

Affected System Operator (ASO) Studies

May Update

This is Eversource's monthly report to customers who had projects with interconnection service agreements (ISAs) undergoing transmission studies that have been in progress prior to the September 25, 2019 Interim Guidance issuance and the three pre-ISA projects who are undergoing separate individual studies. These transmission studies in progress are categorized as affected system operator (ASO) studies. The electric distribution company (EDC) will share transmission study results from these projects as they become available with the applicant(s) pursuant to Interim Guidance 9(h).

In summary there were fifty-eight active applications with transmission studies that needed to be conducted for projects that have ISAs. Two applications were determined to have no study needed and two applications were withdrawn, leaving fifty-four total applications in the post ISA customer category. All western MA post ISA projects have since been approved by the ISO-New England (ISO-NE) Reliability Committee (RC).

The balance of the post ISA applications, all for eastern MA projects, are working towards the June RC agendas. Thirty two applications in this post ISA group have been approved by ISO-NE to date, with fourteen of these approvals coming out of the May RC meeting. The remaining nine projects in this group are still on track for making the June RC agenda with studies completing in May.

Customers impacted by these post ISA transmission studies were notified by Account Executives via email of the need for a transmission study, once it was identified by ISO-NE and/or Eversource, during the application process. These post ISA projects receive biweekly updates from the Account Executives via email.

These reports are emailed monthly and can be found on the ASO website:

<https://www.eversource.com/content/ema-c/about/about-us/doing-business-with-us/builders-contractors/interconnections/massachusetts/affected-system-operator-studies>

Throughout the study process, please direct questions to the ASO mailbox at ASOStudyInquiry@Eversource.com so that they may be directed to the appropriate party for response and if applicable added to the ASO Website's FAQ section for others to review.

1. What is the scope and process for the ASO study for post ISA projects?

ASO transmission studies are required when a DG applicant's project has the potential to impact existing saturation levels at a substation in Eversource's territory that may have implications to Eversource's transmission system or to other transmission companies or bulk power operators. The primary affected parties in Eversource's Massachusetts territories are: ISO-New England, National Grid, Until and various municipalities.

Level 0/1 Studies

From a process perspective, for post ISA projects that are not automatically triggering a Level 3 transmission study (projects \geq 5MW), Eversource's Transmission Planning and Transmission Interconnections teams submit pre-screening forms to ISO-NE for concurrence. ISO-NE reviews the screening technical justification and typically will provide a response on concurrence within 2-3 weeks; Eversource's Transmission team checks in for updates on ISO-NE's decision on a weekly basis. When concurrence is received from ISO-NE, Eversource Transmission submits the Level 0 I.3.9 proposed plan application (PPA) package to the New England Power Pool (NEPOOL) Reliability Committee (RC) for inclusion on the upcoming agenda. Some of these post-ISA projects may necessitate transfer limit analysis to ensure no degradation of interface limits. If adverse impacts are found, a Level 3 transmission study will be required.

Level 3 Studies

For projects that trigger a Level 3 analysis, there is a two-step process. When concurrence is received from ISO-NE on the study level, Eversource Transmission Planning prepares the study scope and assumptions which are also reviewed by ISO-NE. Generally, Level 3 transmission study scopes include thermal and voltage steady state analysis, as well as short circuit and stability analyses. Once the study scope is finalized, the study is performed and the Eversource Transmission Interconnections team attaches the study results to the I.3.9 PPA package to the NEPOOL RC for inclusion on the upcoming agenda.

Once Eversource's Transmission Interconnections team receives the approval letter from ISO-NE, which are usually sent out prior to the next month's RC meeting, they work with Account Executives to notify the customer of final project approval.

2. What are the roles and responsibilities of all parties involved in executing the ASO study for post ISA projects?

Eversource Transmission Planning and Transmission Interconnections teams work closely with ISO-NE to ensure ASO studies for post ISA projects are performed acceptably. Eversource is the electric distribution and transmission company providing ISO-NE with the applicant's project information and transmission analysis results for review and approval. ISO-NE is the bulk power system operator for New England who reviews and concurs or rejects Eversource Transmission Planning teams' proposed transmission study level and results. The NEPOOL Reliability Committee reviews the PPAs at their monthly meetings and provides an advisory recommendation (approve or reject) to ISO-NE on each application. The interconnecting

customer is required to provide inputs to Eversource, such as PSCAD models and project details like mechanical completion date, to complete the I.3.9 PPA package.

3. What are the standards and jurisdiction of this ASO study?

The ASO study is subject to tariffs and agreements under the jurisdiction of the Federal Energy Regulatory Commission. When required, transmission impact studies for post-ISA projects are governed primarily by ISO-NE tariff Section I.3.9 and ISO-NE Planning Procedures PP5-1 and PP5-3. Some of the reliability standards applicable to these studies, as referenced in PP5-3, are contained in ISO-NE Planning Procedure 3, but others exist as well. For example, elements of NERC's PRC-006-NPCC-1 underfrequency protection criteria and IEEE 1547 are often used to model resources in stability analyses.

FERC certified The North American Electric Reliability Corporation (NERC) as the Electric Reliability Organization (ERO) in 2006. The ERO is responsible for developing and enforcing reliability standards within the United States. In executing part of its responsibilities, NERC delegates authority to Regional Entities to perform certain functions through delegation agreements. Ensuring the reliability of the bulk power system for New York and the six New England States was delegated from NERC to the Northeast Power Coordinating Council (NPCC). Using the reliability standards developed by these entities, the objective of the ASO studies is to demonstrate that the projects under study have no significant adverse effect on the interconnected system.

Also, the New England Participating Transmission Owners (PTOs), including Eversource's operating companies, executed the Transmission Operating Agreement with ISO-NE in 2005. TOA Section 3.03(b) establishes the obligation for the PTOs to notify ISO-NE when multiple distributed generators may have cumulative impacts affecting the transmission system and consult with ISO-NE in its performance of impact studies.

4. What are the estimated timelines for completion of the ASO study for post-ISA projects?

The estimated timeframe for completion of the post ISA ASO studies is no later than May 2020. The studies will complete and then aim to be on the following RC agenda, as there are requirements that must be met and submitted in advance in order to get on the next month's meeting.

The projects in western MA had all remaining studies approved by ISO-NE in March 2020 and the projects in eastern MA have the last remaining studies to be completed by May 2020 with a goal to be on the June 2020 RC agenda.

5. What are the estimated necessary system modifications and associated costs?

No system modifications have been identified thus far in the transmission analyses for post ISA projects. No system modifications (or associated costs) were necessary for projects in western

MA. The Company should know the final system modifications in eastern MA, and any associated costs, by May 2020 and will continue to provide updates as they become available.

6. What prioritization system has the EDC developed to determine which of the affected DG applications would be eligible to interconnect first if capacity became available?

The EDC would prioritize applications to interconnect if the capacity became available in the order of the dates the applications were deemed complete e.g. first come, first served. It is unlikely that Eversource would allow applications to “jump” the queue in front of other projects, simply based on capacity differences, to ensure a fair methodical approach to all projects in the queue.

Separately, Eversource is continuing to proceed with distribution-level studies while the Level 3 ASO transmission-level studies are being conducted. This is being done to reduce the distribution-level study wait time and increase value to customers. Eversource is also continuing to perform distribution group studies where the same customer has multiple projects in sequence on a single circuit. In addition, the Group Study Order issued on April 8, 2020 will allow Eversource to process distribution studies in groupings that will include different customers bundled together. More information can be found about this recently issued Order here: <https://eeaonline.eea.state.ma.us/DPU/Fileroom/dockets/bynumber/17-164>

Projects that had ISAs prior to the larger ASO study announcement on Oct. 24, 2019 that required transmission studies have continued with their separate transmission studies outside of the five ASO group studies. There were 54 post ISA projects in this category.

7. Are there any proposed resolutions that the EDC is exploring to enable some affected DG applicants to proceed with the interconnection process prior to completion of the post ISA ASO study?

Eversource is continuing to proceed with distribution level studies while both post ISA ASO transmission studies and the Level 3 studies are being conducted. This is being done to reduce the distribution-level study wait time and increase value to customers. Eversource is also continuing to perform distribution group studies where the same customer has multiple projects in sequence on a single circuit and implementing group studies based on the recent April 8, 2020 Group Studies Order.

8. Are the study results available at this time?

For the post ISA projects who had transmission screenings that have been submitted to and approved by the RC, there are no study results to share as ISO-NE concurred with no adverse impacts and no further action is required on the transmission analyses side for these projects. For the remaining projects in progress, the study results are not available at this time but are expected in accordance with the timeline referenced in #4. Once the remaining study results are available the Company will share any results with the applicants.

The next steps for all post ISA customers after ISO-NE reviews and concurs with the transmission study results is as follows:

- Eversource Transmission Interconnections team provides the RC approval letter, once received, to the EDC to provide to the customer
- If any transmission upgrades are identified, the customer(s) agrees to payment for the upgrades to be done and subsequently issues payment
- Once construction is completed on both the utility and project side, including any applicable transmission and distribution upgrades, customers can energize the site and proceed with witness testing and obtaining permission to operate (PTO)

For these projects, all impact studies have commenced with most of the studies completed.

Regarding Interim Guidance 10, applicants should continue directing questions and correspondence to ASOStudyInquiry@eversource.com so that they can be directed in a timely manner to the appropriate party for a response. The Company also utilizes the questions that come in to the ASO mailbox to update its FAQs list on the ASO website.