
TUESDAY MARCH 23, 2021

Improving Awareness of System Operating Conditions

Mauro Facca

Manager, Operations Planning

Webinar Participation via Microsoft Teams

- Registration Link
- To interact, use “Chat” function to submit a written question or click on “Raise Your Hand”, located in the Participants panel at the top right of the application window to indicate to the host you would like to speak
- Audio should be muted at all times. To unmute audio, click on the microphone icon in the meeting controls row found at the bottom of the application window
- This webinar is conducted according to the IESO Engagement Principles

Agenda

- Engagement Objective and Scope
- Introduction: Advisory Notice and Operating State Review
- Summary: Phase 1 and 2
- Phase 1 Details
 - Questions
- Phase 2 Overview
 - Questions
- Next Steps

Engagement Objective

- The objective of this engagement is to improve stakeholder awareness of system operating conditions so that market participants are informed and have the opportunity to plan and prepare their operations accordingly.

Engagement Scope

- In-scope: Review and enhance what the IESO communicates to stakeholders through advisory and operating state notices
- Out-of-scope: How the IESO communicates to stakeholders through advisory and operating state notices.
 - The mechanism and/or technologies used to communicate to stakeholders is out of scope for this engagement

Introduction: Advisory Notice and Operating State Review

Today, the IESO informs stakeholders of system and market conditions through Advisory Notices and grid Operating States.

Recent operating events this past summer (e.g. extreme weather) have high-lighted opportunities to improve IESO communication to stakeholders.

Summary: Phase 1 and 2

	Phase 1 - Enhance	Phase 2 - Revise
Goal	Enhance situational awareness when the potential for stressed system conditions are more likely to occur.	Provide greater clarity on situational awareness when market participant actions may be needed.
Proposed Plan	Add two new advisory notices.	Revise advisory notice framework and add new operating state(s).
Engagement	Brief, limited input required from stakeholders.	Longer, more in-depth, input required from stakeholders.
Market Rule and/or Manual Changes	Minor internal manual changes.	Market Manual and Market Rule amendments.
Market Participant Actions Post Changes	Not required	Required



Phase 1 Details

Add two new advisory notices

Phase 1 - Advisory Notices: Current Framework and Proposed Enhancement

Advisory Notice Category	Advisory Notices Type	Enhancement
Normal	System Advisory	Add two new notices: <ul style="list-style-type: none">• Severe Weather Alert• Capacity Margin Alert
Normal	Major Change Advisory	n/a
*Emergency	System Emergency Advisory	n/a
*Emergency	Market Suspension/Resumption	n/a

The IESO would like to make stakeholders aware of possible stressed operating conditions. Since Phase 2 is expected to be a lengthy engagement, Phase 1 will act as an interim measure.

* An emergency category could also be any message to market participants requiring their immediate action

Phase 1 – Two New System Advisory Notices

These notices will inform market participants that we may be leading into either an extreme conditions alert or a capacity shortfall during stressed system operating conditions.

The triggers and analysis for the alerts are contained in Appendix A and a jurisdictional scan of capacity margin alerts is in Appendix B.

Severe Weather Alert

To be issued when forecasted weather in days 2 to 5 are leading to a potential extreme conditions alert.

Capacity Margin Alert

To be issued when capacity margins are less than 500MW for four consecutive hours or more in days 2 to 10.

Phase 1: Market Rule and Manual Implications

- **Market Rules:** No changes required as there are no proposed changes to the four types of advisory notices defined in Market Rules, Chapter 7, Section 12. (System Advisory, Major Change Advisory, System Emergency Advisory, Market Suspension/Resumption)
- **Market Manuals:** No changes required as market manuals do not provide a comprehensive list of all advisory notices
- **Internal Manuals:** Part 2, will require minor changes as to when to issue the two new advisory notices.

Phase 1: Next Steps

- Subject to any stakeholder feedback, the IESO will communicate to stakeholders the confirmed effective date and exact language of the notice
- Continue engagement with Phase 2

Phase 1: What Stakeholders Can Expect to See

- Severe Weather Alert
 - Extreme hot temperatures are forecasted for <date> to <date>
 - Extreme cold temperatures are forecasted in southern Ontario for <date> to <date>
 - Extreme cold temperatures are forecasted in northern Ontario for <date> to <date>
- Capacity Margin Alert
 - The capacity margin is forecasted to be less than 500 MW on <date> for hours ending <hours>



Questions?



Phase 2 Overview

Revise the advisory notice framework and add new operating state(s)

Phase 2 - Advisory Notices: Current Framework Review

Advisory Notice Category	Advisory Notices Type
Normal	System Advisory
Normal	Major Change Advisory
*Emergency	System Emergency Advisory
*Emergency	Market Suspension/Resumption

* An emergency category could also be any message to market participants requiring their immediate action

Phase 2: Advisory Notice Framework Revision

Replace the existing two types of categories (normal and emergency) as well as four advisory notice types (system, major change notices, system emergency and market suspension/resumption) with Alert, Warning and Action.

The existing advisory notices will be aligned into the new types.

May also require the addition of new notices for better alignment as we transition through each type.



Phase 2 - Operating State: Current Practice Review

*Three Operating States:	Conditions
Normal	No adverse weather, outage plans are progressing, equipment is at normal ratings and system operating within normal limits.
High-Risk	Declared when there is an increased risk of a contingency occurring on the system.
Emergency	Declared when there is an emergency issue relating to energy, capacity or an unstudied operating state.

*The three operating states are defined in Market Rules, Chapter 5, Section 2.

Phase 2: Introduction of New Operating State(s)

New operating state(s) are proposed to enhance situational awareness and posture the grid to be resilient when system conditions are stressed.

The goals are to inform market participants of:

- Tool and/or application issues or outages
 - Covers situations or events that deviate from normal but do NOT put the grid at risk
- Conditions of extreme weather and/or stressed operating conditions that require the grid's resiliency to be enhanced.
- May result in non-critical maintenance of equipment being suspended or in some cases, returned to service



Questions?

Next Steps

Timing	Engagement Activity
April 2021	Stakeholders to submit feedback if any to the IESO.
April Engagement Days, 2021 (date TBC)	Webinar: <ul style="list-style-type: none">• Discuss any feedback from stakeholders, final steps including effective date• Phase 2 details and timelines
Q2 – Q4	Phase 2: Multiple iterations of webinars, feedback from stakeholders, response from IESO, and market participant outreach.
2022	Phase 2 implementation including market manual, market rule, internal manual amendments.

Thank You

ieso.ca

1.888.448.7777

customer.relations@ieso.ca

engagement@ieso.ca



[@IESO Tweets](https://twitter.com/IESO)



facebook.com/OntarioIESO



linkedin.com/company/IESO



Appendix A – Severe Weather and Capacity Margin Trigger Analysis

Severe Weather Triggers

Extreme Heat

When Toronto is forecasting temperatures $\geq 35^{\circ}\text{C}$ and/or a humidex $\geq 40^{\circ}\text{C}$.

Extreme Cold

When Toronto is forecasting temperatures $\leq -20^{\circ}\text{C}$ and/or a wind chill $\leq -30^{\circ}\text{C}$.

When Thunder Bay is forecasting temperatures $\leq -30^{\circ}\text{C}$ and/or a wind chill $\leq -40^{\circ}\text{C}$.



Severe Weather Triggers

Severe weather advisories related to events, such as, ice storms, snow storms and tornadoes will be based on direction from our third party weather provider and asset owners.

Severe Weather Triggers: Historical Analysis

Region	Season	Weather Parameter	Trigger Point	No. of Days Trigger Exceeded				
				2016	2017	2018	2019	2020
Southern Ontario (Toronto)	Summer	Temperature	$\geq 35^{\circ}\text{C}$	3				
		Humidex	$\geq 40^{\circ}\text{C}$	8	1	11	3	9
	Winter	Temperature	$\leq -20^{\circ}\text{C}$		2	4	4	1
		Wind-chill	$\leq -30^{\circ}\text{C}$		2	4	6	1
Northern Ontario (Thunder Bay)	Winter	Temperature	$\leq -30^{\circ}\text{C}$		4	6	9	2
		Wind-chill	$\leq -40^{\circ}\text{C}$		5	3	9	2

Capacity Margin Trigger - Analysis

Proposal is to issue when capacity margins are less than 500MW for four consecutive hours or more in days 2 to 10.

Historical

From 2016 to 2020 there would have been 14 days when we would have issued a Capacity Margin Alert.



Appendix B – Capacity Margin: Regional Scan

Capacity Margin: Regional Scan

New England ISO, PJM and MISO all have some form of a capacity margin alert.

New England will issue a capacity margin alert up to 21 days in advance of a dispatch day when capacity margins are less than 200MW.

PJM performs an adequacy assessment and will issue an alert when they begin to depend on: demand response; long-lead time start of generating units; and/or operating to the nameplate capacity of generating units.

MISO will issue a capacity margin advisory up to 3 days in advance when margins fall below 5%.