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Interregional Study Update: Increasing New England Loss of Source Limit

#### December 2024 IPSAC Update

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#### Purpose

 This presentation provides an update on the ongoing joint study between ISO New England (ISO-NE), New York ISO (NYISO), and PJM to evaluate raising the New England loss of source limit

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## Background

- Today, in planning studies New England must respect a 1,200 MW loss of source limit to ensure reliability in both PJM and NYISO's areas
  - This 1,200 MW limit has the potential to constrain system design in New England, especially in the context of offshore wind resources
- On March 27, 2023, ISO-NE sent a request for an interregional study to JIPC
- ISO-NE requested:
  - Evaluation of the loss of source limit in today's system to see if the limit can be raised above 1,200 MW
  - If the limit on today's system remains below 2,000 MW, identification of upgrades necessary to support a 2,000 MW loss of source limit
- On <u>August 23, 2023</u>, the JIPC agreed to participate in the study
- In April 2024, ISO-NE selected a consultant to perform the loss of source study
- ISO-NE, NYISO, and PJM received a letter from multiple states requesting the interregional study be completed by September 2024
  - A <u>response</u> was provided that September was not achievable

## **High-level Scope of Study**

- The study has been divided into two stages:
  - Stage 1 Identify the maximum level of source loss in New England that leads to reliability concerns in the PJM or NYISO system for the planned system conditions (Ongoing Work)
  - Stage 2 If the maximum level of source loss in New England is less than 2,000 MW, determine the reliability upgrades necessary to raise the loss of source limit to 2,000 MW (Future Work)
    - A parallel effort is getting underway to understand what agreements would need to be in place to codify any increase in the maximum loss of source in New England

#### Stage 1 – Overview and Step 1 Building of Models\*

• The following diagram shows the four steps for Stage 1



- Step 1 Building Future Models
  - This step includes creating base cases, and associated study files for performing steady-state and stability analysis
  - A study horizon of 5 years is used to factor in planned projects in each region

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- This effort is mostly complete

\* Some work in Steps 2-4 is being done while Step 1 is completed.

## Stage 1, Step 2 – Transfer Analysis Objectives

- Objective of the transfer analysis is to understand the maximum transfer capability on key interfaces in PJM and NYISO with the existing maximum loss of source limit in New England (1,200 MW)
  - The analysis will also identify key constraints that will be observed if the loss of source in New England is raised up to 2,000 MW
    - Steady-state analysis performed
- Key interfaces are interfaces that were identified by NYISO and PJM as being most impacted by a sudden loss of source in New England
  - NYISO: Central East Interface
  - PJM/NYISO : PJM NYISO Interface
  - PJM: PJM Eastern Interface
  - PJM: PJM Western Interface



#### Stage 1, Step 2 – Transfer Analysis – Status

- While there are no key conclusions to share with IPSAC at this time, some of the challenges that the study team has identified are:
  - Central East NY interface significant work needed to determine the limitations imposed by Central East transfers
  - The initial result for the PJM-NY interface transfer study necessitated for additional PJM interface (Eastern and Western interfaces) evaluation
  - A study of this scope and complexity impacting the ISO-NE, NYISO, and PJM areas has not been performed to evaluate the loss of source in New England since the Phase II interconnection study
- ISO-NE expects this work to be completed in Q1 of 2025



# Stage 1, Steps 3 and 4 – Identifying Maximum Loss of Source for Planned System

- Objective of steady-state and stability analysis:
  - Use the identified transfer limits for the key interfaces to create cases that simultaneously assess multiple key interfaces that would be at a secure operating state for the existing 1,200 MW loss of source limit
  - From this starting point, evaluate impact of raising the loss of source in New England (NE) up to 2,000 MW at the following locations:
    - Phase II HVDC at Sandy Pond
    - Additional locations for future single source contingencies where the representative locations are selected based on impact on the NE-NY tie lines
  - Identify the maximum loss of source in NE for the planned system
  - Sensitivity analysis also looks at the impact of potential 2,000 MW loss of source events in eastern parts of PJM and NY



#### **Stage 2 and Review of Agreements**

- Based on the system issues that would limit the loss of source in New England for the planned system to be less than 2,000 MW, develop high-level transmission solutions to raise the loss of source limit up to 2,000 MW at the identified new locations and Phase II HVDC
- A parallel effort is getting underway to understand what agreements would need to be in place to codify any increase in the maximum loss of source in New England

#### **Conclusions and Next Steps**

- ISO-NE, NYISO, and PJM continue to make progress on the study to assess the increase of the maximum loss of source limit in New England
- Expect to complete the following by Q2 of 2025 and report the outcomes at the next IPSAC meeting in May:
  - Determine the maximum loss of source limit in New England without any transmission upgrades
  - Develop scope of work for identifying high-level transmission upgrades in the PJM and NYISO system needed to raise the loss of source limit in New England

# Questions

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