheduling Process for Resources (**MR Ch.7 s.6.7.4**)	The Dispatch Data Report for Real Time Scheduling Processes for Resources: • contains the *dispatch data* used by the *real-time calculation engine*; • is typically issued daily for the previous *dispatch day* at approximately 06:00 EST; and • presents information with hourly and daily granularity.
Dispatch Data Report for the Real Time Scheduling Processes for Forebays (MR Ch.7 s.6.7.4)	The Dispatch Data Report for Real Time Scheduling Processes for Forebays: • contains the *dispatch data* for *forebays* used by the *real-time calculation engine*; • is typically issued daily for the previous *dispatch day* at approximately 06:00 EST; and • presents information with hourly and daily granularity.

Report Name	Report Description
Real-time Operating Reserve Bid Offer Report **(MR Ch.7 s.6.7.4)**	The Real-time Operating Reserve Bid Offer Report: • contains the *offers* for *operating reserve* used by the *real-time calculation engine* • is typically issued daily for the previous *dispatch day* at approximately 6:00 EST; and • presents information with hourly granularity.
Real-time Schedule Bid Offer Report **(MR Ch.7 s.6.7.4)**	The Real-time Schedule Bid Offer Report: • contains the *dispatch data* used by the *real-time calculation engine* for *self-scheduling generation resources, self-scheduling electricity storage resources* intending to inject and *intermittent generation resources*, notably, self-schedules and forecast of intermittent generation; • is typically issued daily at approximately 06:00 EST for the previous *dispatch day*; and • presents information with hourly granularity.
Pseudo-Unit Computed Values Reports (**MR Ch.7 s.4.8.1.2**) **(MR Ch.7 s.5.8.2.10)**	The Pseudo-Unit Computed Values Reports: • contain the values used by the *day-ahead market calculation engine, pre-dispatch calculation engine,* or *real-time dispatch calculation engine* for *pseudo-units* and *generation resources* associated with the corresponding combustion turbine *generation units* and steam turbine *generation units*; • these reports are based on *market participant* submitted registration and *dispatch data* for physical units which includes impact of *outages*, derates and constraints; • presents information with hourly granularity for the reports containing the values used by the *day-ahead market calculation engine* and *pre-dispatch calculation engine*; and • presents information with five-minute granularity for the report containing the values used by the *real-time dispatch calculation engine*.

8.2   Retrieval of Submitted Dispatch Data

(MR Ch.7 s.3.1)

Retrieval function – A *registered market participant* can retrieve *dispatch data* that it has previously submitted to the *IESO* in accordance with **MR Ch.7 s.3.1** using the RETRIEVE action of the MPI/GUI or the API. The RETRIEVE action is a data download (referred to as the Valid Bid Report) that results in a query of *dispatch data* that the *registered market participant* has submitted into the *IESO's* Market Operation System

(MOS). The RETRIEVE download contains the *dispatch data* submissions that have been validated and accepted into the MOS "work space" data area.

Viewing results – The query results can be viewed online in HTML format or received as an XML data file that uses the applicable *dispatch data* submission template format. The XML data file received from the query can be saved for future use for the purpose of resubmitting *dispatch data*.

Included data – The data the *registered market participant* receives when using the RETRIEVE action does not include any *dispatch data* that is pending the *IESO's* approval. Prior *dispatch data* submissions that may have been accepted and approved are overwritten with the most recent data submission pending approval, and are no longer stored in the MOS "work space" data area. Therefore, such prior approved *dispatch data* are not included in the query results.

Calculated *pseudo-unit* data is not available through the query. These calculated values are available via private reports.

<p style="text-align:center">– End of Section –</p>

9 Replacement Energy Offers Program

(MR Ch.7 s.3.3.4)

Forced outage – For the purposes of **MR Ch.7 s.3.3.4**, forced *outage* is an *outage* request submitted with the "FORCED" or "URGENT" priority code to the *IESO's outage* management system.

Capacity exports – The Replacement Energy Offers program is not available for *resources* that have committed capacity to an external *control area*.

Communication requirements – The *registered market participant* must notify the *IESO* via telephone to report the *outage* (as per the *outage* process) and request to participate in the Replacement Energy Offers program. For the purposes of **Ch.7 s.3.3.4,** the *registered market participant* must indicate:

- the name of the *generation resource* that is expected to be unavailable;
- the quantity of *energy required to be replaced*; and
- the name of the *generation resource* that will supply the replacement *energy*.

Non-transfer of day-ahead schedules – The Replacement Energy Offers program does not allow for the replacement or transfer of the *day-ahead schedules* from the *resource* experiencing *outage* to a related *generation resource*.

– End of Section –

10   Requests for Segregated Mode of Operation

(MR Ch.7 App.7.7 s.1.3)

This section includes additional information about operating in *segregate mode of operation*.

Requirements for segregated mode of operation – To operate in *segregated mode of operation*, *registered market participants* must submit:

- a request to the *IESO* to operate their *resource* in *segregated mode of operation*;

- *dispatch data* for their *generation resources* to allow *dispatch* in Ontario should *segregated mode of operation* be recalled;

- an *outage* request for the period that the *resource* will operate in *segregated mode of operation*; and

- e-Tags as detailed below.

Outage to critical equipment – A *request for segregation* may require an *outage* to critical transmission equipment, which is transmission equipment that affects the system topology of the *IESO-controlled grid* and reduces transmission limits.

No outage to critical equipment – *Requests for segregation* to be included in the *day-ahead market* made under **MR Ch.7 App. 7.7, s.1.3.3** that do not require an *outage* to critical equipment received by the *IESO* after 09:00 EPT and before 10:00 EPT will be assessed on a reasonable effort basis.

Content of request for segregation – In accordance with **MR Ch.7 App. 7.7, s.1.3.1**, *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 *generation resources* that are intended to operate in the *segregated mode of operation* ; and

- an hourly schedule.

Registered market participants must submit e-Tags for the *interchange schedules* in segregated mode with Hydro Quebec.

Dispatch data requirements – A *registered market participant* that intends for its *resource* to operate in *segregated mode of operation* shall provide *dispatch data* for the *resource* for each *dispatch hour* during which the *resource* is intended to operate

in *segregated mode of operation*, in the event that the *IESO* rejects or recalls its approval under **MR Ch.7 App. 7.7**, **s.1.3.6**.

Registered market participants are required to have *offers* submitted for their *segregated mode of operation generation resource* prior to 10:00 EPT on the day prior to the *dispatch day* if the *request for segregation* is submitted for inclusion in the *day-ahead market*.

Communication requirements – When submitting a *request for segregation*, *registered market participants* must use the *outage* process described in **MM 7.3**. Along with submitting an *outage* request for the *resources* that are intended to operate in *segregated mode of operation*, *registered market participants* are required to notify the *IESO* by phone of the request.

IESO approval – If the *IESO* approved a *request for segregation*, in addition to the direction requirements provided by **MR Ch.7 App.7.7 s.1.3.5**, the *IESO* must coordinate and confirm with the applicable *control area operator* the switching to be effected by the *transmitter* and the names of the *resources* that will operate in a segregated mode.

Revocation of approval – Upon revoking the *IESO*'s approval to a *request for segregation* under **MR Ch.7 App.7.7 s.1.3.6**, the *IESO* must revoke any direction issued to effect the *segregated mode of operation* for the relevant *resource*.

Notice of revocation and termination – The *IESO* must notify the *registered market participants* whose *request for segregation* is revoked or terminated in accordance with **MR Ch.7 App.7.7 s.1.3.6**.

10.1   Segregated Mode of Operation Inadvertent Accounting

(MR Ch.7 App.7.7 ss.1.4.2 and 1.4.4)

End of dispatch day inadvertent accumulation reconciliation – For the purpose of **MR Ch.7 App.7.7 s.1.4.4**, 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. This subsection sets out information related to inadvertent accounting.

IESO responsibilities – Where the *interconnection*, for which the inadvertent accumulation applies, is comprised of one or more *interties* capable of operating in *segregated mode of operation,* 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, pursuant to **MR Ch.7 App.7.7 ss.1.4.2** and **1.4.4**, respectively;

- determine and distinguish, with hourly granularity, the inadvertent accumulation in both the *segregated mode of operation* and non-segregated mode in relation to individual *intertie segregated mode of operation* 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 segregated mode of operation* inadvertent accumulation;

- maintain an ongoing daily record of the total *segregated mode of operation* and non-segerated mode inadvertent accumulation;

- on a weekly basis, provide applicable *market participants* individual *intertie segregated mode of operation* inadvertent accumulation data regarding hourly, peak, off peak, and daily totals; and

- track total inadvertent accumulation with the neighbouring *control areas*.

Market participant responsibilities – For the purpose of **MR Ch.7 App.7.7 s.1.4.4**, *market participants* shall be responsible for arranging payback of *segregated mode of operation* inadvertent accumulation, by scheduling imports/exports from/to the applicable neighbouring *control area* into/out of Ontario, unless otherwise mutually agreed to between the *market participant(s)* and the applicable *control area operator*.

By the sixth *calendar day* of each month, *market participants* shall report to the *IESO* the quantities of inadvertent accumulation paid back so that the *IESO* may maintain an accurate and up-to-date running balance.

– End of Section –

11   Submitting Regulation Offers

(MR Ch.7 s.9)

The *IESO* determines the quantity of *regulation* capacity needed and *publishes* this information. Refer to **MM 7.2**: Near Term Assessments and Reports for more information.

Regulation offer submission – Each *ancillary service provider* for *regulation* must *offer regulation* capacity for the next *dispatch day* by 09:00 EPT on the day prior to the *dispatch day*, in *response* to the *IESO's* requirements as specified in **MM 7.2**.

Offers for regulation – *Regulation offers* must be expressed in MW, up to one decimal place in the format of xxx.x MW, and greater than or equal to 0.0 MW. *Regulation offers* must be submitted in a standardized template acceptable to the *IESO*.

Regulation schedules – The *IESO* will typically determine *regulation* schedules by 10:00 EPT on the day prior to the *dispatch day*.

Regulation capacity requirement changes – The *IESO* will *publish* an advisory notice to notify *ancillary service providers* of any change to the *regulation* capacity requirement for the relevant *dispatch day*.

GOG-eligible resources – In the hours in which a *registered market participant's GOG-eligible resource* is selected to provide *regulation* service, the *resource* is eligible for a *day-ahead operational commitment* provided that the *IESO* and the *registered market participant* have mutually agreed to start up the *resource* specifically to provide *regulation*, and that it would not otherwise be economic to start up for the *energy* and *operating reserve markets*. Any resulting *day-ahead market* generator offer guarantee payment will be applied as payment by the *IESO* under the applicable compensation provisions of the *regulation* contract for such start-ups.

Table 11-1: Procedure for Submitting Regulation Offers

Step	Completed by…	Action
1	*Ancillary service provider*	Emails *regulation offers* to the *IESO* before 09:00 EPT on the day prior to the *dispatch day*.
2	*IESO*	Assesses received *regulation offers*.
3	*IESO*	Notifies *ancillary service provider* (by phone or email) of selected *regulation offers* by approximately 10:00 EPT.
4	*Ancillary service provider*	Receives from the *IESO* notification of selected *regulation offers*.

— End of Section —

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

User guides providing examples of the following template files can be found on the Participant Tool Training page on the [IESO public website](#) . *Bid/offer* data requirements include:

- *energy offers* and *bids* (including imports, exports, and requests for the *segregated mode of operation*);

- standing *energy offers* and *bids*;

- *operating reserve offers* (including imports);

- standing *operating reserve offers* and *bids*;

- *energy* schedules (for *self-scheduling generation resources, self-scheduling electricity storage resources* intending to inject, 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 Participant Tool Training page on the *IESO* public website (www.ieso.ca) For examples of various schedules, forecasts and assessment data files.

A.3   Schedules and Forecasts – Electricity Storage Resources

(MR Ch.5 App.5.1 s.1.2)

The *bid/offer* and *state of charge/remaining duration of service* requirements outlined in [section 3.2](#) of this *market manual* for *electricity storage participant* participation in the *energy market* and *operating reserve markets* are applied as a safeguarding reliability measures, and to help *electricity storage participants* comply with *dispatch instructions*.

Figure A-1 illustrates an *electricity storage resource's* operating scenario. In *dispatch hours* 1, 2 and 3, the *resource* has an *offer* in the *energy market*, and in hours 1, 4 and 5 the *resource* has a *bid* in the energy market. In this example

below, suppose that the unit proposing to inject is activated for *operating reserve* in the last *dispatch interval* of the second *dispatch hour*. As per **MR Ch.5 App.5.1 s.1.2**, the *resource* is required to meet its obligation of having the capability to inject *energy* for at least one hour when activated for *operating reserve*. To meet this obligation, the *resource* must also act as a *dispatchable* injecting *electricity storage unit* in the third *dispatch hour*. The *resource* cannot have a *bid* in the *energy market* in the third *dispatch hour* because it cannot simultaneously follow an injecting *electricity storage unit dispatch* and a withdrawing *electricity storage unit dispatch* in the third *dispatch hour*.
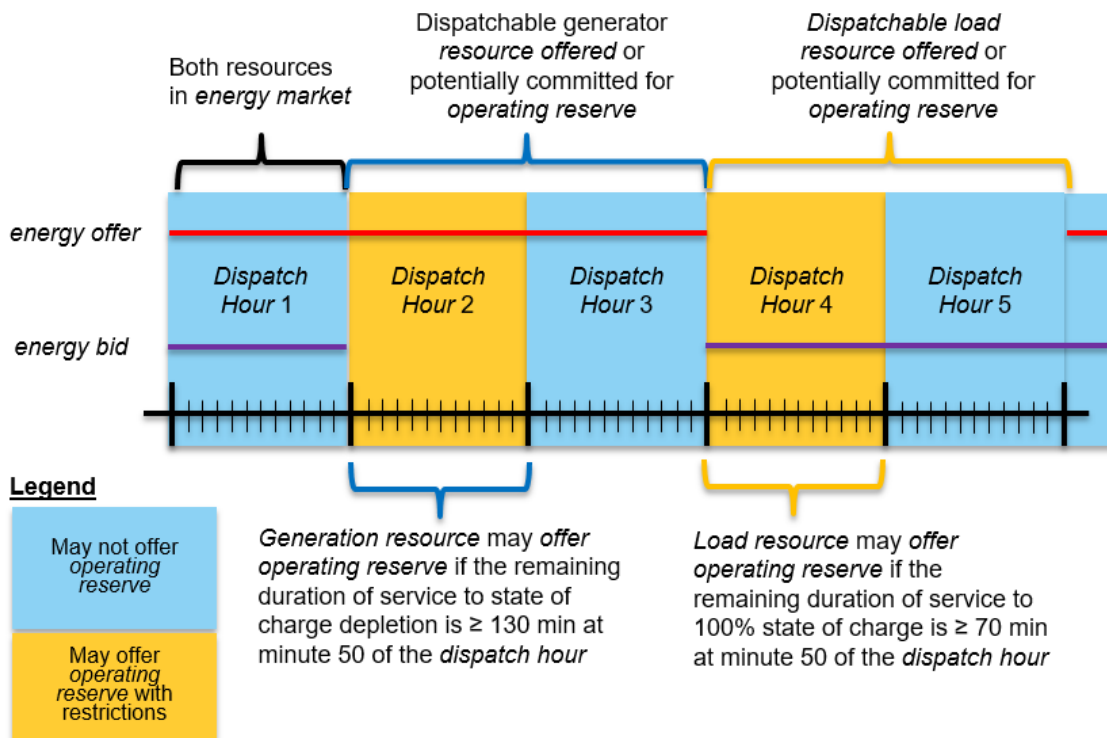
Figure A-1: Electricity Storage Dispatch Data Example

A.3.1   Examples – Minimum duration of service requirements explained

Changes to *operating reserve offers* within the *real-time market mandatory window* are only permitted as a result of *state of charge* related submission and revisions in accordance with [section 4.2](#) of this *market manual*. Otherwise changes must be done outside of the *real-time market mandatory window*.

Rationale for the 130-minute minimum duration of service requirement for the injecting resource:

Electricity storage participants proposing to *offer operating reserve* must submit their *offers* such that that there is at least 130 minutes of duration prior to the

closing of the mandatory (i.e., the cut-off) window when providing *operating reserve*. This accounts for:

- the duration between the mandatory cut-off and the *dispatch hour* (10 minutes);

- the possibility that the *electricity storage unit* could be called to provide *operating reserve* as late as minute 59 of the *dispatch hour* (60 minutes), and;

- the subsequent obligation to provide *energy* for one hour after being activated (60 minutes).

Rationale for the 70-minute minimum duration of service requirement for the withdrawing resource:

Electricity storage participants proposing to *offer operating reserve* must submit their *offers* such that there is at least 70 minutes of duration prior to the closing of the *real-time market mandatory window* when providing *operating reserve*. This accounts for:

- the duration between the mandatory cut-off and the *dispatch hour* (10 minutes); and,

- the possibility that the *electricity storage unit* could be called to provide *operating reserve* as late as minute 59 of the *dispatch hour* (60 minutes).

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– End of Appendix –

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Appendix B: Dispatch Data Submission and Revision Reasons and Reason Codes

This appendix provides the conditions for which a reason for the submission or revision is required, and includes additional information and requirements for each condition.

B.1   Introduction

The *registered market participant* is required to include a reason for the submission or revision of *dispatch data* for certain situations. The reason is communicated to the *IESO* using the reason codes available in the *IESO* tool when submitting or revising the *dispatch data*, and in some cases the *registered market participant* is required to directly notify the *IESO* of the reason to facilitate the *IESO's* assessment for the change. The following table provides the situations that require a reason and reason code, and whether notification to the *IESO* is required.

Table B-1: Submission or Revision Situations Requiring a Reason and Reason Code

Situation	Telephone the IESO	IESO Operator Manual Approval
Submission or revision of daily *dispatch data* for the *real-time market,* except a revision to *single cycle mode*	Not required	Not required[14]
Submission or revision of *dispatch data* that expands the *availability declaration envelope* (ADE)	Required after submission or revision	Required[15]
Submission or revision of hourly *dispatch data* during the *real-time market mandatory window*	Required before submission or revision	Required
Submission or revision of *single cycle mode* for the *real-time market*	Required before submission or revision	Required

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[14] Although the *IESO's* approval is not required at the time of the submission or revision, the reason code is logged by the *IESO* and is reviewed after the fact.

[15] *IESO* operator approval does not indicate compliance with the *market rules*.

The valid reasons for change and reason codes available are provided later in this
appendix.

B.2   Daily Dispatch Data Submissions or Revisions during the Real-Time Market Restricted Window

Submission and revisions made to daily *dispatch data* during the *real-time market
restricted window,* except for the *minimum loading point*, *minimum generation
block run-time,* and *single cycle mode,* do not require *IESO* approval. However, a
reason code is required to indicate the reason for the change as part of the
submission.

The *minimum loading point* and *minimum generation block run-time* may not be
submitted or revised during the *real-time market restricted window*, and a
submission or revision to the single cycle flag requires the *IESO's* manual approval
(refer to Appendix B.5 for more information).

There is automated validation of daily *dispatch data* submission and revisions
during the *real-time market restricted window*. If a reason code is not included by
the *registered market participant*, the submission or revision to daily *dispatch data*
will be automatically rejected and a validation error will be issued.

B.2.1   Daily Dispatch Data – Reasons

(MR Ch.7 s.3.3.7)

The *IESO* will approve the submission of new or revised daily *dispatch data* during the
real-time market restricted window in accordance with **MR Ch.7 s.3.3.7**.

The *IESO* may review the reason for daily *dispatch data* changes to determine whether
the submission or revision is in compliance to the *market rules*.

B.3   Dispatch Data Submissions or Revisions that Expand the Availability Declaration Envelope

Submitting new or revised *dispatch data* that expands the *availability declaration
envelope* (ADE) above the permitted materiality threshold, in accordance with
section 7.5.1 of this *market manual*, requires *IESO* approval. *IESO* approval is not
required if the submission is in *response* to the *IESO's* request for additional *bids*
and *offers*.

There is no automated ADE validation in the *IESO's* tool for *dispatch data* that
expands the ADE. Submission or revisions that expand the ADE and pass normal
validation checks will be entered into the system, however, it does not imply
compliance with the *market rules*. It is the responsibility of the *registered market
participant* to notify the *IESO* when making changes to *dispatch data* that expand
the ADE.

If the submission or revision that expands the ADE is rejected by the *IESO*, and the submission or revision has been automatically accepted and approved by the *IESO's* tools (in the case when it does not include any hours in the mandatory window), the *IESO's* tool does not automatically substitute the *registered market participant's offer* or *bid* in the system with an earlier *offer* or *bid* submission that was permissible under the *Market Rules*. It is the responsibility of the *registered market participant* to revise its *offer* or *bid* with a quantity that is permissible under the *Market Rules* upon rejection.

The *IESO* reviews for violations of the ADE (changes made without *IESO* approval) after the *dispatch day* and will apply the materiality threshold for assessing compliance. Violations are subject to compliance actions for breach of the *market rules*.

B.3.1   Availability Declaration Envelope − Reasons

(MR Ch.7 s.3.1.14)

The *IESO* will approve the submission of new or revised *dispatch data* that expands the ADE in accordance with **MR Ch.7 s.3.1.14**.

For the late start of a *planned outage*, the *IESO* will accept the *dispatch data* submitted, but the *IESO* will not approve the expansion of your ADE. The submission will be logged to compliance for review.

B.4   Hourly Dispatch Data Submissions or Revisions during the Real-Time Market Mandatory Window

Any new or revised hourly *dispatch data* submitted in the *real-time market mandatory window* (i.e. within two hours in advance of the *dispatch hour*) must be manually approved by the *IESO* for use in the *real-time market*.

There is automated validation for hourly *dispatch data* in the *IESO* tool during the *real-time market mandatory window*. If a reason code is not included by the *registered market participant*, the submission or revision during the *real-time market mandatory window* will be automatically rejected and a validation error will be issued.

After the submission or revision is validated and entered into the system, the *IESO's* manual approval is required to include the change in the *real-time market*. *IESO* approval is contingent upon manually reviewing the submission or revision, and the *IESO* may initiate a direct conversation with the *registered market participant* to clarify the reason(s) provided.

Submissions and revisions made for economic reasons are not accepted during the *real-time market mandatory window*. *Bid* or *offer* price changes are not allowed within the *real-time market mandatory window* and will be rejected by the *IESO* except for:

- a *dispatchable load* changing its load status[16], either in whole or in part, to or from *dispatchable* by changing the *bid* price to or from *MMCP,*

- the *IESO* has directed the *registered 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.

Approval of *real-time market mandatory window* submissions and revisions into the *real-time market* will occur only when a *resource* 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,* or *state of charge* limitation for an *electricity storage resource*). 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.

The *IESO's* manual review and approval is for the hourly *dispatch data* submitted in the *real-time market mandatory window*, but the entire submission that can include *dispatch data* for *dispatch hours* outside of the *real-time market mandatory window* is approved or rejected as a whole, refer to Appendix F.2 for more information.

Submissions and revisions made to hourly *dispatch data* that are within two hours of the start of the *dispatch hour* identified in the submission are referred to as short notice submissions for the purposes of this market manual.
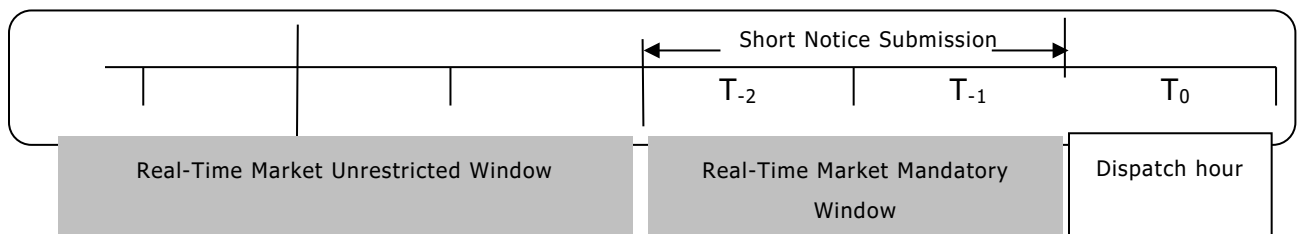
Figure B-1: Short Notice Submission Window

B.4.1   Real-Time Market Mandatory Window − Reasons

The conditions for manual acceptance of new and revised *dispatch data* for the *real-time market mandatory window*, which is also referred to as the Short Notice Change Criteria, as provided below. A summary of the Short Notice Change Criteria is also available in Appendix B.4.4.

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[16] 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 *market rules* govern the *IESO's* manual approval for short notice 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:

  o changing its load status, in whole or in part, either to or from *dispatchable*, by bidding at or changing from *MMCP*, (changing to *dispatchable* is also subject to the *availability declaration envelope* requirements); or

  o a request to restore its *operating reserve offers* after a *forced outage* or urgent *outage.*

- The revision reflects changes in the operational status of the *generation resource* or the *dispatchable load resource* to prevent a situation that could endanger the safety of any person, damage to equipment, or violate any *applicable law.*

- The revision reflects changes in the *state of charge*, which can only be reductions in quantity and must be submitted prior to the closing of the *real-time market mandatory window*. *Electricity storage participants* revising *dispatch data* within the *real-time market mandatory window* for *state of charge* related reasons must include the term "SOC" in their reason for change.

- The *IESO* will also approve the submission of new or revised *dispatch data* in the *real-time market 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:

  o direction from the *IESO* to submit *dispatch data* for *reliability* reasons;

  o changes in the operational status of the *generation resource* or the *dispatchable load resource* to prevent violation of any *applicable law*, endangering the safety of any person, or damage to property or the environment;

  o the *market participant* recognizes that the quantity of any *physical service* scheduled in the current *pre-dispatch schedule* for the *resource* differs from the quantity the *market participant* reasonably expects to be delivered or withdrawn by more than the greater of 2% or 10 MW;

  o is associated with an hourly *demand response resource*;

  o the *IESO* denies a request for segregation;

  o the *IESO* revokes its approval to operate a registered *resource* in a *segregated mode of operation*;

- o the *IESO* terminates the operation of a registered *resource* in a *segregated mode of operation*;

- o an advisory notice for under-generation has been issued, and the new or revised *dispatch data* increases *offers* or decreases *bids* of *energy*;

- o an advisory notice for over-generation (i.e., a Minimum Generation Alert or Event)[17] has been issued, and the new or revised *dispatch data* decreases *offer*s or increases *bids* of *energy*; or

- o an advisory notice for an *operating reserve* shortfall has been issued, and the new or revised *dispatch data* increases *offers* of *operating reserve*.

B.4.2   Short Notice Submission − Boundary Entity Resources

Changes to hourly *dispatch data* for *boundary entity resources* are subject to the same submission restrictions as hourly *dispatch data* received from non-*boundary entity resources* (refer to section B.4.1).

Quantity changes to hourly *dispatch data* resulting from changes in an external *control area* will 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 **MM 4.3 s.5.3**: Boundary Entity Resources.

By two hours prior to the *dispatch hour*, *registered market participants* must submit *dispatch data* to reflect the correct e-Tag IDs; failure to do so will be treated as a breach of the *market rules*. *Registered market participants* may revise the e-Tag ID up to 32 minutes prior to the start of the *dispatch hour* which will be automatically accepted.

The e-Tag ID *mandatory window* begins 32 minutes before the start of the *dispatch hour* and closing 10 minutes prior to the start of the *dispatch hour*. There is no automatic approval of the e-Tag ID during the e-Tag ID mandatory window.

Submitting or revising the e-Tag ID during the *real-time market mandatory window*, which encompasses the e-Tag ID mandatory window, must include a reason code with the submission. If a reason code is not included by the *registered market participant*, the submission or revision will be automatically rejected and a validation error will be issued.

During the e-Tag ID mandatory window, the *IESO* will manually review the submitted e-Tag ID and associated reason and reason code before approving the change. The *IESO* may initiate a direct conversation with the *registered market participant* to clarify the reason provided.

For clarity, if *registered market participants* submit changes to their *boundary entity resource's dispatch data* and e-Tag ID for approval more than 60 minutes

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[17] Refer to **MM 7.2 s.4.3** for information regarding Minimum Generation states.

prior to the *dispatch hour*, which is within the *real-time market mandatory window* for *boundary entity resources* and outside of the e-Tag ID mandatory window, then changes to *dispatch data* require manual approval from the *IESO*, and changes to e-Tag ID are automatically approved.

B.4.3   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 *real-time market mandatory window* for system *reliability*.

The *IESO* will open the submission window **for a minimum of one hour or until the** *reliability* **concern is resolved** to allow hourly *dispatch data* to be modified within the short notice submission window when the *IESO* has or is about to initiate EEA2[18] (*Energy Emergency* Alert 2) procedures.

Note: The intent of opening the *real-time market submission 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 submission 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 *real-time market submission window* will still remain closed for any changes to an *intertie scheduling limit* or to an operating *security limit*.

All other changes submitted by *registered market participants* in the *real-time market mandatory window*, if opened, will only be approved by the *IESO* in accordance with **MR Ch.7 s.3.3.6**, where the revision relates solely to injecting energy (or withdrawing energy insofar as an *electricity storage resource* is concerned) and the revision is required in order to reflect a proposed change in the operating status of the registered *resource* designed solely "to prevent the *resource* from operating in a manner that would endanger the safety of any person, damage equipment, or violate any *applicable law*." Storage *resources* may also make revisions for *state of charge* reasons (**MR Ch.7 s.21.5**).

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

B.4.4   Real-Time Market Mandatory Window – Reasons Summary

This section provides a summary of the Short Notice Change Criteria.

Table B-2: Summary of Allowable Dispatch Data Changes

Reason for Bid/Offer Change	Changes Allowed		Market Rule Reference
	2 hours+	**2-0 Hours**	
Market-based changes	Unrestricted changes to *dispatch data* except where *reliability* issue identified in *pre-dispatch schedule*	None	**Ch.7 ss.3.3.3**, **3.3.10**

Reason for Bid/Offer Change	Changes Allowed		Market Rule Reference
	2 hours+	2-0 Hours	
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.	**Ch.7 s.3.3.8**

Reason for Bid/Offer Change	Changes Allowed		Market Rule Reference
	2 hours+	2-0 Hours	
		Bids need to be revised to: • reflect what the *dispatchable load* reasonably expects to withdraw; • indicate if their status changes to or from being *dispatchable*; and • identify when *operating reserve* capability is restored following the *outage*	
Hourly demand response resources	Unrestricted changes to *dispatch data* except where *reliability* issue identified in *pre-dispatch schedule*	Reflect what the *hourly demand response resource* reasonably expects to withdraw.	
Electricity Storage Participants revisions for *state of charge* changes that exceed the greater of 2% or 10 MW		For *state of charge* related revisions, *offers* and *bids* setting out the quantity that the *electricity storage participant* reasonably expects to inject and withdraw needs to be revised prior to the closing of the mandatory window. Note: only quantity reductions are permitted.	**Ch.7 s.21.5**

	Changes Allowed		
Reason for Bid/Offer Change	**2 hours+**	**2-0 Hours**	**Market Rule Reference**
Personnel/Public Safety Property Damage Legal requirement Environmental *Regulation*		Quantity and price changes to reflect actual capability	**Ch.7 s.3.3.6**
Offers/bids created or revised in *response* to a System Advisory issued by the *IESO* for under-generation		Increased quantities in existing *energy offers* (*generators, wholesale sellers* and *electricity storage participants*) Decreased quantities in existing *load bids* (*dispatchable loads*, and *electricity storage participants*) New *offer*s from *generators* and *electricity storage participants*.	**Ch.7 s.12.2**
Offers/bids created or revised in *response* to a System Advisory issued by the *IESO* for over-generation	Unrestricted changes to *dispatch data* except where *reliability* issue identified in *pre-dispatch schedule*	Decreased quantities in existing *energy offers* (*generators, wholesale sellers,* and *electricity storage participants*) Increased quantities in existing *load bids* (*dispatchable loads* and *electricity storage participants*) New *bids* from *dispatchable loads* and *electricity storage participants*.	**Ch.7 s.12.2**

Reason for Bid/Offer Change	Changes Allowed		Market Rule Reference
	2 hours+	2-0 Hours	
Offers created or revised in *response* to a System Advisory issued by the *IESO* for an *operating reserve* shortfall		Increased quantities in existing *operating reserve offers* New *operating reserve offers*	**Ch.7 s.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 *offers* New *offers*	**Ch.7 s.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 *offers* New *offers*	**Ch.5 s.4.8**
Where *IESO* refuses a request for *segregated mode of operation*		Increased quantities in existing *offers* New *offers*	**Ch.7 App.7.7 s.1.2**
Where *IESO* refuses request by *generator* or *electricity storage participant* for de-synchronization from the *IESO-controlled grid*	Unrestricted changes to *dispatch data* except where *reliability* issue identified in *pre-dispatch schedule*	Increased quantities in existing *offers* New *offers*	**Ch.7 s.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	
Interchange schedule – e-Tag ID changes		e-Tag identification changes allowed up to 32 minutes prior to the *dispatch hour*	

Reason for Bid/Offer Change	Changes Allowed		Market Rule Reference
	2 hours+	2-0 Hours	
Where *IESO* directs the *ancillary service provider* to change the *regulation* requirements with less than five hours notice		Increased quantities in existing *offers* New *offers*	
Where the *ancillary service 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 *offers* New *offers*	
Where the *market participant* submits a replacement *energy offer* due to a *forced outage* or urgent *outage*		Revised *dispatch data* for a related *generation resource*	**Ch.7 s.3.3**

B.5   Single Cycle Mode Submissions or Revisions for the Real-Time Market

Submissions and revisions made to the *single cycle mode* parameter during the *real-time market restricted window,* requires *IESO* manual approval.

There is automated validation of daily *dispatch data* submission and revisions during the *real-time market restricted window*. If a reason code is not included by the *registered market participant*, the submission or revision to daily *dispatch data* will be automatically rejected and a validation error will be issued.

The *IESO's* manual review and approval is for the *single cycle mode* parameter, but the entire submission that can include other daily *dispatch data* is approved or rejected as a whole (please see Appendix F.2 for more information).

B.5.1   Daily Dispatch Data − Reasons

(MR Ch.7 s.3.3.7)

The *IESO* will approve the submission or revision of *single cycle mode* during the *real-time market restricted window* in accordance to **MR Ch.7 s.3.3.7**. For example, the *IESO* will approve a revision to *single cycle mode* made for economics if the *pseudo-unit* does not have an upcoming commitment and is not currently online and operating.

The *IESO* may review the reason for daily *dispatch data* changes to determine whether the submission or revision is in compliance to the *market rules*.

B.6   Hourly Dispatch Data Withdrawal

Cancelling *dispatch data* for a *GOG-eligible resource* that has been committed in the *day-ahead market* or *pre-dispatch process* and withdrawing from its commitment requires *IESO* approval and "WITHDRAW" in the REASON CODE. Refer to **MM 4.3 s.5.9** for more information on the withdrawal from commitment process.

B.7   Reason Codes

The REASON CODE field in the *IESO* tool provides a predetermined list of reason codes that could be selected by the *registered market participant* for the submission or revision.

The *registered market participant* must select the reason code that reflects their reason for the change. For example, changes as a result of a *forced outage* must use the "FO" reason code.

If the *registered market participant* selects "OTHER", a free text must be entered in the OTHER REASON field to provide an explanation or the submission or revision

will be automatically rejected and a validation error will be issued. For example, the free text entered in the OTHER REASON field may be:

- "*IESO* tool issue";

- "SOC" for a State Of Charge limitation being entered for an *electricity storage resource*;

- "Data submitted in *response* to *IESO's* request for additional *bids* and *offers*";

- "Change to the start of a *planned outage*";

- "Change to an e-Tag identifier"; or

- "Change to *demand response capacity*".

Table B-3 lists the reason codes available in the *IESO* tool for submission or revision for daily and hourly *dispatch data*.

Table B-3: Reason Codes

Reason Code	Used for	Daily Dispatch Data	Hourly Dispatch Data
ECON	Economics	x	
ERPO	Early Return from *Planned Outage*		x
FD	Forced Derating		x
FO	*Forced Outage*		x
FO-ST	*Forced Outage* on ST of *Pseudo-unit*	x	x
LRPO	Late Return from *Planned Outage*		x
MPM-EORLI	MPM Energy Offer Reference Level Increase		x
NT	*Non-technical*	x	
OTHER	If the OTHER reason code is selected, a free text reason must be entered in the **OTHER REASON**[19] field	x	x
T	*Technical*	x	
WITHDRAW	Cancellation of *offers*, but not revision of *offers*, when withdrawing from a commitment		x

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[19] This is a free format field, which allows you to type the reason for your submission in your own words, using up to 128 characters.

– End of Appendix –

Appendix C: Boundary Entity Resources

C.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 HST and *interchange schedules* to the US are exempt from HST. 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 HST exempt), the requirement is to use the "WC.PRAIRIERANGES.SINK" or "EC.MARITIMES.SINK" respectively.

For Imports into Ontario there is no need to differentiate 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.

C.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*. The number of *boundary entity resources* created reflects the maximum expected number of *interchange schedules* that any one *registered market participant* would initiate between Ontario and the *control area* the *boundary entity resource*.

Table C-1: Boundary Entity Resources

Intertie	Tie Point ID	Boundary Entity Resource Name	# of BERs	Description
Manitoba 115 kV	MBSK	MB.SEVENSISTERS.SINK	2	Export via *IESO*/Manitoba 115kV *intertie*
		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.SOURCE.SBACK	1	System-Backed Capacity Import *Resources* 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*

Intertie	Tie Point ID	Boundary Entity Resource Name	# of BERs	Description
		MD.CALVERTCLIFF.SINK	40	Export to *PJM* via *IESO*/NYISO *intertie*
		MD.CALVERTCLIFF.SOURCE	40	Import via *IESO*/NYISO *intertie* from *PJM*
Quebec B5D/B31L[20]	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

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

Intertie	Tie Point ID	Boundary Entity Resource Name	# of BERs	Description
Quebec A41T/A42T	PQAT	PQ.OUTAOUAIS.SINK	20	Export via *IESO*/Quebec *intertie* A41T/A42T
		PQ.OUTAOUAIS.SOURCE.SBACK	1	System-Backed Capacity Import *Resources* 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 Appendix –

Appendix D: Ontario Specific e-Tag Requirements

D.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 Interchange Distribution Calculator (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.

D.1.1   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.

D.1.2   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 *linked wheeling through transactions* (where the *IESO* is not identified as the source or sink CA).

D.1.3   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 E-1 lists the proper PORs and PODs.

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

Table D-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

Interface		Imports (POR)	Exports (POD)
New York	NYSI	ONT.IMPORT.NYIS.PS	ONT.EXPORT.NYIS.PS
Outaouais	PQAT	ONT.IMPORT.AT	ONT.EXPORT.AT
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 POD and 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 GS,

- ONT.EXPORT.LAW.as the POD name for *interchange schedules* out of the *IESO* towards HQT at Saunders GS, 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.

D.1.4   SE Column

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

D.2   Examples of e-Tag Format Conventions for Interchange Schedules from Linked Wheeling Through Transactions

D.2.1   Example 1

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

- WI_GGGG_**ONT**MM1234567_LLLL; and

- WX_GGGG_**ONT**MM1234567_LLLL

D.2.2   Example 2

An *interchange schedule* from a *linked wheeling through transaction* 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, an *interchange schedule* from a *linked wheeling through transaction* from Michigan to New York through Quebec must be tagged MECS-ONT-HQT[21]

Where:

- MECS is the source *control area* in Michigan.

- HQT is the Quebec sink *control area*.

- An additional e-Tag will be required to complete the *linked wheeling 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 Appendix –

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

Appendix E: Virtual Transaction Zonal Trading Entity Resource

The following table details the *virtual zonal resource* names for each *virtual transaction zone*. In all cases, there is only a single source *resource* and a single sink *resource* created at each location. The number of *resources* reflects the maximum number of *virtual transactions* that any one *registered market participant* could submit.

Table E-1: Virtual Zonal Resources

Zone	Virtual Transaction Zone	Virtual Zonal Resource Name	Description
East	EAST	EAST_BID:HUB	Virtual load in the East zone.
		EAST_OFFER:HUB	Virtual supply in the East zone.
Essa	ESSA	ESSA_BID:HUB	Virtual load in the Essa zone.
		ESSA_OFFER:HUB	Virtual supply in the Essa zone.
Niagara	NIAGARA	NIAGARA_BID:HUB	Virtual load in the Niagara zone.
		NIAGARA_OFFER:HUB	Virtual supply in the Niagara zone.
Northeast	NORTHEAST	NORTHEAST_BID:HUB	Virtual load in the Northeast zone.
		NORTHEAST_OFFER:HUB	Virtual supply in the Northeast zone.
Northwest	NORTHWEST	NORTHWEST_BID:HUB	Virtual load in the Northwest zone.
		NORTHWEST_OFFER:HUB	Virtual supply in the Northwest zone.
Ottawa	OTTAWA	OTTAWA_BID:HUB	Virtual load in the Ottawa zone.
		OTTAWA_OFFER:HUB	Virtual supply in the Ottawa zone.
Southwest & Bruce	SOUTHWEST	SOUTHWEST_BID:HUB	Virtual load in the combined Southwest and Bruce zone.
		SOUTHWEST_OFFER:HUB	Virtual supply in the combined Southwest and Bruce zone.
Toronto	TORONTO	TORONTO_BID:HUB	Virtual load in the Toronto zone.
		TORONTO_OFFER:HUB	Virtual supply in the Toronto zone.

Zone	Virtual Transaction Zone	Virtual Zonal Resource Name	Description
West	WEST	WEST_BID:HUB	Virtual load in the West zone.
		WEST_OFFER:HUB	Virtual supply in the West zone.

— End of Appendix –

Appendix F: Submission of Dispatch Data in the IESO Tools

This appendix provides additional information on the *IESO* tools to facilitate the submission of *dispatch data* to the *IESO-administered markets.* Information on how specific *market rules* are integrated in the tools may also be provided.

F.1   Energy Bid or Offer Dispatch Data Forms

Table F-1 lists various *energy dispatch data* parameters, its applicability to each *resource* type and the form it is submitted on. The following letters denote each form:

R – Real-Time Energy Market Form

D – Daily Dispatch Data Form

F – Forebay Form

Table F-1: Dispatch Data Forms

Dispatch Data Parameter	GENERATOR						PSEUDO-UNIT			LOAD	ELECTRICITY STORAGE		PRICE RESPONSIVE LOAD	INJECTION & OFF-TAKE	VIRTUAL GENERATOR & VIRTUAL LOAD
	Hydroelectric (Forebay)	Hydroelectric (Non-Forebay)	Nuclear	Variable Generation	Other Non-Quick Start	Other Quick Start	Pseudo-Unit	Combustion Turbine	Steam Turbine	Dispatchable Load & Hourly Demand Response	Registered to inject	Registered to withdraw			
Price-Quantity Pairs	R	R	R	R	R	R	R			R	R	R	R	R	R
Hourly Energy Ramp Rate	R	R	R	R	R	R	R			R	R	R			R
Daily Energy Ramp Rate	R	R	R	R	R	R	R			R	R	R			R

Dispatch Data Parameter	GENERATOR						PSEUDO-UNIT			LOAD	ELECTRICITY STORAGE		PRICE RESPONSIVE LOAD	INJECTION & OFF-TAKE	VIRTUAL GENERATOR & VIRTUAL LOAD
	Hydroelectric (Forebay)	Hydroelectric (Non-Forebay)	Nuclear	Variable Generation	Other Non-Quick Start	Other Quick Start	Pseudo-Unit	Combustion Turbine	Steam Turbine	Dispatchable Load & Hourly Demand Response	Registered to inject	Registered to withdraw			
OR Ramp Rate	R	R	R	R	R	R	R			R	R	R		R	
Hot Start-Up Offer					R		R								
Warm Start-Up Offer					R		R								
Cold Start-Up Offer					R		R								
Speed No-Load Offer					R		R								
Thermal State					R		R								
Minimum Hourly Output	R	R													
Hourly Must Run	R	R													
Maximum Daily Energy Limit	F	R		R	R	R	R				R				

Dispatch Data Parameter	GENERATOR						PSEUDO-UNIT			LOAD	ELECTRICITY STORAGE		PRICE RESPONSIVE LOAD	INJECTION & OFF-TAKE	VIRTUAL GENERATOR & VIRTUAL LOAD
	Hydroelectric (Forebay)	Hydroelectric (Non-Forebay)	Nuclear	Variable Generation	Other Non-Quick Start	Other Quick Start	Pseudo-Unit	Combustion Turbine	Steam Turbine	Dispatchable Load & Hourly Demand Response	Registered to inject	Registered to withdraw			
Minimum Daily Energy Limit	F	R													
Linked Forebay, Time Lag and MWh Ratio	F														
Variable Generation Forecast Quantity				R											
Tie-Point														R	
NERC tag ID (e-Tag ID)														R	
Capacity Transaction Flag														R	
Virtual Transaction Zonal Trading Entity															R
Forbidden Regions	D	D													

Dispatch Data Parameter	GENERATOR						PSEUDO-UNIT			LOAD	ELECTRICITY STORAGE		PRICE RESPONSIVE LOAD	INJECTION & OFF-TAKE	VIRTUAL GENERATOR & VIRTUAL LOAD
	Hydroelectric (Forebay)	Hydroelectric (Non-Forebay)	Nuclear	Variable Generation	Other Non-Quick Start	Other Quick Start	Pseudo-Unit	Combustion Turbine	Steam Turbine	Dispatchable Load & Hourly Demand Response	Registered to inject	Registered to withdraw			
MNSPD	D	D			D			D							
MLP					D			D	D						
MGBRT					D			D							
Hot MGBDT					D			D							
Warm MGBDT					D			D							
Cold MGBDT					D			D							
Single Cycle Mode								D							
Hot Lead Time					D			D							
Warm Lead Time					D			D							
Cold Lead Time					D			D							
Hot Ramp Up Energy to MLP					D			D	D						

Dispatch Data Parameter	GENERATOR						PSEUDO-UNIT			LOAD	ELECTRICITY STORAGE		PRICE RESPONSIVE LOAD	INJECTION & OFF-TAKE	VIRTUAL GENERATOR & VIRTUAL LOAD
	Hydroelectric (Forebay)	Hydroelectric (Non-Forebay)	Nuclear	Variable Generation	Other Non-Quick Start	Other Quick Start	Pseudo-Unit	Combustion Turbine	Steam Turbine	Dispatchable Load & Hourly Demand Response	Registered to inject	Registered to withdraw			
Warm Ramp Up Energy to MLP					D			D	D						
Cold Ramp Up Energy to MLP					D			D	D						

F.2   Whole Submission of Dispatch Data

Submission to the IESO tool – In order to allow the *IESO* tool to perform validations, all submitted hourly *dispatch data* and any accompanying daily *dispatch data* in a given submission is evaluated, and accepted or rejected as a whole submission. This means all hourly *dispatch data* for all *dispatch hours* and the accompanying daily *dispatch data* in the submission is accepted if all validations are passed, and rejected if any single validation is failed.

Dispatch data in the IESO system – Previously accepted and approved *dispatch data* for a *dispatch hour* is taken into consideration when validating the current submission (as applicable) if the *dispatch hour* has not been submitted in the current submission. While previously accepted and approved *dispatch data* in the system is used for validation, the acceptance or rejection of the current submission does not impact previously accepted and approved *dispatch data* in the system.

Example – Twenty-four *dispatch hours* of the *dispatch day* was previously submitted and the *dispatch data* was accepted and approved by the *IESO*. The *registered market participant* subsequently submits revisions to six *dispatch hours* of the *dispatch day* along with daily *dispatch data* that is submitted with the hourly *dispatch data* to the *IESO*. The *IESO* tools will evaluate the six *dispatch hours* that were submitted along with the other eighteen *dispatch hours* in the system to perform validations.

If all validations are passed, the six *dispatch hours* along with daily *dispatch data* that is submitted with the hourly *dispatch data* is entered into the *IESO* system. If any validation is failed, the six *dispatch hours* along with daily *dispatch data* that is submitted with the hourly *dispatch data* is rejected. The *IESO* systems will continue to use the previously accepted and approved *dispatch data* for the twenty-four *dispatch hours*.

IESO approval – When certain *dispatch hours* in the submission require *IESO* approval, such as *dispatch hours* in the *real-time market mandatory window*, the whole submission is accepted or rejected pending on the *IESO's* decision to approve or reject the *dispatch hours* that require the *IESO's* approval.

F.3   Order of Submission

Conversion of standing dispatch data – The *IESO* will convert *standing dispatch data* to *dispatch data* each day prior to the *dispatch day* at 06:00 EPT using the following submission order:

1. Daily Dispatch Data Form

2. Real-Time Energy Market Form

3. Operating Reserve Form (if applicable)

4. Forebay Form (if applicable)

Initial submission – An order of submission for the initial submission of *dispatch data* (of the data forms listed in Appendix F.1) is recommended to facilitate the successful validation of *dispatch data* (if applicable). The recommended submission order for the initial submission is the same order as the conversion of *standing dispatch data*.

Consideration – An order of submission is recommended for data forms that include any *dispatch data* parameters that are preconditions to another *dispatch data* parameter submitted on another form.

Example – The Daily Dispatch Data Form contains mandatory *dispatch data* parameters that apply only to non-quick start (NQS) and *pseudo-unit resource* types (e.g., MLP, MGBRT, MGBDT, and Lead Time). As a result, the Daily Dispatch Data Form needs to be submitted first for *non-quick start resources* and *pseudo-unit resources* that are required to submit these parameters. Hydroelectric *resources* that are not required to submit these parameters do not need to submit the Daily Dispatch Data Form first in accordance with the order of submission list above.

F.4   Cross Validation

IESO tool limitations – The *IESO* tool performs cross validation of *dispatch data* in accordance with the *market rules* to the greatest extent feasible, however, there are cross validations where automatic validation by the *IESO* tool is not possible.

F.5   Concurrent Submissions

Concurrent submission processing – Concurrent submission processing occurs when submitting multiple data files simultaneously to the *IESO* for different *dispatch data* forms, data for multiple *resources*, or a combination of both. The *IESO* tool will process the submission concurrently to optimize tool performance.

Limitation to concurrent submissions processing – Where a validation exists between different *dispatch data* forms, *resource* submissions, or a combination of both, the processing of these submissions cannot occur simultaneously to facilitate validating the *dispatch data* correctly. In this situation, the *IESO* tool will process the submission in an order as determined by the *IESO* tool, and reject other submissions until processing of the first submission has been completed.

Managing concurrent submissions – To manage concurrent submissions, the *registered market participant* may submit the data files separately or create a delay in their submission process.

Submitting through the web interface – Concurrent submissions are not possible when submitting using the *IESO's* web interface as the interface can only receive a submission for one *resource* and one form at a time.

Submissions interrelated by validations – The following table provides a summary and examples of concurrent submissions for the *IESO* tool.

Table F-2: Concurrent Submissions

Resource Submissions	Submission Forms	Examples of Rejected Concurrent Submissions
Single *resource* that is not related to another *resource*	- RTEM form - Operating Reserve form - Daily Dispatch Data form (applicable to *non-quick start resources*, excluding nuclear *resources*)	- RTEM and Operating Reserve form - RTEM and Daily Dispatch Data form together from a *non-quick start resource* (excluding nuclear *resources*)
All *resources* that are registered to a single *forebay*	- RTEM form - Operating Reserve form - Forebay form	- RTEM and Forebay form - RTEM form for multiple *resources* registered to the same *forebay*
A *pseudo-unit*, the corresponding combustion turbine *generation unit*, and the associated steam turbine *generation unit*	- RTEM form - Operating Reserve form - Daily Dispatch Data form	- RTEM and Daily Dispatch Data form for either the corresponding combustion turbine *generation unit* or associated steam turbine *generation unit* - Daily Dispatch Data form on the associated steam turbine *generation unit* and RTEM or Daily Dispatch Data form for any related *pseudo-unit* and combustion turbine *generation unit*.
All *virtual zonal resources* from an single *registered market participant*	RTEM form	RTEM form for multiple *virtual zonal resources* from a single *registered market participant*
Price responsive load and *hourly demand response resource* that is associated to a set of load equipment	RTEM form	RTEM form for a *price responsive load* and *hourly demand response resource* associated to the same load equipment

F.6   Cancelling of Dispatch Data and Submission of Null Values

Cancelling hourly dispatch data – Hourly *dispatch data* that has been submitted can be cancelled for the *dispatch hour* using the cancellation option in the *IESO* tools. Any daily *dispatch data* that is submitted with hourly *dispatch data* on the same form is automatically cancelled when all the hourly *dispatch data* associated with the same *dispatch day* has been cancelled.

Cancelling daily dispatch data – The cancellation option is not available for daily *dispatch data* that is submitted independently of hourly *dispatch data* on a separate form.

Submitting null for a daily dispatch data parameter – The *registered market participant* can submit a null value for an optional daily *dispatch data* parameter that has previously been submitted to the *IESO*. The submission of the null value is comparable to the cancellation of the parameter, and the default value is applied if applicable to the parameter. For a parameter that is mandatory, the submission of a null value would be rejected by the *IESO* tool. Submitting a null is also applicable to daily *dispatch data* that is submitted with hourly *dispatch data*.

Submitting zero for a dispatch data parameter – The submission of zero does not equate the submission of a null value. For example, after a *maximum daily energy limit* has been submitted, the *registered market participant* can only remove the submission by resubmitting a null (i.e. leaving the field blank) in the *maximum daily energy limit* field. Submitting a value of zero does not remove the *maximum daily energy limit* and indicates that the *resource* or *resources* registered to the shared *forebay*, or *electricity storage resource* registered to inject, has no *energy* that can be scheduled.

F.7   Revision Restrictions for GOG-eligible Resources

(MR Ch.7 ss.3.3.3.4 – 3.3.3.8, 3.3.3.10 and 3.3.3.12)

IESO tool validation – *Start-up offer*, *speed-no-load offer*, and incremental *energy* and *operating reserve offer* revision restrictions, in accordance with in **MR Ch.7 ss.3.3.3.4 – 3.3.3.8**, **3.3.3.10** and **3.3.3.12**, are validated by the *IESO* tools.

Cancelling of dispatch data that is subject to revision restriction – The cancellation of *dispatch data* does not absolve the revisions restrictions in the *IESO* tool, and applicable revision restrictions continue to apply to resubmissions following the cancellation. For example, *dispatch data* for the next *dispatch day* is cancelled by the *registered market participant*:

1. At 19:59 EST – the last valid submission prior to the cancellation of data are used to apply the revision restrictions at 20:00 EST.

2. After receiving a commitment – the last values accepted by the *IESO* prior to the *IESO* issuing the commitment are used to apply the revision restrictions.

Submissions during the first 30 minutes of the hour – A submission of *dispatch data* for the *pre-dispatch process* is rejected if it is made during the first 30 minutes of the hour and it includes an *offer* price increase for any quantities above the *minimum loading point* or includes an *operating reserve offer* price increase. The rejection is to prevent non-compliance to **MR Ch.7 ss.3.3.3.8**, **3.3.3.10** and **3.3.3.12** as submissions made after the *pre-dispatch process* has initialized and before the commitment results are issued may not comply to the *market rule*.

Second start-up notice – Under certain conditions, a *resource* may receive a second *start-up notice* that supersedes the first *start-up notice* for a *pre-dispatch operational commitment*. In this scenario, the revision restrictions pursuant to **MR Ch.7 ss.3.3.3.8**, **3.3.3.10** and **3.3.3.12** are applied based on the *binding pre-dispatch advisory schedule* associated with the second *start-up notice*.

F.8 Revision Restriction Exceptions and Reason Codes

(MR Ch.7 ss.3.3.3.9.b, 3.3.3.11.b, 3.3.3.11.c, 3.3.3.13.b and 3.3.7.3)

Reason codes – The submission of specific reason codes is used to facilitate the exceptions to revision restrictions in the *IESO* tools pursuant to **MR Ch.7 ss.3.3.3.9.b**, **3.3.3.11.b**, **3.3.3.11.c**, **3.3.3.13.b** and **3.3.7.3**.

- **FO-ST** – Forced Outage on ST reason code must be submitted in the REASON CODE field for exceptions to *energy* and *operating reserve offer* price revision restrictions related to a *forced outage* on a steam turbine of a *pseudo-unit*. The same reason code must also be submitted in the REASON CODE field for exceptions to *single cycle mode* revision restrictions related to a *forced outa*ge on a steam turbine of a *pseudo-unit*.

- **MPM-EORLI** – MPM Energy Offer Reference Level Increase reason code must be submitted in the REASON CODE field for exceptions to *energy offer* price revision restrictions related to *energy offer* reference level increases.

IESO tool validation – The submission of the 'FO-ST' or 'MPM-EORLI' reason codes indicate an exception to the applicable revision restrictions that are validated by the *IESO* tool. A submission that does not include these reason codes and when the revision restrictions are applicable will not pass validation and is automatically rejected. The acceptance and approval of the submission by the *IESO* tool while using these reason codes does not imply compliance to the *market rules*, and the submission may be reviewed by the *IESO*.

— End of Appendix —

List of Acronyms

Acronym	Term
ADE	*availability declaration envelope*
BCP	business continuity plan
CER	Canada Energy Regulator
CT	combustion turbine
DAM	*day-ahead market*
EMI	Energy Market Interface
EPT	Eastern Prevailing Time
EST	Eastern Standard Time
GCAP	generator-backed capacity import
GOG	*generator offer guarantee*
HDR	*hourly demand response*
HQT	Hydro Quebec TransÉnergie
IDC	Interchange Distribution Calculator
IESO	*Independent Electricity System Operator*
LMP	*locational marginal price*
MGBDT	*minimum generation block down-time*
MGBRT	*minimum generation block run-time*
MGC	maximum generator capacity
MLP	*minimum loading point*
MMCP	*maximum market clearing price*
MORP	*maximum operating reserve price*
MOS	Market Operation System
MPI	*Market Participant Interface*
MPM	market power mitigation
MW	megawatt

Acronym	Term
MWh	megawatt hour
MW/min	megawatts per minute
NERC	*North American Electric Reliability Corporation*
NQS	non-quick start
NYISO	New York Independent System Operator
OATI	Open Access Technology International, Inc.
OR	*operating reserve*
PJM	Pennsylvania–New Jersey–Maryland
POD	point of delivery
POR	point of receipt
PRL	*price responsive load*
PSU	*pseudo-unit*
RTEM	Real Time Energy Market
RTM	*real-time market*
SCAP	system-backed capacity import
SE	scheduling entity
SinkCA	sink *control area*
SourceCA	source *control area*
ST	steam turbine
TLR	transmission loading relief
TP	transmission provider

– End of Section –

References

Document ID & Link	Document Title
MDP_RUL_0002	Market Rules for the Ontario Electricity Market
PRO-408	Market Manual 1.5: Market Registration Procedures
MDP_PRO_0030	Market Manual 4.5: Market Suspension and Resumption
IMP_PRO_0035	Market Manual 7.3: Outage Requests
PRO-357	Market Manual 13.1: Capacity Export Requests

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