

Reliability Standards Review

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Stakeholder Webinar

August 26, 2020

Meeting Participation

- Webcast participation (including audio):
 - <https://www.meetview.com/ReliabilityStandardReview082020/>
 - Click “Ask a Question” in the bottom right corner of the screen to ask a question
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 - Local (+1) 416 764 8640; Toll Free (+1) 888 239 2037
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- Public chat:
 - Click “Open Chat” in the bottom right corner of the screen to chat with other webinar participants
- This stakeholder engagement is guided by the IESO [Engagement Principles](#)

Today's Presenters



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Agenda

1. Background
2. Summary of due allowances
3. Forced outages: considerations
4. Non-firm imports: considerations
5. Next steps and stakeholder feedback

Background

Annual Planning Outlook

A view of Ontario's electricity system needs

JANUARY 2020

5.1 Capacity Needs, Uncertainty and Planning Criteria

It is important to recall that the capacity need identified in Chapter 4 is the result of a probabilistic risk assessment. This accounts for a fair degree of uncertainty in the key parameters of this outlook. However, any forecast of this type is based on a range of assumptions for which all uncertainty cannot be accounted.

One such variable is the set of planning assumptions and reliability criteria used in this analysis. The IESO has identified certain aspects of these assumptions and criteria which, if revised, may change the results of this analysis. Over the coming year, the IESO intends to conduct a review of its reliability criteria.

- As we transition from years of surplus supply, we see an opportunity to challenge our own thinking related to our adequacy assessments
- We want to be sure that we apply appropriate assumptions while considering ratepayer value

Authorities and Standards

- **Northeast Power Coordinating Council (NPCC, Regional):**
 - NPCC – Directory #1
 - “Design and operation of the bulk power system”
- **Ontario (IESO):**
 - Ontario Resource and Transmission Assessment Criteria (ORTAC) Section 8
 - Market Manual 7.2



NPCC Directory #1

Resource Adequacy

- Planning Standards require us to probabilistically evaluate resource adequacy to achieve a loss of load expectation (LOLE) of 0.1 days per year.
- Standards permit us to make due allowances for:
 - Demand uncertainty
 - Scheduled outages and deratings
 - Forced outages and deratings
 - Assistance over interconnections with neighboring areas
 - Transmission transfer capabilities
 - Capacity and/or load relief from available operating procedures

Demand Uncertainty

NPCC Guidance:

Make due allowance for demand uncertainty

Allowances for demand uncertainty tend to increase capacity requirements

Our Approach:

- Demand uncertainty is modeled using a Load Forecast Uncertainty (LFU) distribution for each month and zone
- The LFU distribution is created by simulating demand many times using the last 31 years of weather data
- The range of outcomes is converted to a discrete probability distribution that reflects the extent to which demand could deviate due to weather
- In each iteration of the simulation, all levels of the demand distribution are evaluated. The results are then weighted by its probability of occurrence.

Assessment:

We use established methodology, consistent with our NPCC peers. No change recommended.

Scheduled Maintenance

NPCC Guidance:

Make due allowance for scheduled outages and de-ratings

Allowances for scheduled maintenance tend to increase capacity requirements

Our Approach:

- Scheduled outage data is taken from a variety of sources:
 - New resources outages modelled using fleet averages
 - Existing resources modelled using historical outage rates, as well as maintenance plans submitted by facility owners (through IESO outage management program or Form 1230 submissions).

Assessment:

We use established methodology, consistent with our NPCC peers. No change recommended.

Forced Outages

NPCC Guidance:

Make due allowance for forced outages and de-ratings

Allowances for forced outage and de-ratings tend to increase capacity requirements

Our Approach:

- Thermal resources performance is measured with “Equivalent Forced Outage Rate on Demand” or $EFOR_d$.
 - $EFOR_d$ is the probability that a generating unit will not be available (completely or in part) during hours the unit is called upon to generate (i.e. during on-demand hours) due to forced outages and forced de-ratings.
 - Based on historic forced outage rates, modelled randomly through a Monte Carlo simulation.

Assessment:

We use established methodology, consistent with our NPCC peers. However, we see an opportunity to revisit certain seasonal contingency allowances.

Assistance Over Interconnections

NPCC Guidance:

Make due allowance for assistance over interconnections with neighboring areas

Allowances for economic, or “non-firm” imports tend to decrease capacity requirements

Our Approach:

- Economic, or “non-firm” imports have not been considered for our resource adequacy assessments in recent years.
- Non-firm imports are considered for outage planning and compliance reporting

Assessment:

We see an opportunity to consider the likelihood of real-time imports as part of our resource adequacy assessments.

- Consistent with planning assumptions used by our industry peers
- Contingent on regional availability, deliverability, and recognizing challenges of managing scheduled maintenance for Ontario resources.

Transmission Transfer Capabilities

NPCC Guidance:

Make due allowance for transmission transfer capabilities

Allowances for transmission constraints and limitations tend to increase capacity requirements

Our Approach:

- Major interface limits are respected between Ontario's 10 electrical "zones."
- If the required capacity transfer exceeds the interface limit, a loss of load occurs in the receiving zone.
- Deliverability within a zone is not considered as part of resource adequacy assessments.

Assessment:

We use established methodology, consistent with our NPCC peers. No change recommended.

Emergency Operating Procedures

NPCC Guidance:

Make due allowance for capacity and/or load relief from available operating procedures

Allowances for use of emergency procedures tend to decrease capacity requirements

Our Approach:

- Currently, the IESO does not include capacity and/or load relief from emergency operating procedures (e.g. voltage reductions to reduce demand)
- ORTAC Section 8.2 explicitly prohibits the consideration of operating procedures for capacity planning purposes.

Assessment:

We do not feel that emergency operating procedures should form part of our normal planning assessments. The relief provided by these measures is intended for dealing with *emergencies*, rather than being used as a surrogate resource. No changes proposed to current approach.

Forced Outages: Considerations

- Our winter assessments include additional contingency allowances (ACA).
- The ACA originated from the need to include additional buffer in the winter due to risk (and impact?) of generators tripping due to inclement weather.
- Ontario's generator fleet has evolved significantly over the past 15 years.
- We recommend a review of the fleet's cold weather performance to determine if current ACA value is appropriate.

Non-firm Imports: Considerations

To have confidence in forward-looking assumptions for non-firm imports, we require methodologies to address the following considerations:

- Excess capacity available in neighbouring areas (planning criteria)
- Excess supply available in neighbouring areas in real-time (timing of each area's peak demand)
- Sufficient intertie capability
- Imports likely to flow under tight supply conditions/prices
- Deliverable within Ontario
- Ability to manage non-discretionary outages (regulatory requirements)

Through our review, we have developed methods for answering some of these questions. They will need to be documented as part of this effort

Next Steps

Timing	Engagement Activity
August 26, 2020	Webinar
September 16, 2020	Stakeholder Feedback Due
October Engagement Days 2020 (date TBC)	Webinar: present the proposed methodology changes
November 16-18, 2020 (date TBC)	Stakeholder feedback due on proposed methodology changes
Q4 2020	Updated methodology documents posted

Stakeholder Feedback

- Today, the IESO has provided information on our internal review of planning assumptions related to resource adequacy.
- Stakeholders are invited to provide feedback on the areas to prioritize, as well as on the methodology and assumptions. We would also like to understand the potential impacts of the proposed changes on participant's businesses (outage planning, investment decisions, etc.).
- Please use the feedback form that can be found under the August 26, 2020 entry on the [Reliability Standards Review webpage](#) and send to engagement@ieso.ca by September 16, 2020.