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Market Manual

Connecting Today.
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Market Manual 7: System Operations

Part 7.3: Outage Management

Issue 3.0
December 3, 2025

This *market manual* outlines the process *market participants* must follow in submitting *outage* requests for *facilities*.

Document Change History

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Related Documents

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MAN-122	Market Manual 7.2: Near-Term Assessments and Reports

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Table of Changes

Reference	Description of Change
Throughout	Removed ‘zero series’ labelling and market transition section.

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 appreviated 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 appreviated 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* in its appended documents that are italicized have the meanings ascribed thereto in **MR Ch.11**;
- data fields are identified in all capitals; and
- references to "Day 0" mean the current day, references to "Day 1" mean the day immediately after the current day, references to "Day 2" mean the day two days after the current day, and so on.

– End of Section –

1 Introduction

1.1 Purpose

This *market manual* is provided for *market participants* as a guide to *outage* management for *facilities* and equipment connected to the *IESO-controlled grid*, or which may affect the operation of the *IESO-controlled grid*. This includes *outages* to *transmission systems* defined as constituting elements of the *IESO-controlled grid* under the *market rules* and various *operating agreements* between the *IESO* and *market participants*.

This *market manual* is intended to provide *market participants* with a summary of the steps and interfaces involved in the *outage* management process. The procedures contained in this document serve as a roadmap for *generation facilities*, *transmitters*, *distributors, electricity storage facilities* and *wholesale customers* that participate in the *IESO-administered markets*, and reflect the requirements set out in the *market rules* and applicable *IESO* policies and standards, as well as standards established by the *North American Electric Reliability Corporation (NERC)* and criteria established by the *Northeast Power Coordinating Council (NPCC)*.

1.2 Scope

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

- MR Ch.1 s.14: Exemptions
- MR Ch.3 s.2: Establishment and Staffing of Market Assessment Unit
- MR Ch.5 s.5.2: Confidentiality
- MR Ch.3 s.6.6.10
- MR Ch.4 s.7.7: Reliability, Maintenance and Repair of Monitoring and Control Equipment
- MR Ch.4 App.4.2: Requirements for Generation and Electricity Storage Facilities Connected to the IESO-Controlled Grid
- MR Ch.5 s.2.5.2
- MR Ch.5 s.3.2.1
- MR Ch.5 s.3.3: Reliability-Related Information
- MR.Ch.5 s.3.4: Obligations of Transmitters
- MR.Ch.5 s.3.5: Obligations of Wholesale Customers

- MR.Ch.5 s.3.6: Obligations of Generators (Embedded and Non-embedded)
- MR.Ch.5 s.3.7: Obligations of Distributors
- MR.Ch.5 s.3.8: Obligations of Electricity Storage Participants (Embedded and Non-embedded)
- MR Ch.5 s.4.9: Auditing and Testing of Ancillary Services
- MR Ch.5 s.4.10: Consequences of Failure to Pass a Test
- MR Ch.5 s.6.1: Outage Coordination – Introduction
- MR Ch.5 s.6.2: Outage Planning
- MR Ch.5 s.6.3: Outage Scheduling with the IESO
- MR Ch.5 s.6.4: Submission of Outage Schedules and IESO Approval of Outage Schedules
- MR Ch.5 s.6.4A: Return of Equipment or Facilities to Service
- MR Ch.5 s.6.5.2
- MR Ch.5 s.6.6: Tests
- MR Ch.5 s.6.7: Compensation
- MR Ch.5 s.7.1: Forecasts Prepared by the IESO
- MR Ch.5 s.7.3: Advance Assessments of System Reliability
- MR Ch.5 s.7.7.7: Advisory Notices
- MR Ch.5 s.10.2.3
- MR Ch.7 s.2.2: Facility and Associated Resources Registration
- MR Ch.7 s.2.3.2
- MR Ch.7 s.3.3.8: Obligation to Revise Dispatch Data
- MR Ch.7 s.3.5.6
- MR Ch.7 s.19.4: Energy Market Participation for Hourly Demand Response Resources
- MR Ch.7 s.19.5: Energy Market Participation for Capacity Dispatchable Load Resources
- MR Ch.7 s.19.7: Energy Market Participation for Capacity Generation Resources
- MR Ch.7 s.19.9.5: Outage Notification Requirements for System-Backed Capacity Import Resources

- MR Ch.7 s.19.9B: Energy Market Participation for Generator-Backed Capacity Import Resources
- MR Ch.7 s.19.11: Energy Market Participation for Capacity Storage Resources
- MR Ch.7 App.7.7 s.1.3: Scheduling & Scheduling Approval

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 Outage Management Overview

(MR Ch.5 ss.6.1 – 6.2; MM 7.4 s.2.3)

Outage state – The *IESO* considers a piece of equipment to be in an *outage* state when it is:

- removed from service;
- in a state other than its normal state;
- unavailable for connection to the system;
- temporarily derated;
- restricted in use; or
- reduced in performance.

De-staffing and auxiliary equipment – This includes de-staffing of a *generation unit* or an *electricity storage unit* during a period when *market participants* do not expect the unit to be scheduled to provide *energy* or *operating reserve*. Auxiliary equipment is also considered to be in an *outage* state when it is not available for use.

2.1 Market Participant Planned Outages

(MR Ch.5 s.6.4.3)

Generator backed capacity import resources – Pursuant to **MR Ch.5 s.6.4.3**, *generator-backed capacity import resources* are required to request permission and receive approval for *planned outages* from the *IESO* when that *outage* impacts the *resource's* ability to provide its *capacity obligation.*

Scope of coordination – *Market participants* with equipment that affects the operation of the *IESO-controlled grid* may not remove equipment or *facilities* from service except in accordance with the rules for *outage* coordination contained in **MR Ch.5 s.6.4.3** and this *market manual*.

Control Room Operations Window – The *IESO's outage* management system uses the Control Room Operations Window (CROW) *outage* coordination and scheduling system. *Market participants* are required to submit information that provides the *IESO* with a better understanding of the priority, scope and impact of the *outage* request as described in section 3.

Processes for advanced approval – *Market participants* must submit their *planned outages* into one of four *advance approval* processes (quarterly, weekly, three-day or one-day) in order to receive *advance approval*. Each process has a

unique set of eligibility criteria and submission/approval deadlines, which are further described in section 3.7.

Processes for notifications and late requests – Forced, urgent, information, and opportunity *outages* are *outages* that *market participants* are unable to submit in accordance with the submission requirements for *planned outages*. However, *market participants* must still submit these types of *outages* to the *IESO* as either a notification pursuant to **MR Ch.5 s.6.3.4** or a late request for *advance approval* pursuant to **MR Ch.5 s.6.4.6** as described in section 3.2.

2.2 IESO Planned IT Outages

(MR Ch.5 ss.3.3 and 7.7.7)

IESO communication – *Market participants* are normally notified about planned Information Technology (IT) *outages* to market-facing tools and applications through weekly bulletin emails. Details of all planned IT *outages* are also posted on the *IESO* Planned IT Outages website. For unforeseen IT *outages*, *market participants* are notified via an advisory notice and/or via a message through the Market Participant Interface.

2.3 Confidentiality

(MR Ch.3 s.5.2; MR Ch.5 s.6.5.2)

Publication – The Adequacy Reports will aggregate *outage* information to protect the confidentiality of *market participants*. All planned *transmission system outages* will be published for information. This may include transmission elements that are not owned by a *transmitter*.

Exchange of information – *Outage* information will only be exchanged with reliability coordinators (RCs) and balancing authorities (BAs) who are signatories to the *NERC confidentiality agreement* or who are otherwise legally bound to withhold and keep confidential *outage* information from any person competing with a *market participant* who provided the information.

Third-party viewership – *Market participants* may choose to share *outage* information with other *market participants* by granting third party viewership of their equipment via Online IESO. A single *outage* request may contain equipment both with and without third party viewership access. In such cases, third party viewers will only see the equipment to which they have access.

– End of Section –

3 Outage Management Information

This section covers the following *outage* management information:

- Criticality Levels of Equipment
- Priority Codes
- Purpose Codes
- Constraint Codes
- Low-Impact Attributes
- Mapping Purpose, Constraint and Priority Codes
- Timelines

3.1 Criticality Levels of Equipment

(MR Ch.5 s.6.4)

Criticality – The level of equipment criticality dictates the *advance approval* timeframe within which a planned *outage* request must be submitted under **MR Ch.5 s.6.4** (refer to Table 3-1). For example, *planned outages* to critical equipment must be submitted at least 17 days prior to the start of the coverage period (under the *Weekly Advance Approval* process), whereas *planned outages* to low-impact equipment must be submitted two days prior to the scheduled date of the *outage* (under the *One-day Advance Approval* process). Section 3.7 describes *advance approval* processes and eligible equipment in further detail.

Online IESO – The *IESO* notifies *market participants* of equipment criticality levels via Online IESO, upon completion of *facility* assessment. When submitting *outage* requests, *market participants* are required to identify the impacted equipment and the *outage* management system will auto-populate the criticality level.

Table 3-1: Criticality Levels of Equipment

Criticality Level	Description	Examples	Advance Approval Submission Timeline
Critical Equipment[1]	Equipment that has a material impact on the *reliability* and/or operability of the *IESO*-	Equipment that impact power system stability limits	• Must be submitted for *weekly advance approval*

[1] Refer to section 3.7.5 for submission timelines for *outage* requests to critical and non-critical equipment with low-impact attributes.

Criticality Level	Description	Examples	Advance Approval Submission Timeline
	controlled grid or the *interconnection* when removed from service or restricted.		• May be submitted for *quarterly advance approval*
Non-critical Equipment[1]	Equipment that does not typically have a material impact on the *reliability* and/or operability of the *IESO-controlled grid* or the *interconnection* when removed from service or restricted.	• Equipment in *local areas* • *Generation facilities* or *electricity storage facilities*	• Must be submitted for *three-day advance approval* • May be submitted for *quarterly advance approval* or *weekly advance approval*
Low-impact Equipment	Equipment that has little to no impact on the *reliability* and/or operability of the *IESO-controlled grid* or the *interconnection* when removed from service or restricted.	• Loads • Duplicated protection relays	• Must be submitted for *one-day advance approval* • May be submitted for *three-day*, *quarterly*, *weekly advance approval*

3.2 Priority Codes

(MR Ch.5 ss.6.2.2A, 6.2.2B, 6.3.4 and 6.4.6)

Coding – Priority codes identify the priority of the *outage* request, as described in Table 3-2. The *IESO* uses this information to determine the level of urgency to implement the *outage* and to prioritize competing *outage* requests. Refer to section 3.2.1 for more information on how the *IESO* determines *outage* priority.

Market participants are required to use one of the following priority codes when submitting their *outage* request.

Note: Priority codes cannot be changed by *market participants* once they have been submitted.

Table 3-2: Priority Codes

Priority Codes	Description	Examples	Obligation to Notify IESO
Forced	Non-discretionary *outages* on equipment that has been automatically or manually removed from service for equipment protection, public safety, environmental concerns or regulatory requirements are classified as *forced outages*. Such *outages* have little to no timing flexibility and have precedence over all priority codes.	Transformer forced out-of-service due to equipment failure	*Market participants* are required, as far in advance as possible, to promptly notify the *IESO* of any *forced outage* (**MR Ch.5 s.6.3.4**).
Urgent	Non-discretionary *outages* on equipment that must be manually removed from service for equipment protection, public safety, environmental concerns or regulatory requirements are classified as urgent *outages*.	SF6 breaker low gas alarm that requires a breaker *outage* for gas top-up within a limited timeframe	*Market participants* are required to coordinate *outage* timing with the *IESO*, where possible, to occur at a date and time that satisfies the *market participant's* need and minimizes the impact to the *IESO-controlled grid*.
Planned	Discretionary *outage* requests that are scheduled to perform preventive maintenance, repairs, inspections, de-staffing and testing for *facilities*/ equipment are classified as *planned outages*.	• *Generation facility* or *electricity storage facility* scheduled maintenance • Breaker trip coil test	*Market participants* must adhere to submission deadlines explained in section 3.7 (**MR Ch.5 ss.6.2.2A** and **6.2.2B**).

Priority Codes	Description	Examples	Obligation to Notify IESO
Opportunity	In cases where *market participants* are presented with an unexpected opportunity to accomplish work that was not previously planned, they may submit an *outage* request with the Opportunity priority code.	• Additional testing is required to expedite the completion of an in-progress *forced outage* to a *generation facility* or *electricity storage facility* • An opportunity to perform maintenance to a that is made grid-incapable by another *outage* • Requests to operate in *segregated mode of operation*	The *IESO* is not obligated to consider such submissions, but may do so where the opportunity presents low to negligible risk to the *reliability* and/or operability of the *IESO-controlled grid* and or to the *IESO.* (**MR Ch.5 s.6.4.6**).
Information	*Outages* that are exempt from submission requirements outlined in Appendix A, but are submitted for informational purposes only, are classified as information *outages*.	• *Generation resource* or *electricity storage resource* unavailable for condense • Switch on manual operation only	No obligation. *Market participants* may, as far in advance as possible, notify the *IESO* of any information *outage*, using their *outage* submission tools.
Force Extended	This code is not available to *market participants* when submitting *outage* requests. However, if the end time of a planned, opportunity, or information *outage* requests get extended their priority code will be updated to forced extended.	Adverse weather conditions delay the completion of a scheduled *outage*	*Market participants* are required to notify the *IESO* of any forced extension as far in advance as possible, using their *outage* submission tools and by telephoning the *IESO*.

3.2.1 Determining Outage Priority

(MR Ch.5 s.6.4.2)

IESO determination – The *IESO* determines priority of *outages* in order to approve, reject, revoke and recall *outages* in a consistent and uniform manner.

Determination criteria – *Outage* priority for approval is based on the criteria listed in section 3.2.2.1.

3.2.1.1 Criteria 1: Priority Code

The priority code of an *outage* request is the primary determinant of *outage* priority. The order of precedence is as follows:

1. Forced
2. Urgent
3. Planned
4. Opportunity

For example, when approving *outages*, an urgent *outage* request gets priority over a planned or opportunity *outage* request.

3.2.1.2 Criteria 2: Advance approval timeframe

Within *planned outages*, the order of precedence is as follows:

1. *Outages* submitted for *quarterly advance approval*
2. *Outages* submitted for *weekly advance approval*
3. *Outages* submitted for *three-day advance approval*
4. *Outages* submitted for *one-day advance approval*

For example, a *planned outage* request submitted for *weekly advance approval* gets priority over a *planned outage* request submitted for *three-day advance approval*. However, an urgent *outage* request submitted five days ahead of the planned start time gets priority over a *planned outage* request submitted under the *weekly advance approval* process.

3.2.1.3 Criteria 3: Priority date

(MR Ch.5 ss.6.4.13 and 6.4.15)

For urgent and opportunity *outages*, the submission date and time determine *outage* priority. The earlier the submission, the higher is the priority of the *outage* request.

For *planned outages* submitted within the same *advance approval* timeframe, the submission date and time determine *outage* priority.

Table 3-3: Outage Approval Example

If…	Then…
The following *outages* are submitted for approval: *Outage* A: Opportunity *outage* submitted three days ahead of the planned start time *Outage* B: Urgent *outage* submitted five days ahead of the planned start time *Outage* C: *Planned outage* submitted for the *Weekly Advance Approval* process *Outage* D: Opportunity *outage* submitted five days ahead of the planned start time *Outage* E: *Planned outage* submitted for the *Three-Day Advance Approval* process	*Outage* priority will be as follows: 1. Outage B 2. Outage C 3. Outage E 4. Outage D 5. Outage A

Rejection and revocation – To determine priority when rejecting, revoking *advance approval* or recalling *outages*, the *IESO* shall follow the reverse order of the criteria listed above (**MR Ch.5 s.6.4.13**). Where an *outage* conflict exists and one or more conflicting *outages* are rejected or revoked, the *IESO* may facilitate communication between the parties.

Table 3-4: Outage Rejection Example

If…	Then…
The *IESO* determines a need to reject the following submitted *outage* requests: Outage A: Opportunity *outage* submitted three days ahead of the planned start time Outage B: Urgent *outage* submitted five days ahead of the planned start time Outage C: *Planned outage* submitted for the *Weekly Advance Approval* process Outage D: Opportunity *outage* submitted five days ahead of the planned start time Outage E: *Planned outage* submitted for the *Three-Day Advance Approval* process	*Outages* will be rejected in the following order: 1. Outage A 2. Outage D 3. Outage E 4. Outage C 5. Outage B

Significant changes – If *market participants* make a significant change to the scope or time window of a previously submitted *outage* request, the *IESO* shall

revise the priority date with the time at which such change notice was received by the *IESO*. Changes to the following *outage* request fields are considered to be significant changes:

- Planned Start (if changed to an earlier *outage* period level[2] start date/time)
- Planned End (if changed to a later *outage* period level[2] end date/time)
- Equipment Requested (if equipment is added or removed)
- Equipment Description
- Priority Code
- Constraint Information (if change in constraint code, value, and/or measure unit)
- Changes to any responses to low-impact questions (refer to section 3.5 for details)
- Change to the response to the Telemetry Scaling Impact question

Shortening max recall time – In cases where *market participants* wish to shorten the max recall time, they must verbally request the *IESO* to retain the original *outage* priority.

3.3 Purpose Codes

(MR Ch.5 ss.6.2.2A, 6.2.2B, 6.3.4 and 6.4.6)

Coding – Purpose Codes allow *market participants* to indicate the reason for the *outage* request (refer to Table 3-5). This information is used by the *IESO* to determine the impact and purpose of the *outage* request. For example, an *outage* request submitted for a safety concern informs the *IESO* of the *market participant*'s urgent need compared to an *outage* request to conduct maintenance/repair testing which can be planned in advance.

Requirement to select – *Market participants* are required to select one of the following Purpose Codes when submitting their *outage* request and input a description of the *outage's* purpose in the *outage* management system.

Availability – Selection of Purpose Codes is based on the Priority Code. For example, 'Equipment Concern' code is available only if the *market participant* is submitting a *forced outage* or urgent *outage*. Similarly, the 'Repair' code is available only for *planned outages.* Refer to section 3.6 for a mapping of Purpose and Priority Codes.

[2] *Outage* period level date/time refers to the date/times of the individual *outage* periods on the Details tab, not limited to the overall *outage* date/times.

Table 3-5: Purpose Codes

Purpose Code	Description	Example
Maintenance Repair	*Outages* implemented to facilitate routine equipment maintenance and repair.	Annual transformer maintenance
Replacement	*Outages* implemented to replace aging or faulty equipment/*facilities*. In such cases, *market participants* must ensure the replacement is registered with the *IESO* as per **MM 1.5**. The *outage* to replace the equipment/*facility* is typically followed by a need to carry out a commissioning *outage* as explained below.	Breaker replacement
Commissioning	*Outages* implemented to test new or modified equipment/*facilities* being connected to the *IESO-controlled grid* for the first time.	Commissioning of new *generation facility* or *electricity storage facility*
Testing	*Outages* implemented to facilitate testing of equipment/*facilities* not considered to be commissioning tests or activities.	*Generation facility minimum loading point* testing
Equipment/Safety/ Regulatory/ Environmental Concerns	*Outages* implemented for non-discretionary purposes such as public safety, equipment protection, environmental concerns or regulatory requirements.	*Generation facility* derate due to restrictive *forebay* operating ranges
Favourable (Generation/ Electricity Storage/ Transmission) Outage Condition/Favourable *Adequacy* Margin/ Expedite Return to Service	*Outages* having low to negligible risk to the *reliability* of the *IESO-controlled grid* and are implemented to accomplish work that would have otherwise been unable to proceed. **Note**: *Market participants* may select this code, however the *IESO* will assess and determine the *outage's* impact on the *IESO-controlled grid*.	Transformer feeder *outage* during existing *outage* to connecting circuit
Manually/Automatically Removed From Service	Unforeseen *outages* that result in manual or automatic removal of equipment/*facilities* from service.	Unit trip from neutral overcurrent
Failed to Synch	Unforeseen *outages* resulting from a failure to synchronize *generation units* or *electricity storage equipment/facilities units* to the *IESO-controlled grid*.	Unit breaker failed to synch

Purpose Code	Description	Example
Segregated Mode of Operation	*Outage* to indicate generation or transmission equipment/*facilities* being disconnected from the *IESO-controlled grid* and connected to an external system, e.g. Quebec.	*Generation facility* connected to Quebec
Cyber Asset Change/ Relay Setting Change	*Outages* to indicate hardware/software changes for RTUs, gateways, routers, protection relays etc. intended to separate such requests from other general *planned outages.*	Software changes for RTU
Transmission Equipment Derating	*Outages* to indicate that a piece of transmission equipment is operating at a reduced equipment rating.	Transformer derating for degraded cooling
Switching	Short duration *outage* required to support the removal of equipment for a separate *outage* request.	Circuit terminals required for 15 minutes to switch circuit out of service
Telco Third Party Threat	Telecommunication *outages* requested of Hydro One by a third party telecom provider	Third party company to perform protection and control maintenance of Access Multiplexer
Self-Bottling	*Outages* implemented to indicate that a *variable generation resource* is operating to a reduced maximum generation output due to constraints resulting from transmission element *outages* within the *resource's facility*. **Note:** This is to ensure that the centralized forecast predicts output of the station proportionate to their available capacity but capped at a derated maximum, rather than proportionate to their derated maximum as would be the case with a normal derate *outage* request.	100 MVA *variable generation resource* normally connected to two 50 MVA transformers, but one transformer is out-of-service
Icing	*Outages* implemented to indicate reduced generation capacity due to icing conditions.	Ice on wind turbines

Purpose Code	Description	Example
Other	*Market participants* may use this purpose code for *outages* being requested for any reason other than those listed above.	*Generation resource* or *electricity storage resource* unavailable for Generation Rejection

3.4 Constraint Codes

(MR Ch.5 ss.6.2.2A, 6.2.2B, 6.3.4 and 6.4.6)

Coding – Constraint codes identify the status of the equipment when the *outage* is under implementation. This information is used to determine the limitations on the equipment to determine the impact of the *outage* request on the *IESO-controlled grid*. For example, an 'In-Service' code indicates the equipment is available and functional, whereas an 'Out-of-Service' code indicates the equipment will be unavailable for the duration of the *outage*.

Equipment type – Appendix B lists applicable constraint codes based on equipment type.

Requirement to select – *Market participants* are required to use one of the following constraint codes when submitting their *outage* request.

Availability – Selection of constraint codes is based on the priority code. For example, INFO and ABNO codes are only available for information *outages*. Refer to section 3.6 for a mapping of purpose and priority codes.

Table 3-6: Constraint Codes

Constraint Code	Description	Examples
Out of Service (OOS)	Equipment is unavailable and removed from service.	Breaker out-of-service
In Service (IS)	Equipment is available and in-service.	Normally open switch required in-service
Derated To (DRATE)	Equipment cannot operate above a specified capability that is less than its rated capability.	*Generation resource* or *electricity storage resource* derated to 50 MW
Must Run At[3] (MUSTRUN)	Equipment can only operate at a specified capability that is less than or equal to its rated capability.	*Generation resource* or *electricity storage resource* must run at 50 MW

[3] While the 'Must Run At' and the 'Derated To' codes represent different limitations, the downstream software process at the *IESO*'s end will consider both values to mean the maximum capability for the duration of the *outage* request.

Constraint Code	Description	Examples
Hold Off (HOLDOFF)	Equipment has its reclosing capability blocked.	Circuit hold off
Protection Out of Service (PROT OOS)[4]	Equipment's primary or back-up protection is unavailable in some capacity.	Circuit's B Protection out-of-service
Breaker Fail Protection Out of Service (BF PROT OOS)[4]	A breaker's backup protection is unavailable in some capacity.	Breaker Fail Protection for Breaker A out of service
Automatic Voltage Regulation or Power System Stabilizer Out of Service (*AVR*/PSS OOS)[4]	*Generation facility*'s or, if applicable, *electricity storage facility's AVR* or PSS is unavailable in some capacity.	*Generation facility o*r *electricity storage facility AVR* out-of-service
Breaker Trip Coil Test (BTCT)	Breaker is undergoing a protection relay-initiated test operation.	Breaker trip coil test for Breaker A
Ancillary Service Out of Service (ASP OOS)[4]	Equipment's ability to provide a contracted *ancillary service* is restricted in some capacity.	*Generation resource* or *electricity storage resource* unavailable for black start, *regulation* or *voltage control*
Information (INFO)	Equipment has a condition or limitation that does not require approval from *IESO*.	• *Generation resource* unavailable for condense • Derated *dispatchable loads* with a *demand response capacity obligation*
Available But Not Operating (ABNO)	Mechanism for *generation facilities* and *electricity storage facilities* to report they do not expect to participate in the market.	• *Generation resource* or *electricity storage resource* off-peak demand • *Generation facility* or *electricity storage unit* de-staffing

[4] *Market participants* are required to input a description of the equipment when using this constraint code.

3.5 Low-Impact Attributes

(MR Ch.5 ss.6.2.2A, 6.2.2B, 6.3.4 and 6.4.6)

Requirement to answer – During *outage* request submission, *market participants* are required to answer certain questions to determine if their *outage* contains low-impact attributes, thereby making the equipment eligible for *one-day advance approval*, auto *advance approval* and/or final approval in advance (further explained in sections 3.7.5, 3.7.6 and 3.7.7, respectively). Low-impact attributes are used by the *IESO* to further define the scope and impact of the requested equipment.

Additional provisions – Refer to Appendix C for a list of attributes and applicability.

> For example: A *market participant* submitting an *outage* request for line protection out-of-service will need to specify whether it is only a loss of redundancy. If they answer "Yes", the equipment is considered to have low-impact attributes.

3.5.1 Submission Timelines

(MR Ch.5 ss.6.2.2A, 6.2.2B, 6.3.4 and 6.4.6)

Timelines – The following are the submission timelines for *outages* on equipment with low-impact attributes:

- must be submitted for *one-day advance approval*;
- may be submitted for *quarterly*, *weekly* or *three-day advance approval*; and
- may be eligible for auto *advance approval* and/or final approval in advance

3.6 Mapping Purpose, Constraint and Priority Codes

(MR Ch.5 ss.6.2.2A, 6.2.2B, 6.3.4 and 6.4.6)

Coding – Each priority code applies to a set of purpose and constraint codes. Table 3-7 presents a mapping of all codes.

Table 3-7: Mapping of Purpose, Constraint and Priority Codes

Priority Code	Purpose Codes	Constraint Codes
Planned	• Commissioning • Cyber Asset Change • Maintenance • Other • Relay Setting Change • Repair	All except INFO and ABNO

Priority Code	Purpose Codes	Constraint Codes
	• Replacement • *Segregated Mode of Operation* • Switching • Telco Third Party Threat • Testing	
	• Self-Bottling	DRATE
Urgent	• Environmental Concerns • Equipment Concerns • Other • Regulatory Concerns • Safety Concerns • Switching • Telco Third Party Threat	All except INFO and ABNO
	• Wind Turbine Icing Event • Self-Bottling	DRATE
Opportunity	• Commissioning • Expedite Return to Service • Favourable Adequacy Margin • Favourable Generation *Outage*/Electricity Storage Condition • Favourable Transmission *Outage* Condition • Other • *Segregated Mode of Operation* • Switching • Testing	All except INFO and ABNO
	• Self-Bottling	DRATE
Information	• Other • Transmission Equipment Derating	• INFO • ABNO
Forced	• Automatically Removed From Service • Environmental Concerns • Equipment Concerns • Failed to Synch • Manually Removed From Service • Other • Regulatory Concerns • Safety Concerns	All except INFO and ABNO

Priority Code	Purpose Codes	Constraint Codes
	• Wind Turbine Icing Event • Self-Bottling	DRATE

3.7 Timelines

3.7.1 General Requirements

(MR Ch.5 ss.6.2.2A, 6.3.4 and 6.4.6)

Time frames – *Market participants* may request *quarterly*, *weekly*, *three-day* or *one-day advance approval* for their *planned outages* (**MR Ch.5 s.6.2.2A**). This section explains the submission and assessment periods for each *advance approval* timeframe. Eligibility for *advance approval* is determined by equipment criticality, as explained in section 3.1.

Study and coverage periods – Each *advance approval* process is associated with distinct submission, study and coverage periods. For the purposes of *outage* submission guidelines described in this document:

- **Study period** refers to the period when the *IESO* assesses *planned outage* requests submitted for the associated *advance approval* process. The *IESO* will notify *market participants* of its assessment by the end of the study period.
- **Coverage period** refers to the implementation period for *outages* that receive *advance approval* within the associated study period.

Submission prior to relevant study period – *Market participants* must submit *outage* requests before the start of the associated study period, in order to receive *advance approval* for implementation during the associated coverage period.

Forced outages – *Market participants* must submit *forced outage* notifications when they occur and these will be addressed by the *IESO* immediately.

Urgent requests – *Market participants* may submit urgent *outage* requests at any time. The *IESO* will study such requests as soon as possible.

Market participants may submit opportunity *outage* requests at any time. Such requests are considered late *planned outage* requests. The *IESO* is not obligated to consider such submissions, but may do so where the opportunity presents (**MR Ch.5 s.6.4.6**).

Information outages – *Market participants* may submit information *outage* requests at any time. The *IESO* will use reasonable efforts to study such requests.

Table 3-8: Advance Approval Timelines and Eligibility

Advance Approval Process[5]	Submission Requirement (Prior to Start of Coverage Period)	Approval Deadline (Prior to Start of Coverage Period)	Eligible Equipment
Quarterly	3 months prior	1 month prior	All equipment types may be submitted
Weekly	17 days prior	10 days prior	• Critical equipment must be submitted • Non-critical and low-impact equipment may be submitted
3-Day	5 *business days* prior	3 *business days* prior	• Non-critical equipment must be submitted • Low-impact equipment may be submitted
1-Day	2 *business days* prior	1 *business day* prior	• Low-impact equipment must be submitted • Critical and non-critical equipment with low-impact attributes must be submitted

3.7.1.1 Submission Timelines for Outages Supporting External Reliability Coordinators

(MR Ch.5 ss.6.2.2A and 6.4.6)

Process for submission – *Market participants* may be required to conduct *outages* to support work planned by external reliability coordinators. In cases where *market participants* are unable to submit such *outage* requests for *advance approval* within the deadlines for *planned outages*, they are required to submit such *outages* with an 'Urgent' priority code and refer to the reliability coordinator work request in the 'Purpose Description' field in the *outage* management system. The *IESO* will consider it as a *planned outage* when determining priority. Refer to section 3.2.1 for details on determining *outage* priority.

Note: The *IESO*'s obligation to assess such *outage* requests is based on the *interconnection agreement* with the external reliability coordinator.

[5] Refer to section 3.7.5 for submission timelines for *outage* requests to critical and non-critical equipment with low-impact attributes

3.7.2 Quarterly Advance Approval Process

(MR Ch.5 ss. 6.2.2A, 6.4.1B and 6.4.20)

Application – The *IESO* facilitates long-term planning by offering *market participants* the option to receive approval for all *planned outages* up to eight months prior to the scheduled start time via the *Quarterly Advance Approval* process.

Priority – *Outages* submitted within this process get the highest priority compared to *planned outages* submitted under other timeframes, thus granting greater certainty to *market participants*. Refer to section 3.2.1 for details on determining *outage* priority.

> If an *outage* request is submitted for the *Quarterly Advance Approval* process after the submission deadline, the *outage* management system will automatically place the *outage* for assessment under the next *Quarterly*, *Weekly*, *Three-Day* or *One-Day Advance Approval* process, as eligible, based on equipment criticality, 'Request Weekly AA' flag and planned start time.

Study and coverage periods – The study and coverage periods for the *Quarterly Advance Approval* process are as shown in Figure 3-1.

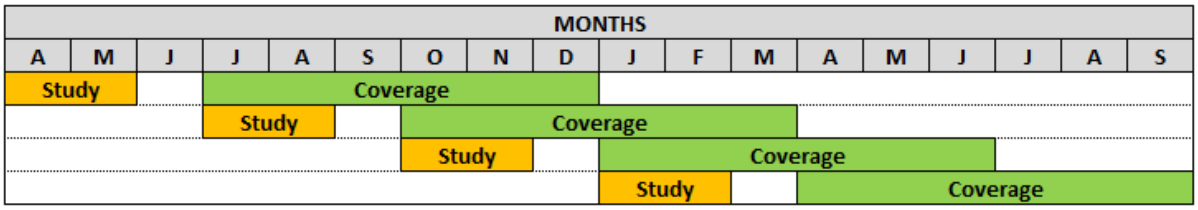

Figure 3-1: Quarterly Advance Approval Timeline

Study period for the *Quarterly Advance Approval* process begins at 00:00:00 EST on the first day of the period month and ends at 23:59:59 EST on the last day of the period month as shown in Figure 3-1. Coverage period for the *Quarterly Advance Approval* process begins 00:00:00 EST on the first day of the period month and ends at 23:59:59 EST on the last day of the period month as shown in Figure 3-1.

Note: The timelines for submission and assessment are inclusive of statutory holidays in Ontario and Saturdays and Sundays (Saturdays and Sundays hereafter referred to as weekend days).

IESO response – By the end of the study period, the *IESO* will either:

- provide *advance approval*, or
- place the *outage* request in the 'At Risk' status

Resubmission – *Market participants* may choose to resubmit an *outage* placed in the 'At Risk' status at the end of a quarterly study period. Resubmitted *outage* requests will retain the priority date of the original *outage* request if:

- the original *outage* was scheduled to begin in the first three months of the current coverage period; and
- it is resubmitted before the next study period; and
- the resubmitted *outage* is scheduled to begin during the corresponding six-month coverage period.

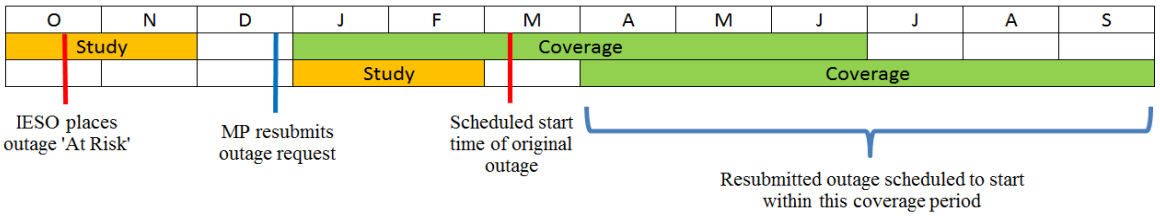

Figure 3-2: Criteria for 'At Risk' Outage Retaining Original Priority

IESO assessment – The *IESO* will reassess *outages* placed in the 'At Risk' status at the end of the Quarterly study period during the next *Quarterly*, *Weekly*, or *Three-Day Advance Approval* process, as applicable based on equipment criticality and the status of the 'Request Weekly AA' flag.

Example A:

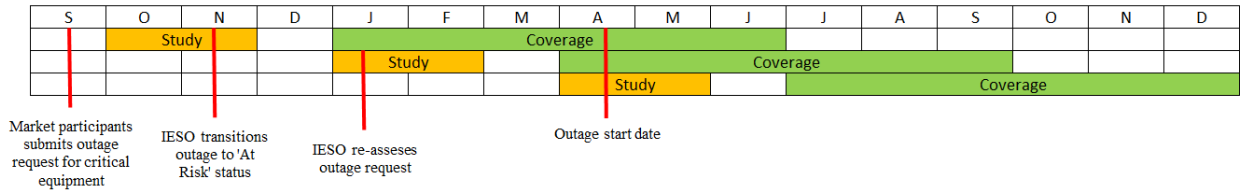

Figure 3-3: 'At Risk' Outage Reassessment – Example A

Example – In the above figure, the *market participant* submits a request in September for an *outage* to critical equipment beginning in April of the following calendar year. The *IESO* studies the request during the October-November study period and transitions the *outage* to 'At Risk' status.

January-February study period – The *IESO* will reassess the request during the January-February study period for *quarterly advance approval*.

If…	Then…
The *IESO* transitions the request to 'At Risk' status during the January-February study period	The *outage* will be reassessed in the next *Weekly Advance Approval* process

Example B:

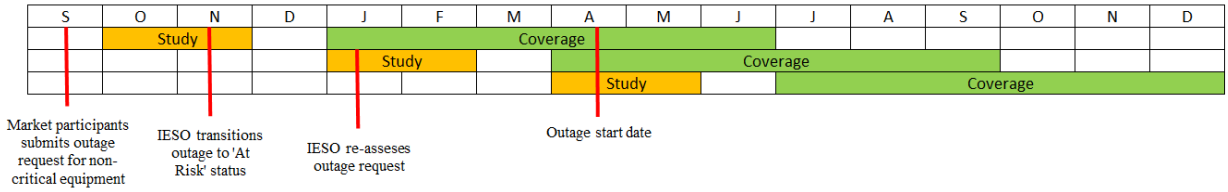

Figure 3-4: 'At Risk' Outage Reassessment – Example B

Example – Using the same timelines as Example A, the *market participant* submits an *outage* request for non-critical equipment for *quarterly advance approval*. If the *IESO* transitions it to 'At Risk' status during the October-November and the January-February study periods, the *outage* will be reassessed during the next *Three-Day Advance Approval* process.

If…	Then…
The *outage* request has the 'Request Weekly AA' flag	The *IESO* will reassess the request in the next *Weekly Advance Approval* process following the February study period

3.7.3 Weekly Advance Approval Process

(MR Ch.5 ss.6.2.2A, 6.4.1C and 6.4.9)

Application – *Planned outage* requests for critical equipment must be submitted for *Weekly Advance Approval*. *Market participants* may also submit *planned outage* requests containing only non-critical or low-impact equipment under this process by selecting the "Request Weekly AA" flag in the *outage* management system.

Priority – *Outages* submitted within this process get a higher priority compared to *planned outages* submitted under three-day and one-day time frames, thus granting greater certainty to *market participants* for *outages* to non-critical or low-impact equipment (that are required to be submitted within the three-day and one-day processes respectively). Refer to section 3.2.1 for details on determining *outage* priority.

> As explained in section 3.1, the criticality of equipment will be auto-populated in the *outage* management system during *outage* submission. If *outages* to critical equipment are not submitted within the *Weekly Advance Approval* process, the tool's auto-validation feature will not allow the *outage* submission to be completed.

Mandatory and optional requests considered together – The *IESO* will also study *outages* with critical equipment and non-critical or low impact equipment with

the "Request Weekly AA" flag placed in the 'At Risk' status from the *Quarterly Advance Approval* process during this time.

Study and coverage periods – The study and coverage periods for the *Weekly Advance Approval* process are as shown in Figure 3-5.

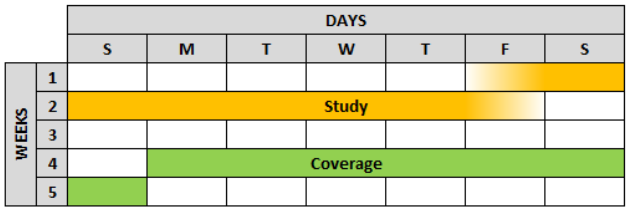

Figure 3-5: Weekly Advance Approval Timeline

Study period for the *Weekly Advance Approval* process begins at 16:00:00 EST on Friday and ends at 15:59:59 EST on the following Friday as shown in Figure 3-5. Coverage period for the *Weekly Advance Approval* process begins 00:00:00 EST on Monday and ends at 23:59:59 EST on the following Sunday as shown in Figure 3-5.

Note: The timelines for submission and assessment are inclusive of statutory holidays in Ontario and weekend days.

Example – For example, if the *outage* is scheduled to start on a Monday, the request must be submitted at least 17 days prior to the start of the *outage*. If the *outage* is scheduled to start on a Friday, the request must be submitted at least 21 days prior to the start of the *outage*.

IESO response – By the end of the study period, the *IESO* will either:

- provide a *Weekly Advance Approval*; or
- reject the *outage* request

Note: *Outage* requests rejected during the *Weekly Advance Approval* process will not be reassessed by the *IESO*. *Market participants* may resubmit rejected *outages* as new requests.

Revocation – At this stage, the *IESO*, based on significant changes in system conditions such as *forced outages* and changes to Ontario *demand* forecast, may also revoke *quarterly advance approvals* if implementation of the *outage* will impact the *reliability* of the *IESO-controlled grid*.

3.7.4 Three-Day Advance Approval Process

(MR Ch.5 ss.6.2.2A, 6.4.1D and 6.4.9)

Application – *Planned outage* requests for non-critical equipment must be submitted for *three-day advance approval*.

Optional requests – *Market participants* may also submit *planned outage* requests containing only low-impact equipment under this process. *Outages* submitted within

this process get a higher priority compared to *planned outages* submitted under one-day timeframe, thus granting greater certainty to *market participants* for *outages* to low-impact equipment (that are required to be submitted within the one-day process). Refer to section 3.2.1 for details on determining *outage* priority.

Other requests considered – The *IESO* will also study *outages* with non-critical equipment placed in the 'At Risk' status from the *Quarterly Advance Approval* process during this time.

Study and coverage periods – This process repeats daily on *business days* with study and coverage periods as shown in Figure 3-6.

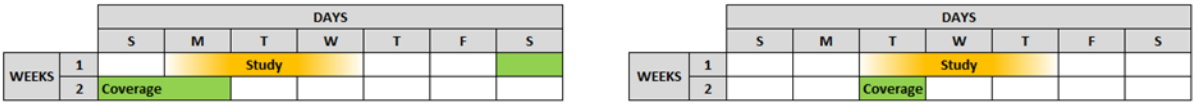

Figure 3-6: Three-Day Advance Approval Timeline

Note: In Figure 3-6, the timeline on the left illustrates a coverage period that falls on a weekend, and the timeline on the right illustrates a coverage period that falls on a weekday.

Study period for the *Three-Day Advance Approval* process begins at 16:00:00 EST on *business days* and ends at 15:59:59 EST, two *business days* later as shown in Figure 3-6. Coverage period for the *Three-Day Advance Approval* process begins 00:00:00 EST on the fifth *business day*[6] after the beginning of the study period, and ends at 23:59:59 EST on the same *business day*, as shown in Figure 3-6.

IESO response – By the end of the study period, the *IESO* will either:

- provide an *advance approval*; or
- reject the *outage* request.

Note: *Outage* requests rejected during the *Three-Day Advance Approval* process will not be reassessed by the *IESO*. *Market participants* may resubmit rejected *outages* as new requests.

Revocation – At this stage, the *IESO* may also revoke *quarterly* and *weekly advance approvals* if implementation of the *outage* will impact the *reliability* and/or operability of the *IESO-controlled grid*.

3.7.5 One-Day Advance Approval Process

(MR Ch.5 s.6.4.9)

Application – *Planned outage* requests containing only low-impact equipment must be submitted for *one-day advance approval*. *Market participants* may also

[6] Statutory holidays and weekend days that precede a *business day* are included in that *business day* (i.e. Saturday, Sunday and Monday equal one *business day*).

submit *planned outage* requests containing critical and non-critical equipment with low-impact attributes under this process, if eligible. Appendix C lists eligibility criteria for *one-day advance approval*.

This provides additional flexibility to *market participants* who are otherwise required to submit *outages* to critical and non-critical equipment in the *Weekly* and *Three-Day Advance Approval* processes, respectively.

Eligibility – Refer to Appendix C for a list of eligibility criteria for *One-Day Advance Approval*.

Table 3-9: One-Day Advance Approval Eligibility Example

If…	Then…
A *market participant* submits an *outage* request, less than five *business days* prior to the scheduled start time, to a *generation resource* or an *electricity storage resource* with a '*Automatic Voltage Regulation* or Power System Stabilizer Out of Service (*AVR*/PSS OOS)' constraint code and answers "Yes" to the "Only a Loss of Redundancy" question	The *outage* will be eligible for *one-day advance approval*.

Study and coverage periods – The *One-Day Advance Approval* process repeats daily with study and coverage periods as displayed in Figure 3-7.

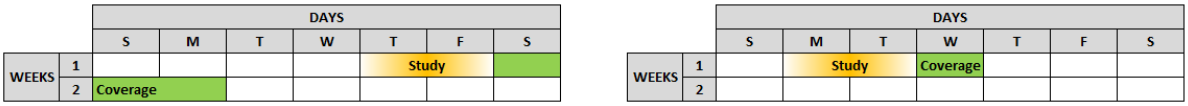

Figure 3-7: One-Day Advance Approval Timeline

Note: In Figure 3-7, the timeline on the left illustrates a coverage period that falls on a weekend, and the timeline on the right illustrates a coverage period that falls on a weekday.

Study period for the *One-Day Advance Approval* process begins at 10:00:00 EST on *business days* and ends at 07:59:59 EST one *business day* later, as displayed in Figure 3-7.

Coverage period for the *One-Day Advance Approval* process begins 00:00:00 EST on the second *business day*[7] after the beginning of the study period and ends at 23:59:59 EST on the same *business day*, as displayed in Figure 3-7.

[7] Statutory holidays and weekend days that precede a *business day* are included in that *business day* (i.e. Saturday, Sunday and Monday equal one *business day*).

IESO response – By the end of the study period, the *IESO* will either:

- provide an *advance approval*; or
- reject the *outage* request.

Revocation – At this stage, the *IESO* may also revoke *quarterly*, *weekly* and *three-day advance approvals* if implementation of the *outage* will impact the *reliability* and/or operability of the *IESO-controlled grid*.

3.7.6 Auto Advance Approvals

Application – *Outage* requests for low-impact equipment or equipment containing low-impact attributes may be eligible for auto *advance approval* (Auto AA) when submitted via the *outage* management system.

Eligibility assessment – *Market participants* are required to answer certain questions to determine their eligibility for Auto AA. Appendix C, Table C-1, Column D lists the questions that will be asked to *market participants* during *outage* request submission to determine eligibility for Auto AA. Based on the answers provided by *market participants*, the tool will establish eligibility for and grant Auto AA. The tool will also check that there are no conflicting *outages*, as explained in section 4.2.3.

Exclusions – The *IESO* also has the ability to mark equipment for exclusion from the Auto AA process. For example, breaker failure protection *outage* to a critical breaker could be excluded from Auto AA despite correctly responding to the low-impact questions outlined in Appendix C.

Priority – Priority for *outages* that are granted Auto AA will be based on the time of submission and *advance approval* process they would have been manually studied in by the *IESO*. This ensures the priority is aligned with the *IESO's* manual assessment of the *outage*.

Example – For example, if an *outage* request with non-critical equipment was submitted and auto-approved within the quarterly process it would have a *quarterly advance approval* priority. However, if the same *outage* request was submitted and auto-approved after the quarterly submission deadline, it would have a *three-day advance approval* priority, based on equipment criticality and submission timeframe.

Going back to the example stated in section 3.7.5, the *outage* request for the *generation resource* or, if applicable, *electricity storage resource,* is deemed eligible for *one-day advance approval*.

Table 3-10: Auto Advance Approval Example

If…	Then…
A *market participant* submits an *outage* request, **less than five days** prior to the scheduled start time, to a *generation resource* or *electricity storage resource* with a 'Automatic Voltage Regulation or Power System Stabilizer Out of Service (AVR/PSS OOS)' constraint code, and The *market participant* answers the low-impact question as follows: Only a Loss of Redundancy? = YES	The *outage* will be granted Auto AA with a *one-day advance approval* priority
A *market participant* submits an *outage* request, **18 days prior** to the scheduled start time, to a *generation resource* or *electricity storage resource* with a 'Automatic Voltage Regulation or Power System Stabilizer Out of Service (AVR/PSS OOS)' constraint code, and The *market participant* answers the low-impact question as follows: Only a Loss of Redundancy? = YES	The outage will be granted Auto AA with a *weekly advance approval* priority

Manual assessment – The tool offers certainty to *market participants* by way of the automated approval, however *outage* priority will be based on manual assessment.

3.7.7 Final Approval in Advance

Application and eligibility assessment – A subset of *outages* for low-impact equipment or equipment containing low-impact attributes that are deemed eligible for Auto AA may receive final approval in advance (FAA). The *IESO* determines eligibility for FAA based on the impact to the *IESO-controlled grid*, on a case by case basis. Refer to Appendix C for criteria used to grant FAA.

Confirmation – The *outage* management system will transition the *outage* request to 'Auto AA' status and display a flag for *market participants* to confirm the *outage* request is eligible for FAA. On the day of the *outage*, the tool will automatically transition the *outage* to 'Final Approved' status.

Table 3-11: Final Approval in Advance Example

If…	Then…
A *market participant* submits an *outage* request, five days prior to the scheduled start time, to a *generation resource* or *electricity storage resource* with a 'Protection Out of Service (PROT OOS)' constraint code and provides the following answer to the low-impact question: • "Only a Loss of Redundancy?" = **YES** and • Max Recall is ≤ 15 minutes	The *outage* will be transitioned to 'Auto AA' status and a flag will be displayed to confirm the *outage* is eligible for FAA. On the day of the *outage*, the *outage* request will be automatically transitioned to 'Final Approved' status. The *market participant* is not required to request final approval to implement the *outage.*

No final approve request needed – *Market participants* who have received FAA for their *outages* are not required to request final approval in order to implement the *outage*.

Revocation – The *IESO* may revoke the FAA of an *outage* request if it impacts the *reliability* and/or operability of the *IESO-controlled grid* and notify the *market participant*. In such cases, the *market participant* must verbally request final approval to commence the *outage* by telephoning the *IESO*.

Already scheduled out-of-service – *Outage* requests submitted for equipment that is already scheduled out-of-service under a single, *planned outage* request with an 'Out-of-Service (OOS)' constraint code will be eligible for FAA provided the new *outage* request:

- contains the same or a subset of the equipment scheduled out-of-service;
- has an overall and period level planned start and end date that is the same, or within the same time period, as the existing *outage* request; and
- has been manually selected by the *IESO* to be eligible for FAA.

3.7.8 Submission Deadlines

Timelines – Table 3-12 displays *outage* submission and *IESO* review timelines.

Table 3-12: Outage Submission and IESO Review Timeline

Timeline	Action
At least **three (3) months** prior to coverage period start	Submit *outage* requests for *quarterly advance approval*

Timeline	Action
One (1) month prior to coverage period start	*IESO* approves or transitions the *outage* into At-Risk status for the quarterly period
By **16:00 EST** at least **17 days** prior to coverage period start	Submit *outage* requests for *weekly advance approval*
By 16:00 EST **One (1) week** prior to coverage period start	*IESO* approves or rejects the request for Weekly *Advance Approval*.
By 16:00 EST **Five (5) *business days*** prior to coverage period start	Submit *outage* request for *three-day advance approval*
By 16:00 EST **Three (3) *business days*** prior to coverage period start	*IESO* approves or rejects the request for *three-day advance approval*
By 10:00 EST **Two (2) *business days*** prior to coverage period start	Submit *outage* request for *one-day advance approval*
By 08:00 EST **One (1) *business day*** prior to coverage period start	*IESO* approves or rejects the request for *one-day advance approval*
Just prior to *outage* start	Request final approval to begin *outage* (Not applicable for *outages* that receive final approval in advance) *IESO* provides final approval or revokes *advance approval*
After *IESO* provides final approval	Implement *outage*

– End of Section –

4 Outage Management Procedures

4.1 Facility Registration

(MR Ch.1 s.14; MR Ch.5 ss.3.4.1, 3.5.1, 3.6.1, 3.7.1 and 3.8.1)

Information requirements – *Market participants* are required to submit information regarding new or changes to existing *facilities* and equipment to the *IESO* via the online registration process outlined in **MM 1.5**.

IESO assessment – The *IESO* will assess the submitted information to determine whether the equipment affects the operation of the *IESO-controlled grid* and communicate its assessment to *market participants* via Online IESO. *Market participants* are notified of their equipment's criticality level at this point. Changes to the *IESO-controlled grid* or system operating limits may require the *IESO* to review and update criticality levels of equipment.

Outage reporting – *Market participants* whose *facilities* or equipment are determined to impact the *IESO-controlled grid's reliability* will be required to report *outages* to the *IESO*. Refer to Appendix A for the detailed criteria that the *IESO* uses to assess *outage*-reporting requirements. *Outages* to system auxiliaries associated with this equipment must also be reported as identified in Appendix A.

Exemptions – *Market participants* may submit a *market rule exemption application* according to the process outlined in the **MM 2.2** procedure to apply for *facility* equipment to be entirely or partially exempted. Requests for *exemptions* from *outage* reporting are assessed by the *IESO* on a case-by-case basis as specified in **MR Ch.1 s.14**. Assessments are communicated to *market participants* via Online IESO.

Control centres – *Market participants* may also register one or more *control centres* via the online registration process to represent the location of their real-time operations. This facilitates the submission of *outages* that are not associated to a particular station (e.g. SCADA systems).

4.2 Outage Coordination

(MR Ch.5 ss.6.1.1 and 6.1.3)

Role of IESO – The *IESO* facilitates the *outage* coordination process for *market participants* by providing the following:

- identifying undesirable situations – refer to section 4.2.1;
- *outage* planning guidelines – confidential reports published by the *IESO* and embedded in the *outage* management system;

- conflicting constraint codes – embedded in the *outage* management system;
- conflict checking feature – embedded in the *outage* management system;
- *outage* coordination for capacity exports;
- *outage* coordination for *generator-backed capacity import resources*; and
- *IESO* Reports – public reports published by the *IESO.*

4.2.1 Undesirable Situations

(MR Ch.5 ss.6.1.1 and 6.1.3)

Criteria – When assessing *outage* requests, the *IESO* will use the following general criteria to identify any undesirable situations the *outage* request may result in:

- negative impacts on the *reliability* (*security* and/or *adequacy*) and/or operability of the *IESO-controlled grid*; or
- capacity and *energy* shortfalls; or
- material impact on the operation of the *IESO-administered markets*.

Repositioning – *Market participants* may request to reposition their scheduled *outages* based on their priority date, to avoid these undesirable situations.

4.2.2 Outage Planning Guidelines

(MR Ch.5 ss.6.1.1 and 6.1.3)

Purpose – The *IESO* will issue confidential *outage* planning guidelines to facilitate the assessment of grid *reliability*. The *outage* planning guidelines will assist *market participants* to avoid undesirable situations when scheduling *outages*. The guidelines will provide the following information:

4.2.2.1 Transmission Group

Definition – Transmission Group is the category used to group associated transmission elements and/or *generation facilities* and/or *electricity storage facilities*, specified along with the relevant time frame. There are some groups with the same name succeeded by a number. These were created to account for all possible combinations of the elements within that group. For example, if the original Transmission Grouping was defined as Group A, for implementation it was broken down into Group A (1) and Group A (2) as shown below in Table 4-1:

Table 4-1: Transmission Groupings

Transmission Grouping	Transmission Element	Threshold	
Group A	Line A/Line B	1	Original Group
	Line C		
Group A (1)	Line A	1	Implemented Groups
	Line C		
Group A (2)	Line B	1	
	Line C		

4.2.2.2 Time Frame

Definition – Time frame refers to the applicable seasonal time frame, specified with the transmission group name. Where not specified, the group will apply throughout the year. Table 4-2 defines seasonal time frames:

Table 4-2: Seasonal Time Frame

Time Frame	From	To
All season	01-Jan	31-Dec
Spring	15-Mar	14-May
Summer	15-May	14-Sep
Fall	15-Sep	14-Nov
Winter	15-Nov	14-Mar

4.2.2.3 Element

Definition – Element refers to the specific piece of equipment within the group.

Note: The bus must be included in the *outage* request if all bus breakers are out of service. The line disconnect must be included in the *outage* request if all terminal breakers are out-of-service.

4.2.2.4 Threshold

Definition – Threshold refers to the number of elements from the list that are permitted out-of-service at one time.

Example – For example, a threshold of '2' means only two elements from the list can be scheduled out-of-service at the same time without any conflict.

4.2.2.5 Reason

Definition – Reason refers to the phenomena causing the conflict. This is based on the *IESO*'s assessment of situations that could potentially:

- compromise the *reliability* of the transmission system;
- result in the inability to maintain the system within system operating limits using normal operating procedures; or
- result in the inability to restore the transmission system to normal operating conditions following a respected contingency.

Example – For example, phenomena might comprise of pre- and post-contingency thermal concerns, pre- and post-contingency voltage concerns, pre- and post-contingency stability concerns, black start restoration paths, or *resource* constraints.

4.2.2.6 Distribution

Definition – Distribution refers to the list of *market participants* who will be notified of the *outage* planning guideline. The distribution list will only include those *market participants* that own or operate equipment in the transmission group.

Example – For example, in Table 4-3, all *market participants* that own or operate any section of Line X will be on the distribution list. *Outages* for equipment tapped off Line X would not be restricted and therefore, would not be on the distribution list.

Table 4-3: Sample Outage Planning Guideline

Transmission Group	Transmission Elements	Threshold	Reason	Distribution
Group 1	Line X	1	Thermal concerns	
	Line Y			

Access – *Market participants* will be able to access the guideline at the IESO Reports webpage under Participant Reports. The *IESO* will periodically review the *outage* planning guideline and updates will be published as per the Baseline schedule.

4.2.3 Conflicting Constraint Codes

(MR Ch.5 ss.6.1.1 and 6.1.3)

Definition – Upon submission of *outage* requests, the *outage* management system will check *outages* for equipment with conflicting constraint codes for the same time period. For example, Generator A has an *outage* request with 'ABNO' constraint code that overlaps with another request for Generator A to be 'OOS'.

Criteria – Outage requests are considered to be in conflict when all of the following are true:

- the *outage* request priority codes are Forced, Forced Extended, Urgent, Planned or Opportunity;
- the *outage* requests overlap for any length of time;
- the *outage* requests have a status of Submitted, Study, Negotiate, At Risk, Advance Approved, or Implemented; and
- the *outage* request periods share the same equipment and have constraint codes that are flagged to be in conflict with each other as shown in Table 4-4:

Table 4-4: Outage Request Constraint Code Conflicts

	OOS	IS	DRATE	HOLD OFF	MUSTR UN	BTCT	PROT OOS	BF PROT OOS	AVR/ PSS OOS	ASP OOS	INFO	ABNO
OOS		X										X
IS	X											X
DRATE												
HOLD OFF												
MUST RUN												X
BTCT						X						
PROT OOS							X					
BF PROT OOS								X				
AVR/PSS OOS									X			
ASP OOS										X		
INFO												
ABNO	X	X			X							X

Additional criteria – In addition to the conditions described above, *outage* requests that meet any of the following conditions will also be considered to be in conflict:

- the *outage* request's equipment are on the same undesirable *outage* combination; or
- UFLS validation fails; or

- *outage* requests with BF PROT OOS constraint codes are overlapping at the same stations.

Table 4-5: Constraint Code Conflict Example

If…	Then…
Outages for Line 1 A PROT OOS and Line 1 B PROT OOS overlap	The outage management system will display a conflict
Line 1 A PROT OOS and Line 2 B PROT OOS overlap	The outage management system will NOT display a conflict

4.2.4 Conflict Checking

(MR Ch.5 ss.6.1.1 and 6.1.3)

Tool interface – The *outage* planning guidelines and conflicting constraint codes are embedded in the *outage* management system. If a submitted *outage* request is in conflict with another *outage* based on these criteria, the tool will display:

- an error message that the *outage* is in conflict;
- ID number of the *outage(s)* it is in conflict with (details regarding the conflicting *outage* are classified as *confidential information* and will be visible to *market participants* based on viewership rights); and
- requirement to provide a rationale for the conflict to be allowed (details on conflict rationale are provided below).

Rescheduling – *Market participants* may determine the planned times of the conflicting *outage(s)* (either via the *outage* ID number or by contacting the *IESO*) and reschedule the *outage* to avoid the conflict.

4.2.4.1 Conflict Rationale

Criteria – *Outage* requests having conflicts may be submitted as long as *market participants* provide a rationale for doing so. A complete rationale is required for the *IESO* to consider the *outage* – that is, for clearance the *market participant* must identify how the pieces of equipment are related, physical proximity, and the reason why other control actions are not available. Table 4-6 lists criteria for the *IESO* to consider *outages* based on conflict rationale.

Table 4-6: Criteria for Conflict Rationale Acceptance

Advance Approval Process	Acceptable Conflict Rationale Description	Examples
Quarterly Advance Approval process	Only non-discretionary rationale will be accepted	• Clearance • Degradation of protection or cooling • Vacuum building *outage*
Weekly, *Three-Day* and *One-Day Advance Approval* processes	Discretionary rationale may be considered provided there is valid justification	• Favourable Ambient Conditions/Short Duration: the reason for the *outage* conflict is for thermal concerns, but the *outage* is scheduled overnight during lower *load* conditions. • Pre-contingency Control Actions: transfer *load* to alleviate thermal concerns or reconfigure transmission system so the contingency sheds *load* by configuration. • Partial Equipment *Outages*: Situations when only certain sections of the line are being taken out-of-service as shown in the diagram below, here the path critical to the transfer of power is not interrupted. An example of a partial equipment outage is in Figure 4-1. • Short Recalls: Conflicts for post-contingency concerns may be resolved by recalling the outage within 15 minutes.
Real-time process	Conflicts will only be considered for forced and urgent *outages*	• *Forced outage* to equipment due to a situation that could potentially endanger the safety of any person, damage equipment, or violate any *applicable law* (e.g. environmental)

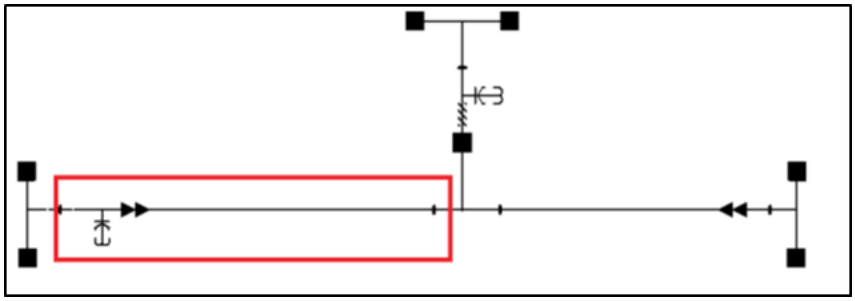

Figure 4-1: Partial Equipment Outage Example

IESO evaluation – The *IESO* will evaluate submitted rationale on a case-by-case basis and determine whether to allow the conflict to proceed or require the *market participant* to reschedule.

Notice to market participants – If the rationale does not meet the criteria described above and is deemed insufficient, the *IESO* will notify the *market participant* to reschedule the *outage*.

4.2.5 IESO Reports

The *IESO publishes* near-term and long-term reports to assist *market participants* in scheduling their *outage*s when they are more likely to receive approvals:

4.2.5.1 Near-Term Reports

((MR Ch. 5 ss.7.1.1 and 7.3.1)

Adequacy Reports and Transmission *Facility* All-in-Service Limits Reports and Transmission *Facility Outage* Limits Reports contain *demand* forecasts and assessments for Ontario and are published by the *IESO* for informational purposes. Refer to **MM 7.2** for further details on these reports.

4.2.5.2 Long-Term Report

(MR Ch.5 ss.7.1.1.4 and 7.3.1.2)

As per the *market rules*, the *IESO* prepares and *publishes demand* forecast, and a *security* and *adequacy* assessment for an 18-month period, on a quarterly basis. Refer to **MM 2.11** for further details on this report.

4.3 Outage Coordination for Capacity Exports

(MR Ch.5 ss.6.4.4 and 6.4.13)

Contractual obligations – A Capacity Seller[8] may have obligations with respect to the coordination of *outages* under applicable agreements with external *control areas*. Any such obligations are between the Capacity Seller and the external *control area* or capacity buyer, and are in addition to the obligations that the Capacity Seller has pursuant to the *market rules* and *market manuals*.

External control area outage review is independent of IESO review – The *IESO* will continue to review *outage* requests in accordance with this *market manual*. Any additional review of *outages* by the external *control area* pursuant to the applicable agreements is independent of the *IESO*'s review.

[8] Capitalized terms in this section are defined in **MM 13.1 App A**: Glossary of Capacity Export Terms.

Outages to partially committed capacity – All *outages* and/or derates to a Capacity Resource that have partially committed capacity will be applied proportionally between capacity committed to the external *control area* and the *IESO-administered markets*. For example, in a scenario where a *generator-backed capacity import resource* commits 100 MW to the external *control area* and 50 MW to the *IESO* through a *capacity obligation,* and experiences a 30 MW derate, the derate would be applied according to the 100:50 ratio representative of the allocation of the committed capacity between the external *control area* and the *IESO*. The 30 MW derate would correspond to a respective 20 MW and 10 MW supply reduction in the external *control area* and the *IESO*, and could limit the transaction associated with the *generator-backed capacity import resource* to 40 MW. In this example, the *generator-backed capacity import resource* would submit a 10 MW derate (i.e. derate to 40 MW) to the *IESO*.

4.3.1 Capacity Seller Requirement to Coordinate with Transmitters Prior to IESO Involvement

(MR Ch.5 ss.6.4.4A and 6.4.9.3)

Additional requirements – Refer to **MM 13.1 ss.3**: Capacity Seller Requirement to Coordinate with Transmitters for information and requirements relating to coordination with *transmitters* regarding *outages* when submitting a *capacity export request* and prior to a Commitment Period.

Risk of grid-incapability to Capacity Resource – Should a *planned outage* to a *transmission facility* arise whereby a Capacity Resource would be rendered Grid-incapable during a Commitment Period, the *IESO* may reject or revoke the *planned outage* provided certain conditions are met, including the Capacity Seller having demonstrated that it has made best efforts to work with the *transmitter* to reschedule the *planned outage*.

Best efforts – In order to demonstrate to the *IESO* that it has made best efforts pursuant to **MR Ch.5 ss. 6.4.4A.3** or **6.4.9.3.2**, a Capacity Seller must communicate with the applicable *transmitter* as described in **MM 13.1 s.3** and as set out below. The following explains the general process that the Prospective Capacity Seller should follow with the *transmitter* during the Commitment Period to demonstrate to the *IESO* that reasonable efforts have been made to reschedule a *planned outage* should such circumstances arise:

1. Schedule a meeting (or multiple meetings, if necessary) in which it notifies the applicable *transmitter* of any capacity export commitments and determines if there are existing *planned outages* (unapproved or approved) that would render the Capacity Resource Grid-incapable at any time during the proposed Commitment Period.

2. Update the *outage* request (visible to the applicable *transmitter*)[9] in the *IESO*'s CROW system submitted in accordance with **MM 13.1 s.3** with an 'Information' priority code, indicating the details of any capacity export commitments.
3. Throughout the Commitment Period, continue to check with the *transmitter* by, among other things, monitoring the CROW system, to determine if there are any *planned outages* during the proposed Commitment Period that would render the Capacity Resource Grid-incapable.
    a. Should there be *planned outages* during the proposed Commitment Period that would render a Capacity Resource Grid-incapable for, work with the *transmitter* to address the conflict, for instance:
        i. The *transmitter* may agree to reschedule the *planned outage*.
        ii. The *transmitter* may accept the risk of potential rejection or revocation of the *planned outage* in the event that it is determined that the *planned outage* will, during the Commitment Period, pose an unacceptable risk of an *adequacy* shortfall to the external *control area*.
4. Whenever applicable, update the applicable *outage* request with the 'Information' priority code indicating any changes or new information, including the resolution of any conflicting *outages* that may arise.

4.3.2 Capacity Seller Requirement to Coordinate with Transmitters Requiring IESO Involvement

(MR Ch.5 ss.6.4.4A and 6.4.9.3)

Notice to IESO required – The Capacity Seller must notify the *IESO* where the external *control area operator* has determined that a *transmitter*'s *planned outage* that would render a Capacity Resource Grid-incapable would:

- result in an unacceptable risk of an *adequacy* shortfall to the *external control area;* and
- the *transmitter* and Capacity Seller are not able to come to an agreement to reschedule the *planned outage*.

Best efforts – The *IESO* will assess pursuant to **MR Ch.5 ss.6.4.4A.3** or **6.4.9.3.2** whether the Capacity Seller has used its best efforts to reschedule the *planned outage* with the *transmitter* and whether any *reliability* concerns will arise if the *transmitter's planned outage* is rejected or revoked.

[9] To setup Third Party Viewership in CROW which makes *outage* requests visible to the applicable *transmitter*, the *IESO* Equipment Registration Specialist (ERS) must follow the steps outlined in the Online IESO Guide for all Contract Roles.

Outages required for reliability – Examples of transmission *outages* necessary for *reliability* include, but are not limited to:

- transmission *outages* that would prevent a future *forced outage* from occurring (e.g., a *load* supplied by a single transformer or line that would be forced out-of-service due to equipment concerns).
- transmission *outages* that would leverage opportune generation and *load* profiles (e.g., matching *outages* with seasonal generational support).
- transmission *outages* that would restore instantaneous protections and respective communication mediums.

Notice to Capacity Seller – If the *IESO* determines that the *outage* is for *reliability* purposes, the *IESO* will advise the Capacity Seller who may inform the external *control area* operator.

Rejection and revocation – If the *IESO* determines that reasonable efforts have been made and there is no *reliability* concern, the *IESO* may reject or revoke the *planned outage* pursuant to **MR Ch.5 s.6.4**. The *IESO* will not, pursuant to this section, recall *outages* to facilitate *called capacity exports* or reject or revoke *forced outages* or urgent *outages*, or *outages* that bottle a *resource*'s[10] output.

4.4 Outage Coordination for Generator-Backed Capacity Import Resources

(MR Ch.5 ss.6.4.1, 6.4.4 and 6.4.13; Ch.7 s.3.5.6)

Prior submission – *Generator-backed capacity import resources* are required to submit *planned outage* requests to the *IESO* for approval prior to submitting the *outage* request to the external *control area operator*.

Outages approved prior to capacity obligation – Where an *outage* request to a *generator-backed capacity import resource* has been previously approved by the external *control area operator* for a future *obligation period* for which the *capacity auction* has not yet been held, the c*apacity market participant* shall submit a *planned outage* to the *IESO* for approval if they secure a *capacity obligation* in the relevant *capacity auction.* The *planned outage* request should be submitted as soon as practical after securing the *capacity obligation*, and shall be submitted prior to the start of the *obligation period.* If the *outage* is rejected by the *IESO,* the *capacity market participant* is required to reschedule the *outage* and resubmit the *planned outage* request to the *IESO* for approval. Once the *IESO* has approved the *planned outage* request, the *capacity market participant* shall then submit the

[10] The *resource* is operating to a reduced maximum generation output due to constraints resulting from transmission element *outages*. This does not include constraints that limit the *resource* to 0 MW output.

outage request, including proof of *IESO outage* approval, to the *external control area operator* for approval.

Offers must reflect derated capacity – All *outage* requests should have the Constraint Code as a derate. All derates to a *generator-backed capacity import resource,* whether a *planned outage* or *forced outage*, shall be applied proportionally between the capacity committed to the *IESO* and the external *control area*. Import *offers* associated with the *generator-backed capacity import resource* shall reflect the derated capacity to the extent that such *generator-backed capacity import resource* has been de-rated below its *capacity obligation*.

Example – For example, in a scenario where a *generator-backed capacity import resource* commits 100 MW to the external *control area* and 50 MW to the *IESO* through a *capacity obligation,* and experiences a 30 MW derate, the derate would be applied according to the 100:50 ratio representative of the allocation of the committed capacity between the external *control area* and the *IESO*. The 30MW de-rate would correspond to a respective 20 MW and 10 MW supply reduction in the external *control area* and the *IESO*, and could limit the transaction associated with the *generator-backed capacity import resource* to 40 MW. In this example, the *generator-backed capacity import resource* would submit a 10 MW derate (i.e. derate to 40 MW) to the *IESO*.

Other boundary entity resource offers permitted – Although import *offers* associated with a *generator-backed capacity import resource* shall be placed on the applicable *boundary entity resource* for *generator-backed capacity import resources*, traders are not excluded from submitting import *offers* on other *boundary entity resources*.

External control area outages – In cases where there is a planned transmission *outage* within the external *control area* that would directly disconnect the *resource* from the external grid, when a capacity-backed transaction is scheduled, the *IESO* will not be required to resolve the conflict. The *generator-backed capacity import resource* shall work with the transmission owner and or the external *control area balancing authority/reliability coordinator* to reschedule the planned outage, as per the requirements set out in the applicable external *control area's* rules and regulations. Any such obligations are between the *generator-backed capacity import resource* and the external *control area*, and are in addition to the obligations that the *generator-backed capacity import resource* has with the *IESO* pursuant to the *market rules* and *market manuals*.

Example codes – Table 4-7 provides example codes for *generator-backed capacity import resources* when submitting *planned outage* requests.

Table 4-7: Applicable Codes for Generator-backed Capacity Import Resources

Priority Code	Constraint Code	Purpose Code
Planned	DERATE	Other

4.5 Outage Submission

(MR Ch.5 ss.6.3.1 and 6.3.6)

Outage management system – *Market participants* submit *outages* through the *outage* management system and the *IESO* uses that tool to confirm receipt and communicate approval back to the *market participant*. *Market participants* access the *outage* management Application Programmatic Interface (API) either through:

- the *IESO's* web link located in the IESO Portal, or
- their own *outage* management program.

Included information – Typically, an *outage* request will include the following information[11]:

Table 4-8: Information Requirement during Outage Submission

Field Name in the Tool	Information To Be Provided by Market Participants
Applicant	The *market participant* that is submitting the information.
Single Point of Contact (SPOC)	The request will identify a SPOC for the *market participant*, either an individual or a position, along with sufficient information to enable effective communication with that SPOC (such as phone, fax, or email). For *market participants* with direct input to the *outage* management system, contact information for responsible parties will be on file with the *IESO*.
Priority Code and Purpose Code	Each *outage* request must contain appropriate priority and purpose codes. Refer to sections 3.2 and 3.3 for more details.
Purpose Description	General information about the *outage*, such as a brief description of the purpose and specific requirements or information pertinent to the *outage* (for example "Loading levels for a *generation facility* test"). Any regulatory requirements for an *outage* must be included in this information.
Request Weekly AA	For non-critical or low impact equipment, indicate if the *outage* is submitted under the *Weekly Advance Approval* process.

[11] Refer to the "Outage Management System CROW OCSS Web Client User Guide" for detailed instructions on how to submit an *outage* request.

Field Name in the Tool	Information To Be Provided by Market Participants
Requested Equipment	Sufficient information must be provided to identify and describe, if required, the specific piece of equipment, using the equipment identification and location confirmed by the *IESO* in **MM 1.5**.
Planned Start and End Date/Time	The submission must include the requested start date, start time, end date and end time.
Maximum Recall Time	The submission must include recall time, which is the total amount of time that would be required to return the equipment to service upon a request by the *IESO*. *Market participants* may submit optional comments to the *IESO* to provide more information.
Recurrence	This information will describe the periodic nature of the *outage*, that is, whether the *outage* is continuous, continuous except for weekends, daily, etc.
Constraint Code	Each piece of equipment on the *outage* request must contain a constraint code to specify the equipment limitations. This will be based on the status of the equipment when the *outage* is implemented (for example: OOS, IS, MUSTRUN). Refer to section 3.4 for more details.
Equipment Description	General information about the equipment, such as a brief description of the status and condition of the equipment pertinent to the *outage* (for example "*Generation resource* unavailable for black start"). Any regulatory requirements for an *outage* must be included in this information. (Mandatory for constraint codes specified in Table 3-4 and equipment classes specified in Table B-1.)
MW Impact	Indicate the impact, if any, on real power *resources* which will result from the *outage*. This would be the direct impact associated with the specific piece of equipment rather than an indirect impact.
MVAR Impact	Indicate the impact, if any, on reactive power *resources* that will result from the *outage*. This would be the direct impact associated with the specific piece of equipment rather than an indirect impact.
Conflict rationale	This information will be used by the *IESO* to verify the importance of scheduling the *outage* in case of conflicts. **Note:** This field will not be visible to *market participants* with third party viewership.
Market participant to *IESO* Comments	• *Market participants* shall use this section to notify the *IESO* of any additional information, including details of their assessment, associated *outage* requests, switching details, etc.

Field Name in the Tool	Information To Be Provided by Market Participants
	• *Generation facilities* and *electricity storage facilities* shall also use this section to notify the *IESO* of any intent to arrange for replacement *energy* in the form of imports (**MR Ch.5 s.6.3.6**). When these arrangements are finalized, *market participants* shall provide the following information: ○ the MW amount and duration; ○ the *intertie zone* or zones through which the replacement *energy* is intended to be scheduled, ○ the *boundary entity resource* that shall submit the *offers* and schedule the replacement *energy* if dispatched by the *IESO*; and ○ information regarding the e-Tag associated with the import, including a unique identifier, tag ID or tag format to be used. Refer to section 6 for details on arrangement of replacement *energy*. **Note:** This field will not be visible to *market participants* with only third party viewership access.
Low-impact Questions	Based on the information submitted, *market participants* may be required to answer a few low-impact questions. This is to determine if the *outage* is eligible for one-day AA, Auto AA, and/or FAA, as explained in sections 3.7.5, 3.7.6 and 3.7.7, respectively. Appendix C, Table C-1, Column D lists the questions that will be asked to *market participants*.

4.6 Outage Assessment

(MR Ch.5 s.6.4.4)

IESO assessment – The *IESO* assesses *outage* requests for their potential impact on the *reliability* and/or operability of the *IESO-controlled grid* with respect to the following:

- reductions in system operating limits; *interconnection reliability* operating limits or changes in power transfers which encroach on a system operating limit;
- will or is reasonably likely to have an adverse impact on the *reliable* operation of the *IESO-controlled grid*;
- operating limits available and adequate monitoring tools available;
- adequate system and area reserve;

- adequate pre/post contingency assessment; voltage levels; islanding concerns; equipment limits and control actions;
- adequate *ancillary services* requirements;
- system (global) and *local area adequacy* – capacity and *energy*;
- *high-risk operating state, conservative operating state* or *emergency operating state* conditions; and

  redundant supply *facilities* including *station service* supply and protection systems

Additional criteria – Refer to **MM 7.4** for more details on the *IESO*'s *reliability* assessment. The *IESO* may provide details of their assessment under the '*IESO* to *Market Participants* Comments' field in the *outage* management system.

Note: This field will not be visible to *market participants* with only third party viewership access.

4.6.1 Market Participant Updates

(MR Ch.5 ss.6.3.1 and 6.4.13)

Revised requests – *Market participants* may update an *outage* request while it is being assessed by the *IESO*. Changes other than the purpose description or comments require notification to the *IESO* by telephone. The *IESO* will assess the impact of the change. Revised *outage* requests will be assessed within the original study period.

Table 4-9: Market Participant Outage Request Updates

If the update is …	The IESO shall…
Insignificant, as defined in section 3.2.1 of this *market manual*	Allow the *market participant* to update the request.
Significant, as defined in section 3.2.1 of this *market manual*	Allow the *market participant* to update the request and revise the priority date.

4.6.2 Outage Assessment Outcomes

The following subsections describe the next steps and associated obligations based on the possible outcomes of the *IESO's* assessment of *outages*.

4.6.2.1 Provide Advance Approval

(MR Ch.5 ss.6.4.3.3, 6.4.8 and 6.4.10)

Next steps – As per the timelines in section 3.7 of this *market manual*:

Table 4-10: Possible Next Steps after Providing Advance Approval

Possible Next Step	Associated Obligations
Final Approval	On the day of the *outage*, *market participants* must contact the *IESO* Control Room via telephone when they are ready to proceed with the *outage*. The *IESO* will, in general, provide final approval to a *planned outage* unless it foresees an adverse *reliability* impact, based on ongoing *security* and *adequacy* assessments. When requesting final approval, *market participants* should give due consideration to any adjustments to: • generation patterns; or • injection patterns (for *electricity storage facilities*); or • system configuration required by the *IESO* prior to removal of equipment from service and the time required to effect these adjustments (**MR Ch.5 s.6.4.3.3**). *Outages* that are eligible for FAA will be automatically granted Final Approval at the beginning of the planned start date of the *outage*.
Revocation	*Market participants* have the option of resubmitting or canceling the *outage*. The *IESO* will work with *market participants* to re-schedule the *planned outage* to a date and time at which the *outage* will not likely have an adverse impact on the *reliability* and/or operability of the *IESO-controlled grid*. Where practical, the *IESO* will consider date and time preferences of *market participants* when re-scheduling the *outage* (**MR Ch.5 s.6.4.10**). The original priority date is maintained if *market participants* resubmit the *outage* within five *business days* of being revoked (**MR Ch.5 s.6.4.10**).
Outage Start Delays	*Market participants* must inform the *IESO* if they expect their *outage* to be delayed from starting as scheduled and whether the delay is expected to result in a planned extension. • Start of *outage* delayed by 30 minutes or less: *Market participants* must notify the *IESO* Control Room by telephone. • Start of *outage* delayed by greater than 30 minutes: *Market participants* must notify the *IESO* Control Room by telephone and update their *outage* request.
Planned Extension	*Market participants* must submit requests for planned extensions as a new *outage* request. The new request must reference the *outage* ID of the on-going *planned outage* in the *outage* management system. The *IESO* will review planned extension requests on a reasonable effort basis if the *outage* request was scheduled to start and end on the same

Possible Next Step	Associated Obligations
	day. Otherwise the planned extension will be treated as a late submission and either rejected or revoked. The *IESO* will reject the request for planned extension if it is determined that the extension is likely to adversely impact the *reliability* and/or operability of the *IESO-controlled grid* or is likely to require the rescheduling, recall or revocation of a *planned outage* request previously submitted to the *IESO* (**MR Ch.5 s.6.4.8**). In such cases, *market participants* shall ensure the *outage* duration does not exceed the originally approved *planned outage* or the period as advised by the *IESO* when rejecting the *outage* request (**MR Ch.5 s.6.4.8**).

4.6.2.2 Negotiate to Reschedule

(MR Ch.5 s.6.4.17)

Table 4-11: Possible Next Steps after Negotiate to Reschedule

Possible Next Step	Associated Obligations
Reschedule *outage* for *advance approval*	*Market participants* must reschedule the *outage* following discussions with the *IESO*. The priority date of the original *outage* request will be retained during resubmission if completed within study time frame.
Cancellation	*Market participants* must cancel the *outage* request in the *outage* management system.
Rejection (for *outages* submitted under the *Weekly*, *Three-Day* or *One-Day Advance Approval* processes)	The *IESO* will provide *market participants* with the reason for rejection, subject to applicable confidentiality restrictions. *Market participants* may submit a new *outage* request. Original priority date will be retained if resubmitted within five *business days* and it was the first time that the *outage* was rejected (**MR Ch.5 s.6.4.17**). If these conditions are not met, the resubmitted *outage* request will receive a new priority date.
'At Risk' (for *outages* submitted under the *Quarterly Advance Approval* process)	The *IESO* will provide *market participants* with the reason for placing the *outage* 'At Risk', subject to applicable confidentiality restrictions. *The IESO* will review the *outage* during the next Quarterly, Weekly, Three-Day or One-Day assessment window, as explained in section 3.7.2. *Market participants* may choose to resubmit *outages* placed 'At Risk.' Refer to section 3.7.2 for criteria for retaining original priority for resubmitted *outage* requests.

4.7 Outage Implementation

(MR Ch.5 s.6.4B.1)

Communication with IESO control room – *Outages* that have received final *advance approval* from the *IESO* can be placed into implementation. *Market participants* are required to notify the *IESO* Control Room to confirm that the *outage* has commenced by providing actual start times through *outage* management system, unless otherwise determined by the *IESO*.

Table 4-12: Communication with the IESO Control Room

If…	Then…
After implementation, the *market participant* wishes to adjust the actual start time of the *outage*	• The *market participant* must call the *IESO* Control Room and request that the *IESO* clears their implementation and must provide the reason for the change. • The *IESO* will assess the validity of the request and if approved, transition the *outage* to 'Final Approved' status which will delete the actual start time. • The *market participant* must input the adjusted actual start time in the *outage* management system and transition the *outage* from 'Final Approved' to 'Implemented' status.

4.7.1 Planned and Forced Extensions

(MR Ch.5 s.6.3.4)

Forced extensions to planned outages – *Market participants* have the option of forced extensions, in cases where personnel safety or equipment damage may result. However, forced extensions for planned work will be reviewed for possible violations of the *market rules*. Forced extensions to planned or forced *outages* must be electronically updated in the *outage* management system by *market participants* and communicated via telephone to the *IESO* Control Room. If the forced extension is identified by 15:00 EST, one *business day* prior to the planned end time of the *outage*, *market participants* shall, on a reasonable effort basis, also communicate the forced extension to the *IESO* Market Forecasts & Integration department.

Planned extensions of planned outages – Planned extensions to *planned outages* must be submitted as new *outage* requests.

4.7.2 Recall

(MR Ch.5 s.6.4.11)

Scope, reason, and compensation – Any time during implementation, the *IESO* may recall either the current period or the entire *outage*, based on sudden or unexpected impacts to the *reliability* and/or operability of the *IESO-controlled grid*. The *IESO* will provide affected *market participants* with the reason for the recall. Details regarding *market participant* compensation in cases of *outage* recall are provided in section 4.9.

Recall as last resort – *Market participants* will be expected to meet the recall times specified in the original submission for the *planned outage*. No *outage* will be recalled unless the *IESO* has revoked or rejected all other *planned outages* that have not yet started and which could eliminate the need to recall the *outage* already in progress.

Replacement energy – *Generation resources* and *electricity storage resources* have the option to arrange for replacement *energy* to preclude being recalled. Further details on replacement *energy* are provided in section 6.

4.7.3 Suspension of Non-Urgent Maintenance or Switching

(MR Ch.5 s.2.5.2)

IESO authority – If the *IESO-controlled grid* is in a *conservative operating state*, the *IESO* may direct *market participants* to suspend any non-urgent maintenance or switching activities.

4.8 Outage Completion

(MR Ch.5 s.6.4A)

Process for returning equipment to service – *Market participants* are required to:

- Notify the *IESO* by telephone when either the current period or the entire planned or *forced outage* has been completed;
- Request *IESO* approval by telephone to return equipment to service before doing so;
- Receive *IESO* approval to return the equipment to service. The *IESO* will notify *market participants* at this time if they wish to direct the operation of equipment to return it to service; and
- Notify the *IESO* when equipment that was the subject of a planned or *forced outage* has been fully restored to service by providing actual end times through the *outage* management system, unless otherwise determined by the *IESO*.

Table 4-13: Outage End Time Adjustment

If…	Then…
After completion, the *market participant* wishes to adjust the actual end time of the *outage*	• The *market participant* must call the *IESO* Control Room and request that the *IESO* clears their completion and must provide the reason for the change. • The *IESO* will assess the validity of the request and if approved, transition the *outage* to 'Implemented' status which will delete the actual end time. • The *market participant* must input the adjusted actual end time in the *outage* management system and transition the *outage* from 'Implemented' status to 'Completed' status.

4.9 Outage Compensation

(MR Ch.5 s.6.7)

Governing authority – **MR Ch.5 s.6.7** governs eligibility for compensation for revoked or recalled *outages*.

Eligible expenses – Only out-of-pocket costs are eligible for compensation under **MR Ch.5 s.6.7.2** of the *market rules*. These are sunk costs that are unrecoverable and will be incurred again by *market participants* in order to complete the *outage*. Items such as overtime costs and equipment rentals are eligible.

Study and coverage periods – The below subsections set out examples showing how the *IESO* will apply **MR Ch.5 s.6.7** to study and coverage periods.

4.9.1 Example A: Market Participant NOT Entitled to Compensation

As displayed in Figure 4-2, the *outage* is scheduled for May and receives *quarterly advance approval* in November. The *IESO* revokes quarterly approval in January. In this case, the *market participant* is not entitled to compensation because the revocation is done before the next quarterly study period ends in February.

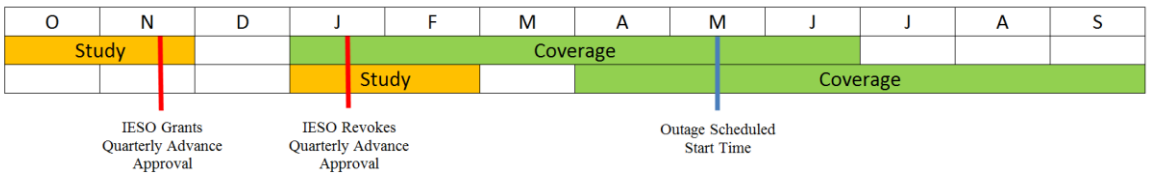

Figure 4-2: Compensation Eligibility – Example A

4.9.2 Example B: Market participant Entitled to Compensation

In this example, the *outage* is scheduled for May and the *IESO* revokes *quarterly advance approval* in March (i.e. after the next quarterly study period ends in February). Therefore, the *market participant* is entitled to compensation.

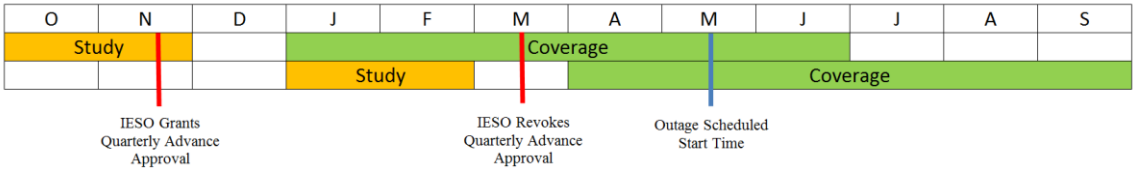

Figure 4-3: Compensation Eligibility – Example B

4.9.3 Example C: Market Participant Entitled to Compensation

In this example, the *outage* is scheduled to start in March which is within the first three months of the quarterly coverage period, therefore even though the *IESO* revokes the *outage* before the end of the next quarterly study period in February, the *market participant* is entitled to compensation.

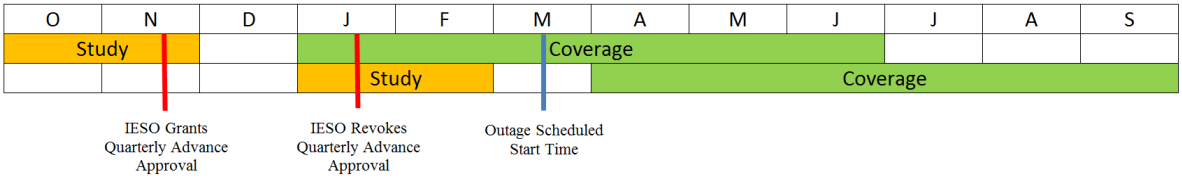

Figure 4-4: Compensation Eligibility – Example C

Opportunity costs excluded – *Generation facilities* or *electricity storage facilities* whose *planned outages* have *advance approval* revoked or are recalled are eligible for compensation even though they had successfully arranged for replacement *energy*. However, the *generation facility* or *electricity storage facility* will not be eligible for compensation for any lost opportunity costs associated with the import *energy* that was secured through the arranged replacement *energy*.

Submission – Claims for compensation must be submitted using the "Request for Outage Compensation" (IMO_FORM_1350) that is available on the *IESO* website, and substantiated by receipts or statements detailing each line item. These claims will be subject to audit and verification by the *IESO*.

– End of Section –

5 Outage Reporting Requirements

This section outlines *outage* reporting requirements that are specific to certain classes of *market participants* when submitting *outage* requests to the *IESO*, unless granted *exemption*. Each sub-section provides sample priority, purpose and constraint codes that *market participants* may use when submitting *outage* requests via the *outage* management system. For detailed description of these codes, refer to sections 4.2, 4.3 and 4.4. Refer to section 4.6 for a mapping of these codes.

Note: The rules for submission, approval and determining priority as per *market rules* are applicable for all *outage* requests.

5.1 Generation Facilities and Electricity Storage Facilities

(MR Ch.5 ss.3.6.1 and 3.8.1)

Scope of obligation – Aggregated *generation resources* and *electricity storage resources* are required to report *forced outages*, unit limitations, deratings, de-staffing and any change in status that affects the maximum output of a *generation unit* or *electricity storage unit*, the minimum load of a *generation unit*, or the availability of a *generation unit* or *electricity storage unit* to provide *ancillary services* such as *regulation*, *operating reserve*, voltage support, *black start capability* or must-run contracts.

Storage – All other *outage* requests related to the *electricity storage resource's* injection capability should follow the applicable *generation unit* permissions and requirements outlined in this *market manual*. An *electricity storage resource* wishing to report its inability to withdraw must update its *dispatch data* accordingly and submit *outage* requests as follows:

Table 5-1: Example Codes for Electricity Storage Resources when Unable to Withdraw

Priority Code	Constraint Code	Purpose Code
Planned	DRATE	Repair

Note: This section is intended for the reporting of all *outages* with the exception of *state of charge* capability changes in real-time; for such changes refer to **MM 4.1**.

5.1.1 Deratings

(MR Ch.5 ss.3.6.1 and 3.8.1; MR Ch.7 s.3.3.8)

Reporting requirements – All *generation resource* and *electricity storage resource* are required to report *outages* in the following circumstances:

- any planned or forced material reduction in *generation resource* or *electricty storage resource* output that causes a derating equal to the greater 2% of rated output or 10 MW;
- a component failure, operational limit or other circumstance that will cause the unit to trip if no control actions can be taken before the condition can be repaired as assessed by the *generation facility* or *electricity storage facility*; or
- a new potential change in unit/plant condition that can cause the loss of multiple units at its *facility* based on its internal assessment/forecast.

Process for ramping down – A *generation facility* or *electricity storage facility* wishing to ramp down for a *planned outage* is required to follow either of the following methods:

- submit and get approval for a *planned outage* request. The *generation resource* or *electricity storage resource* will be ramped down at the submitted ramp rate in advance of the hour in which the *outage* commences; or
- submit derate requests electronically to reflect the capability of the *generation resource* or *electricity storage resource* as it ramps down.

Loading delays – Normal loading delays during a *generation facility* or *electricity storage facility* start-up are not considered a derating if the *generation resource* or *electricity storage resource* is able to ramp towards full *load* without significant holds. Where a *generation resource* or *electricity storage resource* must hold at a specific *load* for greater than 30 minutes during start-up, this should be considered a derating. The *IESO* will assess planned deratings required to support a *generation resource* or *electricity storage resource* ramp down or start-up on a reasonable effort basis.

Pseudo-units – Combined cycle *generation facilities* that elect to offer in to the market as a *pseudo-unit* (PSU) will submit derates and *outages* on the associated *generation units*.

Revising dispatch data for short-term outages and derates – A *generation resource* or *electricity storage resource* whose *outage* or derating results in a change of more than the lesser of 2% of rated output or 10 MW is not required to revise its *offers* pursuant to **MR Ch.7 s.3.3.8** if the derating or *outage* is expected to last less than two hours. Where the *market participant* had altered the *offer* to reflect the capability of the *resource*, the *IESO* will permit a quantity change or new

offer. This change should reflect the capability of the *resource* in the *pre-dispatch schedule*. Changes to *offers* in the mandatory and restricted window will not affect the current hour.

Submission – *Market participants* are required to use the DRATE or MUSTRUN constraint code when submitting *outage* requests, Table 5-2 provides an example:

Table 5-2: Example Codes when Submitting Planned Derate Requests

Priority Code	Constraint Code	Purpose Code
Planned	DRATE	Maintenance

5.1.2 Tests

(MR Ch.5 s.6.6.7; MR Ch.7 ss.2.2A and 2.2D)

Process – *Generation facilities* and *electricity storage facilities* may request approval to conduct tests during a planned or *forced outage*. In order for the *outage* requests and tests to not have conflicting time spans in the *outage* management system, the following procedure should be followed:

1. Revise the end time of the original *outage* request to coincide with the start of the first test.
2. Ensure the first test request has a start time that corresponds to the end time of the *outage* in the revised *outage* request.
3. Create a second *outage* request to accommodate all the *outage* time required in the original *outage* request and has a start time corresponding to the end time of the first test request. The end time corresponds to the end time of the original *outage* request, or subsequent pairs of *outage*/test requests with matching start/end times to cover all the remaining tests as required.

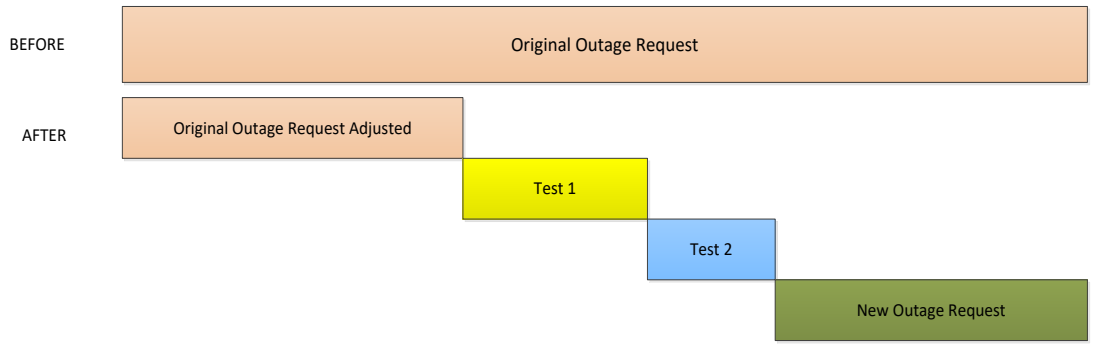

Figure 5-1: Submitting Test Request during Outage

Treatment as commissioning facility – Where testing is extensive and is expected to continue for a minimum of two days, *market participants* may request that the *IESO* treat the *generation facility* or *electricity storage facility* as a

commissioning generation facility or *commissioning electricity storage facility* (**MR Ch.7 ss.2.2A** and **2.2D** respectively). Requests to be treated as a *commissioning generation facility* or *commissioning electricity storage facility* should be made to the *IESO* through the *outage* process and to Equipment Registration. Requests of this nature should be made with a minimum of six *business days*' notice. Refer to section 5.1.3 for reporting details.

Hydroelectric resources within a compliance aggregate – For tests of hydroelectric *generation facilities* within a compliance aggregate, *market participants* must submit a test profile as part of the *outage* request. The aggregate will be *offered* to reflect the aggregate output during testing. The aggregate total generation will be maintained at the *offer*/*dispatch* level as the test *generation facility* loads or unloads.

Offers on aggregated resources – *Market participants* having aggregate units with one of the units being tested would *offer*, ensuring that the associated price is appropriate to be scheduled, the maximum achievable output for the aggregate, excluding the testing unit and compensate for testing by adjusting units within the aggregate. Non-aggregated *generation facilities* and non-aggregated *electricity storage facilities* are required to *offer* the full capability of the *resource* and use *outage* requests to derate the *resource* to the appropriate test level (**MR Ch.5 s.6.6.7**).

Suspension and reloading – Often *generation facility* and *electricity storage facility* tests are conducted where the test can be suspended and the *generation resource* or *electricity storage resource* is then capable of reloading. These tests are treated differently than *generation resource* and *electricity storage resource* deratings in that no *outage* for a derating is required, however *market participants* are required to submit an *outage* request in accordance with the submission deadlines outlined in section 3.7 of this *market manual* indicating the planned test quantities as described in the example below.

Offer price – For any hour in which a *market participant's generation facility* or *electricity storage facility* is expected to undergo a test, *market participants* must submit an economical *offer* for the generation/injection that equals the expected hourly average *energy* delivery of that unit.

Table 5-3: Offer Price Test Example

If expected generation is…	Then the offer submitted for the hour will be…	
250 MW for 20 minutes, 175 MW for 10 minutes, and 135 MW for 30 minutes	$\frac{250*20 + 175*10 + 135*30}{60}$	= 180 MW at an *offer* price that would ensure the unit is scheduled to deliver 180 MW

IESO intervention – However, since the unit is testing, it would not move to the *dispatch* target, and the *IESO* operator may have to intervene to adjust for the behaviour of the testing unit.

Storage – *Electricity storage facilities* wishing to undergo capability testing must submit an *outage* request outlining the test plan with respect to injection and withdrawal operations. The *IESO* shall review and coordinate real-time testing requirements including appropriate *dispatch data* submissions for the injection and withdrawal operation during testing.

Operating reserve market participation – Where the test is instantly recallable, *generation facilities* and *electricity storage facilities* are allowed to participate in the *operating reserve market*. This is acceptable as long as the *market participant offers* the *energy* as outlined above (and below) and if the *market participant* ensures that the *operating reserve* quantity *offered* each hour meets the following criteria:

> (maximum *energy* expected to be provided during the hour) + (*operating reserve* quantity offered during the hour) = (maximum amount that the unit can provide that hour)

Using the example above:

Table 5-4: Operating Reserve Market Participation Example

If…	The offer submitted for the hour will be…
Maximum generation per hour is 450 MW	180 MW at a price to ensure that unit is scheduled 450 MW (maximum output during the hour) - 250 MW (maximum loading during the hour) = 200 MW of operating reserve at a price of the market participant's choosing 200 to 270 MW of *energy* at a higher price.

This *energy offer* would be scheduled if *operating reserve* is activated or if there are a shortage of *resources* that required the *energy* (at which time, the *market participant* would be expected to abandon the test to meet their *operating reserve dispatch*).

No eligibility for compensation – *Generation facilities* and *electricity storage facilities* whose test *outages* are immediately recallable and participate in the *operating reserve market* are not expected to submit for compensation costs. Rather, it is expected that *offers* for *energy* and *operating reserve* will reflect any compensation for interrupting the test.

Aggregate resources – For tests of aggregate *generation resources* and *electricity storage resources* with immediate recall, *market participants* must provide a test profile via an information request to the *IESO*. *Market participants* must *offer* the aggregate as per the *energy* they desire to run but would adjust loading of units within the aggregate to obtain the required test levels. *Market participants* must request approval to synchronize and desynchronize the test unit, but may change the test unit MWs as desired while maintaining the aggregate MWs as *offered*.

Purpose codes – *Market participants* are required to use the 'Testing' purpose code when submitting *outage* requests, Table 5-5 provides an example:

Table 5-5: Example Codes when Submitting Planned Testing Requests

Priority Code	Constraint Code	Purpose Code
Planned	IS	Testing

5.1.3 Commissioning Facilities

(MR Ch.7 ss.2.2A, 2.2A.5, 2.2D, 2.2D.5 and 2.3.2)

Treatment of commissioning facilities –

The *generation resources* that are commissioning within a *commissioning generation facility* shall be treated by the *IESO* as *self-scheduling generation resources* for *dispatch* purposes.

For its injections of *energy*, the *IESO* shall treat a *commissioning electricity storage facility* for *dispatch* purposes as a *self-scheduling electricity storage resource*.

For its withdrawals of *energy*, the *IESO* shall treat a *commissioning electricity storage facility* for *dispatch* purposes as the *resource* type for which it is seeking registration, with no requirement to submit *bids* to withdraw *energy*.

For *settlement* purposes, a commissioning *resource* will be settled by the *IESO* as the *resource* type for which it is seeking registration.

All commissioning *facilities* shall be treated by the *IESO* as a *self-scheduling generation facility* or a *self-scheduling electricity storage facility* for the purposes of *outage* coordination and shall follow the normal *outage* scheduling process (**MR Ch.7 ss.2.2A.5** and **2.2D.5**). The *commissioning generation facility* or *commissioning electricity storage facility* shall provide a detailed test plan including the following information, but not limited to:

- the expected time of synchronizing to or desynchronizing from the *IESO-controlled grid*;

- *energy* and reactive output levels and where applicable, levels of withdrawals;
- the timing of, and ramp rates associated with, changes in *energy* and reactive output levels and where applicable, changes in levels of withdrawals;
- run-back or trip tests for the *commissioning generation facility* or *commissioning electricity storage facility*; and
- excitation and power system stabilizer (PSS) tests.

Flexibility and loading profile – The *IESO* will attempt to provide scheduling flexibility for *commissioning generation facilities* and *commissioning electricity storage facilities* in the same manner as those *generation facilities* or *electricity storage facilities* performing routine testing as per section 5.1.2. *Market participants*, whose *generation units* or *electricity storage units* with *planned outages* are returning to service from long-term *outages*, or are *commissioning generation units* or *commissioning electricity storage units*, shall provide the *IESO* with a loading profile before synchronization.

Security and adequacy assessments – The treatment of commissioning *facilities* in the *IESO*'s *security* and *adequacy* assessments depends on the type of commissioning being performed as follows:

1. New *generation facilities* and *electricity storage facilities,* or those returning from long-term *outages* (mothballing) will be treated as unavailable while commissioning for the purpose of calculating available capacity in the *IESO's adequacy* assessments.

   A *planned outage* request should be submitted by *market participants* that define first synchronization and the expected date of commercial operation.

   For *electricity storage resources*, two *planned outage* requests must be submitted: one for the injections of *energy* (where the resource is registered as a *dispatchable generation resource* or as a *self-scheduling generation resource*) and the other for the withdraws of *energy* (where the resource is registered as a *dispatchable load* or as a *price responsive load*).

   Market participants who do not have *variable generation resources* should submit, and keep up to date, the expected commissioning test plan (either via an *outage* request or other format as specified by the *IESO*) for the duration of the commissioning period. For *electricity storage resources*, this test plan should include both the injections and withdraws of energy.

Market participants who have *variable generation resources*, must submit, and keep up to date, the expected commissioning test plan via an *outage* request for the duration of the commissioning period.

Commissioning generation facilities that do not have *variable generation resources* should manage all commissioning activities, until commercial operation is declared, with the use of *dispatch data* as a *self-scheduling generation facility*. *Dispatch data* should reflect the most recent update to the commissioning test plan.

All *commissioning electricity storage facilities* should manage their commissioning activities with their *planned outage* request that outlines their commissioning test plans with respect to both their injections and their withdraws of *energy*. This should be accompanied by a *self-schedule* for the planned injection of *energy* into the grid. There is no requirement to submit *bids*, or any other *dispatch data*, to withdraw *energy* while commissioning. The *self-schedule* and *planned outage* request should reflect the most recent update to the commissioning test plan.

Commissioning *generation facilities* that have *variable generation resources* shall offer a forecast output as provided by the *IESO*.

2. Existing *generation facilities* or *electricity storage facilities* that are commissioning for the purpose of testing new or modified equipment associated with the respective *facility* will be treated as available for the purposes of calculating available capacity in the *IESO*'s *adequacy* assessments. In addition,

    A *planned outage* request should be submitted by *market participants* that define the commissioning period.

    While commissioning, *market participants* who do not have variable generation resources, must manage their injections of *energy* by the use of *dispatch data* as a *self-scheduling generation facility* or *self-scheduling electricity storage facility* . There is no requirement to submit *dispatch data* for withdrawals of *energy* for *electricity storage resources*, however details on withdrawals of *energy* must be contained in the *planned outage* request. *Market participants* who have variable generation resources, must manage their loading via *planned outage* requests and offer a forecast output, as provided by the *IESO*.

    Planned outage requests are to be submitted for each stage of the commissioning period that reflects expected output.

Advance notice – For *generation facilities* and *electricity storage facilities* planning future commissioning activities, the *IESO* requires at least three months' advance notice of these activities, including the expected synchronization date (**MR Ch.7 ss.2.2A.5** and **2.2D.5**). The expected synchronization date may be revised by *market participants* as required.

For *generation facilities* or *electricity storage facilities* initiating the commissioning process, the *IESO* requires a minimum of six *business days*' notice (**MR Ch.7 ss.2.2A** and **2.2D**). Any such registration for the purposes of commissioning tests shall expire on the completion of these tests.

Submitting dispatch data – To inject *energy*, a *market participant* shall submit *self-schedules*. To withdraw energy, no submission of *dispatch data* is necessary.

Aggregate resources – Where the *generation facility* or *electricity storage facility* undergoing commissioning testing forms part of a compliance aggregate, the whole aggregate will be treated for *dispatch* purposes as a *self-scheduling facility*. The *IESO* may not approve these requests where the loss of *operating reserve* from the aggregate causes a *reliability* concern (**MR Ch.7 s.2.3.2**).

Deviations from submitted quantities – In the event that the commissioning *resource* needs to diverge from its submitted *self-schedule dispatch data* for any reason, the market participant should update the *self-schedules* outside the *real-time market mandatory window* as soon as possible. This change must also be reflected in the *planned outage* request by updating that *planned outage* with the revised test plan.

Where an *electricity storage participant* needs to diverge from their test plan by more than 20MW in its planned withdraws of *energy*, as per Appendix A, they should notify the *IESO* by updating their *planned outage* request along with the revised test plan as soon as possible, and before the *real-time market mandatory window*. *Electricity storage participants* who determine they cannot meet their test plans for *state of charge* reasons may reduce their quantities within the *real-time market mandatory window* as per MR.Ch.7 s.21.5.

Purpose codes – *Market participants* are required to use the 'Commissioning' purpose code when submitting *outage* requests, Table 5-6 provides an example:

Table 5-6: Example Codes for Commissioning Generation Facilities and Commissioning Electricity Storage Facilities

Priority Code	Constraint Code	Purpose Code
Planned	IS	Commissioning

5.1.4 Segregated Mode of Operation

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

Two different timelines – There are two sets of timing requirements for operating units in *segregated mode of operation* (SMO). The difference depends on whether an *outage* to a critical transmission element is required.

Classification of requests – The *IESO* will consider *Requests for segregation* as opportunity *outages* unless requested based on the *one-day advance approval* criteria. To meet the one-day advance criteria, SMO must be requested by 10:00 EST two *business days* ahead of the *dispatch day*. The Planned Start and End Date/Time must be on the same calendar date or the Maximum Recall on the *outage* is 15 minutes.

5.1.4.1 SMO Requiring Outage of a Critical Transmission Element

Timing of requests – *Requests for segregation* that require an *outage* to a critical transmission element must be included in the *day-ahead market* and submitted by 08:00 EPT on the day prior to the *dispatch day*. The *IESO* will approve or reject the *outage* request no later than 10:00 EPT on the day prior to the *dispatch day.*

Timing and availability of cancellation or revision – *Market participants* may only cancel or revise *requests for segregation* that require an *outage* to a critical transmission element after 08:00 EPT on the day prior to the *dispatch day* to address a situation that may endanger the safety of any person, damage equipment, or violate any *applicable law* (SEAL).

Subsequent changes that do not require critical elements to be reconfigured – Once SMO has been approved, changes to the quantity of the export that will not require critical system elements to be reconfigured may be submitted up to two hours prior to the start of the change in real time.

Reconfiguration – Where a *request for segregation* will require *transmission system* elements to be reconfigured or removed from service, the *IESO* will notify the *transmitter* and enter an *outage* request in the *outage* management system to reflect this reconfiguration for the duration required to support the *Request for Segregation*.

5.1.4.2 SMO Not Requiring Outage of a Critical Transmission Element

Timing of requests – *Requests for segregation* that do not require an *outage* to a critical transmission element may be submitted up to two hours prior to the start of the *outage*. *Market participants* who intend to have this request scheduled in the *day-ahead market* must submit their request no later than 09:00 EPT on the day prior to the *dispatch day*. The *IESO* will approve or reject the *outage* requests no later than 90 minutes prior to the implementation of the *segregated mode of operation*.

Timing and availability of cancellation and revision – *Requests for segregation* that do not require an *outage* to a critical transmission element can be cancelled at any time by the *market participant* and do not require conditions related to the safety of any person, damage to equipment, or violation of any *applicable law* (SEAL).

Submission process – *Market participants* use the *outage* process to submit *Requests for Segregation*. The *IESO* will approve or reject these requests based on *security* and *adequacy* impact assessments.

Notification by telephone – Along with submitting an *outage* request for the *facilities* that are intended to operate in segregated mode, *market participants* are required to notify the *IESO* by phone of the *request for segregation*. The *IESO* will assess any *requests for segregation* according to the expected *resource adequacy* and approved according to the outcome.

Timing of IESO decision – For *generator requests for segregation* or desegregation, the *IESO* will provide permission to the *market participant* to proceed, or reject the request, as soon as possible but not later than such time that allows the *transmitter* a minimum of 90 minutes to switch the equipment or *facilities* required to permit the implementation of the SMO.

Reconfiguration – Where a *request for segregation* will require *transmission system* elements to be reconfigured or removed from service, the *IESO* will enter an *outage* request in the *outage* management system to reflect this reconfiguration. The *outage* will be entered for the duration required to support the request for segregation.

No compensation – Where a previously approved segregation request is revoked or segregation is terminated, no *outage* compensation will apply.

Required steps - When submitting a request for operation in segregated mode, *generation facilities* must:

- Submit an *outage* request for their units for the duration of the segregated mode.
- Submit a second *outage* request for the time required to ramp down the units to zero (to be submitted within the hour prior to the start of the first *dispatch hour* to which the segregated request pertains).
- Maintain the *offers* for their *generation resources* for each *dispatch hour* in which these *resources* will or are intended to operate in *segregated mode of operation*[12].

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

- Notify the *IESO* by phone that the Request for Segregation was submitted (**MR Ch.7 App.7.7 s.1.3.5**).

Returning from segregation – When units are returning from *segregated mode of operation*, *generation facilities* must ensure:

- The *outage* for their units ends at the same time the units are to be reconnected to the *IESO-controlled grid*.
- Valid *offers* are in the *IESO* systems for these units, for the hour they will be returning from *segregated mode of operation*. When submitting their *offers*, *generation facilities* must respect the short notice submission criteria as specified in the *market rules*.
- If necessary, to zero their revenue meter while in *segregated mode of operation* in order to be removed from the *IESO's* settlements process.
- Notify the *IESO* by phone of the request for desegregation (**MR Ch.7 App.7 ss.1.3.3** and **1.3.4**).

Purpose codes – *Market participants* are required to use the 'Segregated Mode of Operation' purpose code when submitting *outage* requests, Table 5-7 provides an example:

Table 5-7: Example Codes When Requesting Planned Segregated Mode of Operation

Priority Code	Constraint Code	Purpose Code
Planned	OOS	Segregated Mode of Operation (SMO)

5.2 Loads

5.2.1 Dispatchable Loads

(MR Ch.5 s.3.5.1)

Required submissions – Any *planned outages, forced outages*, restrictions, deratings or changes in configuration of power system auxiliaries and *transmission facilities* operated at 50 kV or higher that form part of, or are, connected to the *IESO-controlled grid* and which affect the operation of the *dispatchable load*, must be submitted to the *IESO*. These *outages* shall be coordinated and submitted by the owner of the *facility* required to be on *outage*. For *outages* to the transmission element to which the *dispatchable load* is connected, the *transmitter* will apply for the *outage* and coordinate with the customer.

Example – Table 5-8 provides example codes for *dispatchable loads* when submitting *planned outage* requests:

Table 5-8: Example Codes for Planned Outages to Dispatchable Loads

Priority Code	Constraint Code	Purpose Code
Planned	DRATE	Repair

5.2.2 Connected Wholesale Customers

(MR Ch.5 s.3.5.1)

Informational purposes – For *wholesale customers* that are required to submit information about the planned shutdown in advance, approval from the *IESO* is not required as the *outage* is supplied for informational purposes only.

Priority, constraint, and purpose codes – *Market participants* are required to use the codes in Table 5-9 when submitting *outage* requests:

Table 5-9: Applicable Codes for Wholesale Customers

Priority Code	Constraint Code	Purpose Code
Information	INFO	Other

5.2.3 Distributors and Transmitters

(MR Ch.5 ss.3.4.1, 3.7.1 and 10.2.3)

Application – For greater clarity, the outage reporting obligations under **MR Ch.5 s.3.7.1** include *distributors* with embedded loads or generation that are not registered with the *IESO*.

Direct communication for demand management – The actual decrease in MW reduction of *demand* achieved through any *demand* control actions must be communicated directly to the *IESO* Control Room by telephone at the time that the reduction is implemented.

Example – Table 5-10 provides example codes for *distributors* and *transmitters* when submitting *planned outage* requests:

Table 5-10: Example Codes for Distributors and Transmitters

Priority Code	Constraint Code	Purpose Code
Planned	OOS	Switching

5.2.4 Outages and Non-Performance Event Management for Capacity Auction Resources

This sub-section outlines *outage* management requirements for *capacity auction resources* with *capacity obligations*.

5.2.4.1 Dispatchable Capacity Auction Resources (including Capacity Imports)

(MR Ch.7 ss.19.5.5, 19.5.6, 19.7.5, 19.7.6, 19.9.5, 19.9B5, 19.9B.6, 19.11.5 and 19.11.6)

Priority, constraint, and purpose codes – *Demand response resources* are required to use the codes in Table 5-11 when submitting *outage* requests:

Table 5-11: Applicable Codes for Demand Response Resources

Priority Code	Constraint Code	Purpose Code
Information	INFO	Other

5.2.4.2 Non-Performance Event Management for Hourly Demand Response Resources

(MR Ch.7 ss.19.4.9 – 19.4.10)

HDR Resources with a Capacity Obligation Acquired through the Capacity Auction

Record requirements – Capacity *market participants* with an *hourly demand response* (HDR) *resource* that has a *capacity obligation* are required to maintain records of all reductions to *demand response capacity* of 5 MW or greater during an *obligation period*. The *IESO* may request the records for a period of one year from the end of the associated *commitment period.* If requested, these records must be provided to the *IESO* by email by the deadline defined by the *IESO*. The records must contain the following details:

- description of event
- *resource* name
- trade date
- hours of reduced capacity
- registered capacity of the HDR *resource*
- amount of reduction (MW) to *demand response capacity*
- action taken to manage *energy bid*

Notice to IESO – For any quantity, *capacity market participants* whose HDR *resources* received an activation report with an activation notice on the *dispatch day* are required to notify the *IESO* Control Room by telephone as soon as practical if they are unable to provide their activation amount.

Timing of dispatch data revisions – *Capacity market participants* are required to update *bids* for HDR *resources* pursuant to **MR Ch.7 s.19.4.10** for any reduction

to *demand response capacity* occurring on the day prior to the *dispatch day* or *dispatch day* to reflect the reduced *demand response capacity.*

Contributor outage submission – *Capacity market participants* with an HDR *resource* who wish to submit a *contributor outage* should do so in accordance with the procedures outlined in **MM 12**.

5.3 All Market Participants

(MR Ch.5 ss.3.2.1 and 3.4.1)

Reliability of individual customer connections – As per *market rules* and the *operating agreements* between *transmitters* and the *IESO*, the *IESO*'s *outage* assessments will not include assessments of impacts to the *reliability* of individual customer connections. Assessing the *reliability* of individual customer connections is the role of the *transmitter,* who is required to:

- coordinate *outages* impacting customer connections; and
- recommend changes to transmission configuration and or recall or cancel *outages* to secure the supply to customer connections during a *high-risk operating state* or a *conservative operating state*.

5.3.1 Monitoring and Control Equipment

(MR Ch.4 ss.7.7.1 – 7.7.4)

Example – Table 5-12 provides example codes for *market participants* when submitting *planned outage* requests to monitoring and control equipment:

Table 5-12: Example Codes for Planned Outages to Monitoring and Control Equipment

Priority Code	Constraint Code	Purpose Code
Planned	OOS	Other

5.3.2 System Tests

(MR Ch.5 s.6.6)

Test coordinator – Where required, arrangements shall be made for a Test Coordinator to be appointed. The name and role of the Test Coordinator shall be specified in the *outage* submission. The duties of the Test Coordinator include:

- defer, limit, or stop the System Test due to unfavorable system conditions or test results;
- monitor test conditions in the area involved; and

- act as a communicator, and other roles as agreed upon in the *outage* submission.

Additional outages included in submission – If the *outage* submission involves additional *outage*s or safety code procedures, the requestor shall ensure that *outage* requests are submitted by the appropriate *market participant(s)*.

Exclusions – Examples of requirements that will not be considered power system tests and should be arranged in the normal manner for *outages* include:

- routine generation unit and *electricity storage unit* rejections;
- routine protection and control maintenance and testing;
- routine commissioning tests; and
- Work or testing on hydraulic waterways and storage.

Purpose codes – *Market participants* are required to use the 'Testing' purpose code when submitting *outage* requests, Table 5-13 provides an example:

Table 5-13: Example Codes When Submitting Planned System Test Requests

Priority Code	Constraint Code	Purpose Code
Planned	IS	Testing

5.3.3 Testing of Ancillary Services

(MR Ch.4 App.4.2; MR Ch.5 s.4.9)

Timing and scheduling – Tests must be successfully completed prior to entering into a *contracted ancillary services* contract, for a *resource* providing *regulation* or black start services, and at least annually thereafter throughout the contract period. Tests shall be arranged and scheduled at a time mutually agreeable to both the *ancillary service provider* and the *IESO* in accordance with the *outage* scheduling processes outlined in this *market manual*.

Standards and procedures – Performance standards and testing procedures are prescribed in the "*IESO* – Ancillary Service Provider (ASP) Agreements for Procurement of Certified Black Start Facilities." Schedule 2 of this Agreement stipulates the required black start performance standards, with Schedule 3 articulating the required testing procedures. **MR Ch.4 App.4.2** governs performance standards for contracted reactive support and voltage control.

5.3.4 Testing Operating Reserve Providers

(MR Ch.5 ss.4.9-4.10)

Test assessment – The *IESO* will assess *market participants*' compliance with a test *operating reserve dispatch instruction* issued in accordance with MR Ch.5 s.4.9.2 according to the relevant *operating reserve offer* submission data. For the purposes of this manual, a failure to meet an *operating reserve* target during an *operating reserve* activation (ORA) will also be deemed as a test failure.

Special requirements and coordination – If *dispatchable load facilities* providing *operating reserve* identify special testing requirements, the *IESO* will coordinate testing within the first week of the *market participant*'s acceptance in the market as an *operating reserve* provider, or as soon as possible. Subsequent testing will occur on a periodic basis.

Unannounced tests – *Operating reserve* testing is the responsibility of the *IESO* and is conducted by the control room operators (CROs). The CROs will implement unannounced tests pursuant to **MR Ch.5 s.4.9.2** taking into account any *resources* with poor past performance that require additional testing.

Aggregated resources – If *operating reserve* testing is implemented on a *resource* that is part of an aggregate, compliance will be assessed on the output of the aggregate.

Note: If there is non-compliance to actual reserve activations, the following approach will be used with respect to removing offers.

Table 5-14: Implementing and Assessing Reserve Tests

If a market participant…	The IESO will…
Fails an **initial reserve test** or an ORA, (i.e., fails to meet *dispatch* target within prescribed time [10 or 30 minutes])	1. (At *IESO* discretion)[13] direct the *market participant* to remove its reserve *offers* on the *resource* for the **remainder of that day and the next day**. 2. Allow these changes within the two-hour mandatory window. 3. Retest the unit, normally within a week after it submits reserve *offers* again.

[13] Discretion may be applied in determining whether or not to direct a *market participant* to remove its reserve *offers* after a failed activation. The following may be taken into consideration:

- System conditions may exist where available *operating reserve* is particularly limited (e.g., freshet, tight supply conditions). Removal of reserve *offers* may lead to potential shortfall.
- A *resource* that failed to meet the reserve target within the required time may have faced legitimate circumstances that led to the failed activation. If these circumstances have been, or are expected to be rectified, then future activation of reserve is expected to be met without failure.

If a market participant…	The IESO will…
Fails their **first retest** of the reserve test or an ORA, (i.e., fails to meet *dispatch* target within prescribed time [10 or 30 minutes])	1. Direct the *market participant* to remove its reserve *offers* on the *resource* for **one week**. 2. Allow these changes within the two-hour mandatory window. 3. Retest the unit, normally within a week after it submits reserve *offers* again.
Fails their **second retest** of the reserve test or an ORA, (i.e., fails to meet *dispatch* target within prescribed time [10 or 30 minutes])	1. Direct the *market participant* to remove its reserve *offers* on the *resource* **indefinitely**. 2. Allow these changes within the two-hour mandatory window. 3. Initiate follow-up with the involved *market participant.* As a result of this follow-up, a decision will be made as to whether the *facility* should be removed from the reserve market, and the circumstances for allowing the return to the reserve market.
• Fails a reserve test because of an unforeseen forced *outage* or equipment limitation, and • Is NOT a *dispatchable load*	Request the *market participant* to submit an *outage* to derate or force the equipment out-of-service.
• Fails a reserve test because of an unforeseen forced *outage* or equipment limitation, and • Is a *dispatchable load*	1. Request the *market participant* to change its *energy bid* to reflect the derate or force the equipment out-of-service. 2. Request the *dispatchable load* to remove its reserve *offers*, as the DSO cannot handle derates on *dispatchable loads*. 3. (Once the *forced outage* condition has been repaired) allow the *market participant* to resubmit its reserve *offers* within the two-hour mandatory window.

5.3.5 Hold-offs

(MR Ch.5 ss.3.4.1.3 – 3.4.1.4)

Definition – Hold-offs are restrictions in the use of transmission lines to facilitate maintenance activities. Automatic reclosure is blocked and manual reclosure is restricted until contact is made with the hold-off party. Single and multiple element hold-offs may be granted Auto AA or FAA.

Constraint codes – *Market participants* are required to use the 'HOLDOFF' constraint code when submitting *outage* requests, Table 5-15 provides an example:

Table 5-15: Example Codes When Submitting Planned Hold-off Requests

Priority Code	Constraint Code	Purpose Code
Planned	HOLDOFF	Other

5.3.6 New and Replacement Facilities

(MR Ch.5 s.6.4A)

Submission prior to energization or return to service – *Market participants* are required to report an *outage* prior to:

- energization of any new *facility*:
- energization of any new *resource* equipment thay may impact the *reliability* and/or operability of the *IESO-controlled grid*; or
- returning into service replacements of any existing *facility* equipment impactive on the *reliability* and/or operability of the *IESO-controlled grid*.

Not eligible for one-day advance approval – *Outage* submissions requesting the energization of new *facilities* are not eligible to be requested for the *One-day Advance Approval* process, as the timelines of this process do not allow for the *IESO* to adequately assess the impact of the new *facilities*. In addition, *market participants* must ensure that all applicable *facility* registration requirements are complete, prior to the commencement of any such *outage*.

Example codes – Table 5-16 provides example codes for *market participants* when submitting *planned outage* requests to new and replacement *resources*:

Table 5-16: Example Codes When Requesting Planned Outages to New and Replacement Resources

Priority Code	Constraint Code	Purpose Code
Planned	MUSTRUN	Replacement

– End of Section –

6 Replacement Energy to Support Planned Outages

(MR Ch.3 s.6.6.10A; MR Ch.5 ss.6.3.6 and 6.3.9; MR Ch.7 ss.7.5.8A – 7.5.8B)

Criteria for determining the minimum quantity – Where, based on the *IESO's* assessment of *security* and *adequacy*, the *IESO* permits the *generation facility* or *electricity storage facility* to arrange for replacement *energy*, the *IESO* shall determine the minimum MW amount to be arranged as replacement *energy* pursuant to **MR Ch.5 s.6.3.9** based on the following:

- The MW amount of replacement *energy* shall be no less than the forecast shortfall from the *Adequacy* Report as determined prior to *advance approval* being provided or based on more current information in the *Adequacy* Report;
- Where the shortfall occurs beyond the period of 14 days, the *IESO* will identify the weeks of shortfall and the maximum amount to be arranged for these weeks based on the Day 15 to 34 Adequacy Reports or the Reliability Outlook report prior to *advance approval* being provided. The *generation facility* or *electricity storage facility* should wait until the shortfall is detailed in an *Adequacy* Report covering the Day 0 to 14 period, to identify the specific shortfall hours and amounts to finalize the amount of replacement *energy*. In any case, replacement *energy* must be finalized by the *generation facility* or *electricity storage facility* no later than 16:00 EST three *business days* prior to the commencement of the shortfall week(s); and
- Shall not exceed the amount of *energy* that was agreed to at the time of finalization or 500 MW.

Submission process and required information – *Generation facilities* and *electricity storage facilities* shall convey to the *IESO* their arrangement for replacement *energy* by way of the comments field in the *outage* management system with the following information:

- the *intertie* where *offers* will be submitted;
- a unique identifier associated with the e-Tag or a unique e-Tag ID;
- the MW amount to be *offered* and the duration of the *offers* (if finalized), and the *registered market participant* associated with a *registered facility* that is a *boundary entity resource* that shall submit the *offers*.

Day-ahead market submission and compliance enforcement – Once the *IESO* has approved or provided additional direction to the *generation facility* or *electricity*

storage facility specifying the details of the replacement *energy* import *offers*, the *generation facility* or *electricity storage facility* whose *outage* was approved is obligated to ensure that these *offers* are submitted to the *IESO* for the *day-ahead market*. The *boundary entity resource* who shall provide replacement *energy* and that is subject to *dispatch instructions* received from the *IESO*, is subject to the failed *intertie* transaction rules in **MR Ch.7 ss.7.5.8A** and **7.5.8B** and **MR Ch.3 s.6.6.10A** and any compliance guidelines and enforcement.

Intertie scheduling – The *IESO* may specify the *intertie(s)* where the replacement *energy* is to be scheduled in order to meet *reliability* requirements.

Criteria for determining duration of offers – Pursuant to **MR Ch.5 s.6.3.9**, the *IESO* shall determine the duration of *offers* necessary to support the *outage* based on the following:

- *reliability* and/or operability impacts on the *IESO-controlled grid*;
- forecast capabilities of the *interconnections* for the duration of the *planned outage*; and
- forecast *adequacy* of neighbouring jurisdictions for the duration of the *planned outage*.

Submission requirements – The duration that replacement *energy offers* to be submitted to the *IESO* as part of the *pre-dispatch scheduling process* shall be:

- no less than the period of the shortfall hours applied to each day of the week(s)[14] of the shortfall; and
- no greater than the total duration of the *outage*.

Example – For example, a *generation facility* or *electricity storage facility* requests a 300 MW *outage* over three weeks. A shortfall of 100 MW is identified on the Tuesday of the second week between 9:00 AM to 10:00 AM EST. The *IESO* will notify the *market participant* of the shortfall and reject the *outage*.

In order to get approval for the *outage* request, the *market participant* must agree to arrange for replacement *energy* from 9:00 AM to 10:00 AM EST (shortfall hours) for all days of the second week.

However, the *market participant* may wait until 16:00 EST three *business days* prior to the commencement of the second week of the *outage*, to finalize the amount and hours of replacement *energy*. By waiting to finalize the amount, the *generation*

[14] For the purposes of *outage* replacement *energy*, week is defined as weekdays (Monday to Friday excluding holidays). Where shortfalls occur on a weekend or holiday, the *IESO* will identify this requirement to the *generation facility* or *electricity storage facility* and the *generation facility* or *electricity storage facility* will be required to arrange for replacement *energy* to cover these shortfalls.

facility or *electricity storage facility* accepts that the purchase amount may increase from the amount forecast when the *outage* was given *advance approval*.

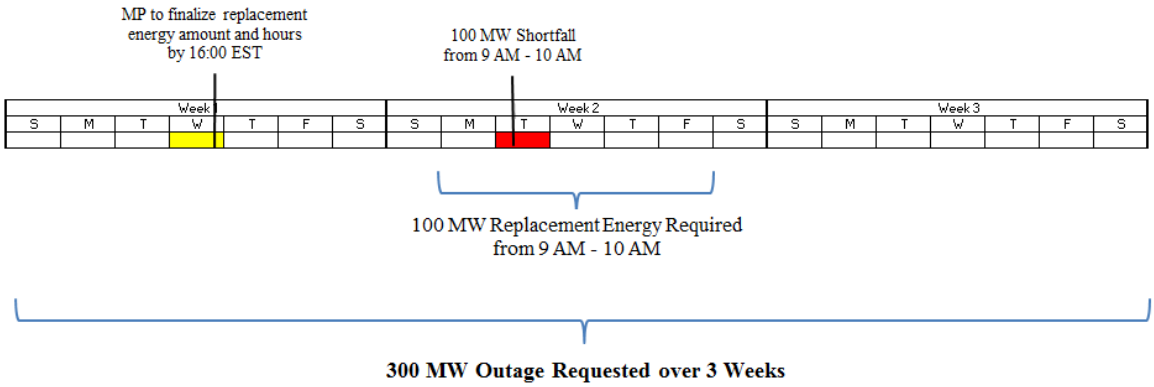

Figure 6-1: Purchase of Replacement Energy – Requirements and Confirmation Timeline

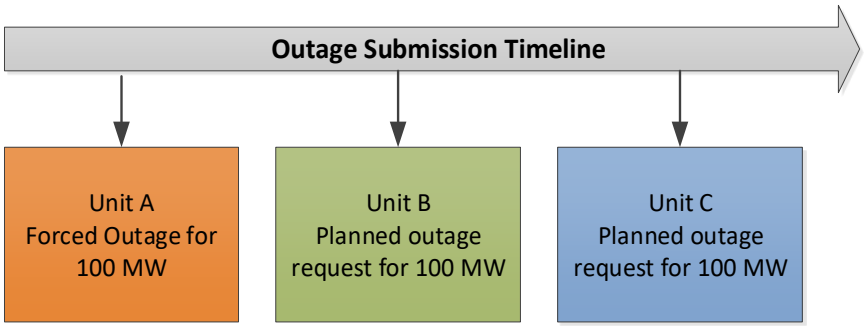

Figure 6-2: Outage Submission Timeline Example

Figure 6-2 depicts the submission timeline of three *outages* creating a shortfall totalling 300 MW. Unit B and Unit C are offered the opportunity to purchase replacement *energy*.

Table 6-1: Replacement Energy Purchase

If…	Then…
Unit B chooses to purchase replacement energy	• Unit B is required to purchase 200 MW, to clear shortfall caused by *forced outage* plus its *outage*. • Unit C is required to purchase 100 MW
Unit B chooses not to purchase replacement *energy*	• *Outage* to Unit B is rejected. • Shortfall is reduced to 200 MW • Unit C is required to purchase 200 MW, to clear shortfall caused by *forced outage* plus its *outage*.

Priority assessment – *Generation facilities* and *electricity storage facilities* that have arranged replacement *energy* to support their *planned outage* are assessed based on priority according to the following:

- When requesting *outage* approvals during periods of *adequacy* concerns, *generation facilities* or *electricity storage facilities* who have arranged for replacement *energy* to support a *planned outage* will have a higher priority than *outages* that have chosen not to arrange replacement *energy* (and would otherwise be rejected).
- Where more than one *generation facility* and/or *electricity storage facility* has indicated that they wish to arrange for replacement *energy* and, because of *security* or *adequacy* concerns, *advance approval* cannot be given to all such *generation facilities* and/or *electricity storage facilities*, the *generation facility* or *electricity storage facility* with an earlier priority date will be given priority.

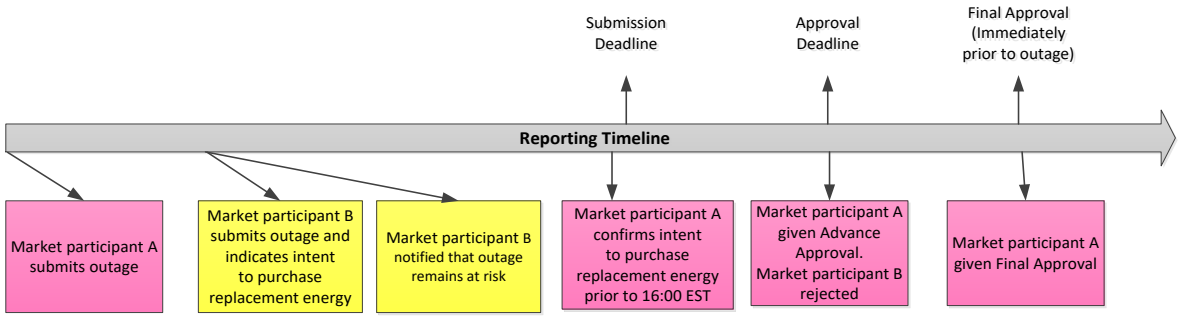

Figure 6-3: Precedence of Outages Based on Purchase of Replacement Energy

- Where a *generation facility* or *electricity storage facility* is identified to be at risk after the replacement *energy* confirmation timeline but before the *advance approval* timeline as detailed in section 3.7, and then confirms the intent to arrange replacement *energy* before the *advance approval* timeline, the *generation facility* or *electricity storage facility* shall maintain its priority date relative to *outages* that confirmed replacement *energy* before the confirmation timeline.
- Where a *generation facility* has to be revoked or recalled due to *energy* shortfalls identified after the *advance approval* or final approval was granted, precedence will be given based on the priority date, regardless of whether the approval is based on arranging replacement *energy*.
- Where a *generation facility* or *electricity storage facility* indicates that they intend to arrange for replacement *energy* and they do not have priority date precedence over other *generation facilities* or *electricity storage facilities* who may elect to arrange for replacement *energy* they will be notified that they may not be eligible. A final decision regarding eligibility cannot be made until the *outage* submission deadline. In this situation, it would be prudent

for *market participants* without priority date precedence to wait until the submission deadline before arranging replacement *energy*.

– End of Section –

7 Dispute Resolution

(MR Ch.3 s.2)

Application of dispute resolution process to outage management decisions – The *IESO* or an Applicant may initiate the Dispute Resolution process in accordance with **MR Ch.3 s.2** if either believes the circumstances warrant such action. Specifically, *market participants* may dispute any decision of the *IESO* related to *outage* management, such as rejection of an *outage* submission, revocation or recall of an approved *outage*, or denial of *outage* compensation.

No stay of obligations pending decision – *Market participants* must continue to follow the direction of the *IESO* until such time as the Dispute Resolution panel renders a decision.

– End of Section –

Appendix A: Outage Reporting Requirements

Outages must be coordinated with the *IESO,* and reported to the *IESO,* for any of the following *facility* group elements:

Transmission systems[15] operated at voltages of 100 kV or more:

- All element *outages* must be reported to the *IESO*.

Transmission systems operated at voltages less than 100 kV:

- Removal of step-down transformers with a low-side voltage less than 100 kV
- Involve the unloading of step-down transformers or their individual windings[16]
- Require paralleling or separation of buses via operation of bus tie breaker
- Result in a load transfer of 20 MW or greater between step-down transformer stations
- Adversely affect a *generation facility* or *dispatchable load* or *electricity storage facility*

Transmission or distribution reactive elements:

- 15 MVAR or greater in areas electrically south of Essa TS in Barrie
- 10 MVAR or greater in areas electrically north of Essa TS in Barrie
- Synchronous Condensers and Static VAR Compensators (SVCs)

Power system auxiliaries[17]:

- Control systems designed to dynamically respond to system conditions such as:

[15] *Facilities* that form part of or are connected to the *IESO-controlled grid* and used for the purpose of transmitting or distributing electricity. These *facilities* may be owned by a *transmitter*, *wholesale customer*, *distributor* or *generator*.

[16] Where multiple *facilities* involve logic that require those *facilities* be operated together (i.e., both a switch and a breaker are arranged in series and the switch cannot be operated without first opening the breaker), it is only necessary to report on one of those *facilities*.

[17] The following power system auxiliaries are excluded from *outage* reporting:

- Switchyard auxiliaries that do not affect, or the loss of an additional element that does not affect, the operation of the *IESO-controlled grid* or the operation or capability of components of the *IESO-controlled grid*.

Power system stabilizers (PSSs)

Automatic voltage regulation (AVR)

- Operating aids such as:

  Circuit auto-reclosure schemes

  Voltage reduction *facilities*

- Underfrequency load shedding (ULFS) *facilities*
- Primary or backup protection systems designed to detect and isolate failed or faulted elements
- Breaker failure protection
- Breaker trip coil test
- *Remedial action schemes (RAS)* that detect identified system conditions and take corrective action such as:

  Combined generation facility, or electricity storage facility, load rejection schemes

  Reactor tripping schemes

- Communication *facilities* such as:

  SCADA

  RTUs, ICCP links or telemetry *facilities* for display of quantities

  Market participant dispatch tools and facilities

- Step-down transformer station low voltage bus protections and low voltage reactive *resource* protections (capacitors), unless they cause unavailability of the component and/or a reconfiguration of the *IESO-controlled grid*.
- Feeder protections and feeder breaker auto-reclosures, unless they create a load transfer during system tests, or restrict access to the *IESO-administered markets* of embedded *facilities*.
- Planned visual inspection or measurements of DC back-up power equipment causing no impact to functionality.
- Planned loss of redundancy to telecommunications 48 V DC back-up power equipment battery for testing or DC monitoring sensor replacement/repair with staff onsite, recall of 15 minutes or less, and not impacting functionality of the backup power supply.
- Planned loss of redundancy to power system 125/250 V DC back-up power equipment battery for testing with staff onsite, recall of 15 minutes or less, and not impacting functionality of the back-up power supply.
- Planned *outage* to one back-up power equipment battery charger with recall of 15 minutes or less and not impacting sustained functionality of the back-up power supply.

- Communication *facilities* such as voice, data and protection tone communications
- Switchyard auxiliaries such as:

    AC and DC station services

    Supervisory control *facilities* or Control Room bench-boards

    Multi-breaker air supply systems including compressor plants and cable cooling systems

Non-registered facilities or non-registered embedded facilities[18]:

- Result in a change of more than 20 MW in *demand* or supply in an hour from what is typical for that hour (i.e. large industrial customers that periodically shut down plants for maintenance or holidays)

Dispatchable load resources/ Wholesale customers/electricity storage resources registered to withdraw (dispatchable and self-scheduling):

- Result in changes of more than 20 MW in *demand* or supply in an hour from what is typical for that hour.

Distributors and transmitters:

- Result in changes of more than 20 MW in *demand* or supply in an hour from what is typical for that hour.
- Demand control actions, including *demand* management, voltage reductions and disconnections.

Generation resources or electricity storage resources registered to inject energy:

- All *generation resources* or *electricity storage resources*
- *Segregated mode of operation* (SMO)
- Available but not operating (ABNO)
- Deratings:

    derating equal to the greater of 2% of rated output or 10 MW

    holds at a specific *load* for >30 minutes during start-up

- Affects the maximum output or minimum *load* of a *generation unit* or *electricity storage unit*

[18] If the *facility* is not registered with the *IESO*, this responsibility falls on the *market participants* (i.e. *transmission customers* for the *facility*).

- A component failure, operational limit or other circumstance that will cause the unit to trip
- Plant auxiliaries that affect more than a single *generation resource* or *electricity storage unit*, or aggregate of *generation resources* or *electricity storage units* where the loss of an additional element results in multiple unit/aggregate shutdowns within 48 hours such as:

    service air or instrument air

    boiler feed pumps

    station service

- Affects the availability to provide *ancillary services* such as:

    automatic generation control (AGC)

    voltage support

    black start service

Testing:

- All tests described in section 5.3.2: System Tests
- Testing of *generation units* or *electricity storage units*, including:

    in-service or commissioning tests

    testing of derated units at levels above the derated levels

    testing of units currently on *outage*

    tests of facilities providing ancillary services

All Equipment:

- Hold-off
- Energization:

    energization of any new *facility*; or

    energization of any new *facility* equipment impactive on the *reliability* and/or operability of the *IESO-controlled grid*; or

    returning into service replacements of any existing *facility* equipment impactive on the *reliability* and/or operability of the *IESO-controlled grid*.

– End of Appendix –

Appendix B: Equipment Classes and Applicable Constraint Codes

Table B-1: Applicable Constraint Code per Equipment Class

	Constraint Code											
Equipment Class	**OOS**	**IS**	**DRATE**	**MUSTRUN**	**HOLDOFF**	**AVR/PSS OOS**	**ASP OOS**	**PROT OOS**	**BF PROT OOS**	**BTCT**	**INFO**	**ABNO**
Line	x	x			x			x			x	
Line Section	x	x			x			x			x	
Breaker	x	x							x	x	x	
Disconnect Switch	x	x									x	
Bus	x	x						x			x	
Transformer	x	x						x			x	
Reactor	x	x	x					x			x	
Capacitor	x	x	x					x			x	
SVC	x	x	x	x				x			x	
Converter	x	x	x	x				x			x	
Filter	x	x	x					x			x	
Phase Shifter	x	x						x			x	
Voltage Regulator	x	x						x			x	
UFLS Relay	x	x									x	

	Constraint Code											
Equipment Class	**OOS**	**IS**	**DRATE**	**MUSTRUN**	**HOLDOFF**	**AVR/PSS OOS**	**ASP OOS**	**PROT OOS**	**BF PROT OOS**	**BTCT**	**INFO**	**ABNO**
Synchronous Condenser	x	x	x	x				x			x	
Generation Facility, Electricity Storage Facility	x	x	x	x		x	x	x			x	x
Load	x	x	x	x			x	x			x	
AC/DC Station Service[19]	x	x									x	
SPS[19]	x	x									x	
Tone Communication Channels[19]	x	x									x	
RTU/ICCP/HUB Equipment[19]	x	x									x	
Other Communication Equipment[19]	x	x									x	
Other Miscellaneous Equipment[19]	x	x									x	

– End of Appendix –

[19] *Market participants* are required to input a description of the equipment for this equipment class, in the *outage* management system.

Appendix C: Criteria for One-Day Advance Approval, Auto AA and FAA

Planned outage requests containing only low-impact equipment must be submitted for *one-day advance approval*. *Outage* requests containing eligible equipment, with no conflicting *outage* requests (refer to section 4.2 for *outage* conflicts) and that satisfy low-impact criteria may be eligible to receive auto *advance approval* (Auto AA) (i.e. automatically transition to Advance Approved status on submission) and in some cases may also receive final approval in advance (FAA). The eligibility criteria for *one-day advance approval*, Auto AA and FAA are described in the table below.

Table C-1: Criteria for One-Day Advance Approval, Auto AA and FAA

A Outage Type	B Equipment Class	C Constraint Code	D Low-impact Attributes	E Additional Conditions	F One-Day Advance Approval	H Auto AA	I FAA
Generator outage or *Electricity storage facility outage*	*Generation facility* or *Electricity storage facility*	OOS, IS, DRATE, MUST RUN		Planned Start and End Date/Time are in the same day or Maximum Recall is 15 minutes or less	Y	N	N
Available But Not Operating	*Generation facility or Electricity storage facility*	ABNO		Priority Code = Information	N	Y	N
Automatic Voltage Regulation (*AVR*) or Power System Stabilizer (PSS)	*Generation facility* or *Electricity storage facility*	*AVR*/PSS OOS	Only a Loss of Redundancy?" = YES (Answer)		Y	Y	Y

A Outage Type	B Equipment Class	C Constraint Code	D Low-impact Attributes	E Additional Conditions	F One-Day Advance Approval	H Auto AA	I FAA
Ancillary Services	*Generation facility,* Load or *Electricity facility*	ASP OOS		Planned Start and End Date/Time are in the same day or Maximum Recall is 15 minutes or less	Y	N	N
Primary protections	Line, Line section, *Generation facility,* or *Electricity storage facility,* Bus, Transformer, Reactor, Capacitor, SVC, Phase shifter, Voltage regulator, Synchronous Condenser, Converter, Filter, Load	PROT OOS	"Only a Loss of Redundancy?" = YES (Answer)	Maximum Recall is 15 minutes or less	Y	Y	Y
				Maximum Recall is greater than 15 minutes	Y	N	Y
Holdoffs	Line, Line section	HOLDOFF			Y	Y	Y

A Outage Type	B Equipment Class	C Constraint Code	D Low-impact Attributes	E Additional Conditions	F One-Day Advance Approval	H Auto AA	I FAA
Breaker failure protections	Breaker	BF PROT OOS			Y	N	N
			"Adjacent breakers OOS?" = NO (Answer) AND "Only a Loss of Redundancy?" = YES (Answer) ELSE, IF Question: "Only a Loss of Redundancy?" = NO (Answer) THEN "CTs on both sides of the breaker?" = YES (Answer)	Only one piece of Equipment is on the Outage Request Continuous and ≤ 4 hours in duration No overlapping BF PROT OOS *outage*s at the same station	Y	Y	N
Breaker trip coil tests	Breaker	BTCT			Y	N	N
AC/DC station service	AC/DC Station Service	OOS	"Only a Loss of Redundancy?" = YES (Answer) "Does the SS supply Cooling to any equipment on the ICG?" = YES (Answer)	Maximum Recall is 15 minutes or less	Y	N	N

A Outage Type	B Equipment Class	C Constraint Code	D Low-impact Attributes	E Additional Conditions	F One-Day Advance Approval	H Auto AA	I FAA
		OOS	"Only a Loss of Redundancy?" = YES (Answer) "Does the SS supply Cooling to any equipment on the ICG?" = NO (Answer)	Maximum Recall is 15 minutes or less	Y	Y	Y
		IS		Maximum Recall is 15 minutes or less	Y	N	N
Tone communication channels	Tone Communication Channels	OOS	Only a Loss of Redundancy?" = YES (Answer) "RTU or HUB Affected?" = YES (Answer)	Maximum Recall is 15 minutes or less	Y	N	N
		OOS	Only a Loss of Redundancy?" = YES (Answer) "RTU or HUB Affected?" = NO (Answer)	Maximum Recall is 15 minutes or less	Y	Y	Y
		IS		Maximum Recall is 15 minutes or less	Y	N	N
Radial lines	Transmission circuit	OOS, IS, DRATE		*Facility* Class = 3 (Low-impact)	Y	Y	N

A Outage Type	B Equipment Class	C Constraint Code	D Low-impact Attributes	E Additional Conditions	F One-Day Advance Approval	H Auto AA	I FAA
Transmission *facilities* operated at voltages < 100 kV	Breaker, Bus, *Disconnect* Switch, Transformer, Load	OOS, IS, DRATE		*Facility* Class = 3 (Low-impact)	Y	Y	N
LV reactive devices	Capacitor, Reactor	OOS		*Facility* Class = 3 (Low-impact)	Y	N	N
UFLS equipment	UFLS Relay	OOS		*Facility* Class = 3 (Low-impact) UFLS Validation Threshold passes (i.e. Sum UFLS Area *Outages* < UFLS Area Outage Margin)	Y	Y	Y
Special Protection Scheme	SPS	OOS	Only a Loss of Redundancy?" = YES (Answer)	Maximum Recall is 15 minutes or less	Y	N	N
		IS		Maximum Recall is 15 minutes or less	Y	N	N
RTU/ICCP/HUB Equipment	RTU/ICCP/HUB Equipment	OOS	Only a Loss of Redundancy?" = YES (Answer)	Maximum Recall is 15 minutes or less	Y	N	N
		IS		Maximum Recall is 15 minutes or less	Y	N	N

A Outage Type	B Equipment Class	C Constraint Code	D Low-impact Attributes	E Additional Conditions	F One-Day Advance Approval	H Auto AA	I FAA
Other Equipment	Other Communication Equipment, Other Miscellaneous Equipment	OOS	Only a Loss of Redundancy?" = YES (Answer)	Maximum Recall is 15 minutes or less	Y	N	Y
		IS		Maximum Recall is 15 minutes or less	Y	N	N

– End of Appendix –

List of Acronyms

Acronym	Term
ABNO	available but not operating
AGC	*automatic generation control*
ASP OOS	ancillary service out-of-service
Auto AA	auto *advance approval*
AVR	*automatic voltage regulation*
AVR/PSS OOS	*automatic voltage regulation* or power system stabilizer out-of-service
BA	balancing authority
BF PROT OOS	breaker fail protection out-of-service
BTCT	breaker trip coil test
CRO	control room operator
DAM	*day-ahead market*
DRATE	derated to
DSO	*Dispatch* Scheduling Optimizer
EPT	Eastern Prevailing Time
EST	Eastern Standard Time
FAA	final approval in advance
HDR	hourly *demand response*
HOLDOFF	hold off
ICCP	Inter-Control Centre Communications Protocol
INFO	information
IS	in-service
kV	kilovolt
LV	low voltage
MUSTRUN	must run at
MVA	megavolt-amp

Acronym	Term
MVAR	megavolt-amp reactive
MW	megawatt
NERC	*North American Electric Reliability Corporation*
NPCC	*Northeast Power Coordinating Council*
OOS	out-of-service
ORA	*operating reserve* activation
PROT OOS	protection out-of-service
PSS	power system stabilizer
RC	reliability coordinator
RTU	remote terminal unit
SMO	*segregated mode of operation*
SPS	special protection system
SVC	static VAR compensators
TS	transmission station
UFLS	underfrequency *load* shedding
VAR	volt-amp reactive

– End of Section –

References

Document ID	Document Title
RUL-6 to RUL-24	Market Rules for the Ontario Electricity Market
MAN-108	Market Manual 1.5: Market Registration Procedures
MAN-132	Market Manual 2.1: Dispute Resolution
MAN-133	Market Manual 2.2: Exemption Application and Assessment
MAN-136	Market Manual 2.6: Treatment of Compliance Issues
MAN-137	Market Manual 2.7: Treatment of Market Surveillance Issues
MAN-140	Market Manual 2.11: Reliability Outlook and Related Information Requirements
MAN-110	Market Manual 4.2: Operation of the Day-Ahead Market
MAN-124	Market Manual 7.4: IESO-Controlled Grid Operating Policies
MAN-125	Market Manual 12.0: Capacity Auctions
MAN-168	Market Manual 13.1: Capacity Export Requests
N/A	Electricity Act, 1998
IESO_TPL_0020	IESO – Ancillary Service Provider (ASP) Agreement for Procurement of Certified Black Start Facilities
GDE-259	Outage Coordination and Scheduling System (OCSS) CROW Web Client User Guide

– End of Document –