

To: Planning Advisory Committee

From: Brent Oberlin, Director of Transmission Planning

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Subject: Updates to System Studies

Introduction

Since the inception of the ISO New England (ISO) regional planning process, the region has made substantial investments to the transmission system across all six states in New England. These transmission system upgrades have allowed the region to ensure system reliability while at the same time increasing efficient operation of the regional wholesale power markets, dramatically reducing air emissions, congestion charges, and eliminating out-of-market must-run contracts. As acute system needs have been addressed through the implementation of transmission system upgrades and planning standards have continued to evolve at the national level, ISO has continued to reassess the full range of reliability planning criteria used going forward to ensure transmission system reliability, while also recognizing the growth in distributed resources. This reassessment will also ensure that planning criteria do not require regional funding of system investments that are not necessary for the reliability of the regional electric system. These efforts are focused on transmission planning for regional system reliability needs that result in projects funded through the regional network service (RNS) rate. This memorandum reviews the results of the ISO's efforts regarding assessment of the reliability transmission planning process.

Discussion

Over the past few years, ISO has been moving forward with a number of efforts related to the regional reliability planning process, including changes to a key planning procedure and the introduction of probabilistic analysis in certain transmission studies. These changes, coupled with other updates to planning assumptions that happen in the first half of each year, require the ISO to reassess its timeline for updating certain transmission planning studies.

On February 3, the Participants Committee supported changes to Planning Procedure 3 (PP3), now called "Reliability Standards for the New England Area Pool Transmission Facilities." These changes were made effective on February 10, 2017. A number of changes were made to this document; the most significant were changes to the requirements for second-contingency testing. With implementation of this new version of PP3, second-contingency testing will only require mitigation of a permanent phase-to-ground fault with breaker failure when it impacts the NPCC-defined Bulk Power System. Similarly, testing of simultaneous ground faults on different phases of each of two adjacent transmission circuits on a multiple circuit tower is no longer required under second-

contingency testing. These changes to PP3, amongst others, are expected to both reduce system needs and potentially push the year of need for previously identified system needs beyond three years from completion of a Needs Assessment.

In addition, late this spring the ISO will begin incorporating probabilistic dispatch methods into Needs Assessment studies. With the information that has been presented to stakeholders so far, it appears that this change in assumptions will, in many cases, lead to less stress on the system prior to applying the required contingencies. Again, this could have an impact on the previously identified system needs.

Over the next few months the ISO will be receiving new inputs and finalizing many of the planning assumptions that are significant inputs to the creation of system models used in Needs Assessments. These include:

- Incorporating the results of the eleventh Forward Capacity Auction (FCA #11) into the resource assumptions for future Needs Assessments.
- In March, retirement de-list bids for twelfth Forward Capacity Auction (FCA #12) are due to the ISO. If the ISO receives significant retirement de-list bids it would impact the resource assumptions for future Needs Assessments.
- In Q2, the ISO finalizes the updated load forecast, energy efficiency forecast, and the photovoltaic forecast. Any changes to these items from previously forecasted values impact fundamental modeling assumptions for future Needs Assessments.

Finally, the ISO is planning to review the assumptions that are used in performing Bulk Power System classification testing as described in NPCC Document A-10, Classification of Bulk Power System Elements. Depending on the outcome of this review, the NPCC's Regional Reliability Reference Directory #1, Design and Operation of the Bulk Power System, could apply to a different list of facilities.

As noted, the impact of the changes identified above on determining system needs may be substantial. In most cases, we believe it would be unproductive for the ISO and the region to update system studies prior to the finalization of these changes.

Therefore, the ISO is adopting the following transition plan:

- Solutions to the previously identified needs that arise within three years (i.e., time-sensitive needs) are still in various stages of development in New Hampshire, Maine, and Eastern Connecticut. Because the study process has not yet concluded for these areas, the ISO plans to pause on further development of solutions. The needs in these areas and the time-sensitivity of identified needs will be re-established based on new studies that capture the inputs and changes described above.
- For Southeastern MA/Rhode Island, the ISO has completed work to develop solutions to the previously identified needs that arise within three years (i.e., time-sensitive needs). We plan to move forward with those solutions. However, the study to establish remaining needs will be performed using the inputs and changes described above with the solutions to the previously identified time-sensitive needs in place.

- The minimum-load evaluation of Southeastern MA/Rhode Island will continue after the needs have been adjusted to account for the revisions to PP3.
- In order to improve the efficiency of these future system studies, the ISO intends to provide a single, New England-wide model for review, which will then be used to create the individual study cases needed to evaluate each portion of the system.

The ISO believes that this plan will facilitate the adoption of the various changes that have been initiated by the ISO discussed above. The ISO will begin posting models for stakeholder review as soon as possible later this year after the necessary inputs described above are finalized.