

# Memorandum

**To:** ISO Board of Governors

**From:** Keith Casey, Vice President, Market & Infrastructure Development

**Date:** November 6, 2019

**Re:** Decision on local capacity technical study criteria proposal

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***This memorandum requires Board action.***

## EXECUTIVE SUMMARY

The local capacity technical study criteria is used annually by the ISO to establish local capacity requirements. The existing local capacity technical study criteria, which are set out in the tariff, pre-date the development of the North America Electric Reliability Corporation (NERC) mandatory standards and have remained unchanged from when they were first developed in the 2005-06 time frame. Consequently, they are not consistent with NERC mandatory standards as those standards were developed and evolved, nor with evolving standards developed by the Western Electricity Coordinating Council (WECC) and the ISO. The ISO proposes to align the local capacity technical study criteria for both the bulk electric system (BES) and non-BES with the mandatory NERC, WECC, and ISO's own planning standards.

Management recommends that the Board approve the updates to the local capacity technical study criteria described herein and in Attachment 1 to this memorandum and authorizes Management to develop the necessary tariff revisions.

Management recommends the following motions:

***Moved, that the ISO Board of Governors approves the proposed updates to the local capacity technical study criteria as described in the memorandum dated November 6, 2019; and***

***Moved, that the ISO Board of Governors authorizes Management to make all necessary and appropriate filings with the Federal Energy Regulatory Commission to implement the proposal described in the memorandum, including any filings that implement the overarching initiative policy but contain discrete revisions to incorporate Commission guidance in any initial ruling on the proposed tariff amendment.***

## DISCUSSION AND ANALYSIS

The local capacity technical study criteria was initially developed through the local capacity technical study advisory group, which was formed by the ISO to assist the ISO in its preparation for performing local capacity technical studies prior to the start of the resource adequacy program. They were subsequently included in the tariff, and approved by FERC.

The local capacity technical study criteria was established and included in the tariff before NERC mandatory standards were formed and represented a subset of the NERC voluntary standards established at the time.

Since the 2005-06 timeframe, NERC standards have become mandatory. Furthermore they have changed in form and substance. During these years the WECC regional standards and the ISO's own planning standards have also changed and evolved.

The ISO proposes to update the local capacity technical study criteria in order to align it with changes already implemented in the NERC, WECC and ISO standards over time. These include:

- Updating category definitions to align with current standards;
- Updating bulk electric system voltage level; and
- Aligning the local capacity technical criteria with mandatory NERC, WECC and the ISO's planning standards.

First, the ISO is proposing to replace the old reference and characterization (category A, B, C and D contingencies) with the new reference and characterization (planning events P0 through P7 and extreme events) to avoid confusion and more easily correlate the local capacity technical study criteria to the current applicable standards.

Second, the ISO proposes to align the local capacity technical study criteria for non-BES elements with current planning practice for the appropriate voltage levels by adjusting performance requirements for those elements to align with the ISO planning standards, rather than the NERC mandatory planning standards. NERC has adopted a new and different definition of BES than the one that was available when the local capacity technical study criteria was established. This new NERC definition of BES generally results in more elements that are *not* defined as BES (generally <100 kV), and to which NERC does not require application of the mandatory standards. Non-BES elements in the ISO control area are now planned only to meet ISO standards, and these standards are less stringent than both the NERC mandatory standards for BES and the existing local capacity technical study criteria.

Third, the ISO proposes to fully align the local capacity technical criteria for BES facilities with more stringent mandatory standards requirements of NERC, WECC and the ISO's planning standards, consisting of aligning both the categories of contingencies to be studied, and the

associated performance requirements. As well, one local capacity technical study criterion that is more stringent than the NERC mandatory standards' minimum performance requirements will be partially relaxed and clarified. This relates to the necessity to mitigate potential voltage collapse or dynamic instability due to single contingency outages followed by common mode contingency outages that could result in voltage collapse or dynamic instability.

## **POSITIONS OF THE PARTIES**

Between May and October 2019, ISO staff conducted two stakeholder calls and one in-person stakeholder meeting, with an opportunity to provide written comments after each step. Few stakeholders provided written comments, with the majority of comments expressing support for aligning the local capacity technical study criteria with the mandatory NERC, WECC and ISO standards. Management published the draft final proposal on September 5, 2019.

## **CONCLUSION**

Management requests Board approval of the updates to the local capacity technical study criteria described herein and in Attachment 1. Aligning the local capacity technical study criteria with the mandatory standards will provide a higher transparency and visibility to all local requirements and will align local capacity requirements with transmission planning activities.

***Difference between the mandatory standards vs. local capacity criteria.***

Contingency Component(s)	Mandatory Reliability Standards	Existing Local Capacity Criteria	Proposed Local Capacity Criteria
<b><u>P0 – No Contingencies</u></b>	X	X	X
<b><u>P1 – Single Contingency</u></b>			
1. Generator (G-1)	X	X <sup>1</sup>	X <sup>1</sup>
2. Transmission Circuit (L-1)	X	X <sup>1</sup>	X <sup>1</sup>
3. Transformer (T-1)	X	X <sup>1,2</sup>	X <sup>1</sup>
4. Shunt Device	X		X
5. Single Pole (dc) Line	X	X <sup>1</sup>	X <sup>1</sup>
<b><u>P2 – Single contingency</u></b>			
1. Opening a line section w/o a fault	X		X
2. Bus Section fault	X		X
3. Internal Breaker fault (non-Bus-tie Breaker)	X		X
4. Internal Breaker fault (Bus-tie Breaker)	X		X
<b><u>P3 – Multiple Contingency – G-1 + system adjustment and:</u></b>			
1. Generator (G-1)	X	X	X
2. Transmission Circuit (L-1)	X	X	X
3. Transformer (T-1)	X	X <sup>2</sup>	X
4. Shunt Device	X		X
5. Single Pole (dc) Line	X	X	X
<b><u>P4 – Multiple Contingency - Fault plus stuck breaker</u></b>			
1. Generator (G-1)	X		X
2. Transmission Circuit (L-1)	X		X
3. Transformer (T-1)	X		X
4. Shunt Device	X		X
5. Bus section	X		X
6. Bus-tie breaker	X		X
<b><u>P5 – Multiple Contingency – Relay failure (delayed clearing)</u></b>			
1. Generator (G-1)	X		X
2. Transmission Circuit (L-1)	X		X
3. Transformer (T-1)	X		X
4. Shunt Device	X		X
5. Bus section	X		X

<b><u>P6 – Multiple Contingency – P1.2-P1.5 system adjustment and:</u></b>			
1. Transmission Circuit (L-1)	X	x	X
2. Transformer (T-1)	X	x	X
3. Shunt Device	X		X
4. Bus section	X		X
<b><u>P7 – Multiple Contingency - Fault plus stuck breaker</u></b>			
1. Two circuits on common structure (L-2)	X	X	X
2. Bipolar DC line	X	X	X
<b><u>Extreme event – loss of two or more elements</u></b>			
Two generators (Common Mode) G-2	X <sup>4</sup>	X	X <sup>4</sup>
Any P1.1-P1.3 & P1.5 system readjusted (Common Mode) L-2	X <sup>4</sup>	X <sup>3</sup>	X <sup>5</sup>
All other extreme combinations.	X <sup>4</sup>		X <sup>4</sup>
<sup>1</sup> System must be able to readjust to a safe operating zone in order to be able to support the loss of the next contingency. <sup>2</sup> A thermal or voltage criterion violation resulting from a transformer outage may not be cause for a local area reliability requirement if the violation is considered marginal (e.g. acceptable loss of facility life or low voltage), otherwise, such a violation will necessitate creation of a requirement. <sup>3</sup> Evaluate for risks and consequence, per NERC standards. No voltage collapse or dynamic instability allowed. <sup>4</sup> Evaluate for risks and consequence, per NERC standards. <sup>5</sup> Expanded to include any P1 system readjustment followed by any P7 without stuck breaker. For voltage collapse or dynamic instability situations mitigation is required “if there is a risk of cascading” beyond a relatively small predetermined area – less than 250 MW - directly affected by the outage.			