

Affected System Operator (ASO) Studies – October Update

2019 Level 3 ASO Projects & 2021 Level 0 Greater Boston and Western MA Projects

This is Eversource's monthly report to customers who have ASO projects undergoing transmission studies. This month's update includes projects that are the three remaining ASO projects undergoing Level 3 studies that were announced on October 24, 2019 and projects that are in the 2021 Level 0 studies in the Greater Boston and Western MA areas that was announced on March 15, 2021. With the MA DPU approval of D.P.U. 19-55 and with issuance of the *DG Guidelines For Interconnection*, these monthly reports will be going out on the first business day of each month moving forward while the ASO remains underway. The *DG Guidelines For Interconnection* have been posted to Eversource's ASO website for quick reference.

The remaining 2019 Level 3 ASO Study pool consists of 3 projects that require additional analysis prior to being presented at an upcoming ISO-New England (ISO-NE) RC meeting. Eversource has been working with affected system operators and ISO-NE on a feasible solution for these 3 projects and reanalysis has been completed in time to submit materials for the November RC. Once these projects ultimately receive their PPA approval letters, they will be uploaded into PowerClerk for customers to retrieve and the 2019 ASO will be completed.

The 2021 Level 0 ASO studies in Greater Boston and Western MA have officially commenced as of early October, upon agreement with ISO-NE on the study scope. Eversource is currently in the process of conducting the transfer limit analysis for these projects. There are 7 projects in the Greater Boston Level 0 studies and 5 projects in the western MA Level 0 studies.

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 remainder of the study process, please direct questions to your Account Executive 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 projects in the ASO study?

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 municipal light departments.

Level 0 Studies

From a process perspective, for 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 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, a two-step process is implemented. 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 is usually sent out prior to the next month's RC meeting, Account Executives notify the customer of final project approval and the letter will be available in the PowerClerk system.

2. What are the roles and responsibilities of all parties involved in executing the Level 3 ASO study?

Eversource Transmission Planning and Transmission Interconnections teams work closely with ISO-NE to ensure ASO studies are performed consistently with ISO-NE tariffs and planning procedures and study parameters agreed upon by ISO-NE and Eversource. 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 that 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 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 transmission system.

Also, the New England Participating Transmission Owners (PTOs), including Eversource's operating companies, executed a 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?

The 2019 Level 3 ASO study commenced on April 6, 2020. With the PSCAD study completion, Eversource was able to present all final results from the SEMA/Cape study to ISO-NE for their concurrence and proceeded to the Reliability Committee (RC) meeting on August 17th. There were 57 generation PPAs approved at the RC and the remaining 3 PPAs in the group required additional analysis¹ that will be presented at the November RC meeting. These 3 projects impacted are out of Assonet station. These customers have been kept informed on progress of reanalysis and Eversource is communicating with these customers on a biweekly basis in addition to these monthly reports. Eversource has identified alternatives for the 3 PPAs out of Assonet and the alternatives are currently being evaluated by the Affected System Operator for their agreement on a path forward.

¹ An update to the study may be needed to address one of the substations that necessitates re-evaluation.

The 2021 Greater Boston and western MA Level 0 ASO studies commenced in early October and the transfer limit analyses are presently underway by the Transmission team. Eversource is in the process of finalizing a study schedule to communicate to Level 0 customers.

Any progress updates to ASO stakeholders will be in addition to the *DG Guidelines For Interconnection* reporting required by the Department of Public Utilities and the Company will continue to share ad-hoc updates as they become available. Factors that could impact the schedule and associated study activities are: base case modeling issues, DER stability model issues, solution development for potential adverse system impacts and/or significant project inverter model changes by customers.

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

The 2019 Level 3 study in the SEMA/Cape will require system modifications on the 191 line in the form of reconductoring work. Eversource is investigating opportunities to manage this system modification as part of a separate upgrade project outside of the ASO study.

The 2021 Level 0 studies in Greater Boston and western MA have just commenced and it is unknown if there are any system modifications required at this time.

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, including Group Studies authorized by D.P.U. 17-164, while the ASO transmission-level studies are being conducted. This is being done to reduce the distribution-level study wait time and increase value to customers. The Group Study order in D.P.U. 17-164 will allow Eversource to process distribution studies in groupings that will include different customers bundled together. More information can be found on this Order here:

<https://eeaonline.eea.state.ma.us/DPU/Fileroom/dockets/bynumber/17-164>

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 ASO study?

Eversource is continuing to proceed with distribution level studies, including group studies, while ASO transmission studies are being conducted. This is being done to reduce the distribution-level study wait time and increase value to customers. Eversource is implementing group studies based on the Group Studies order in D.P.U. 17-164.

8. Are the study results available at this time for ASO projects?

Yes, the final 2019 SEMA/Cape Level 3 study results were shared with customers on July 27th (and Eversource also provided a copy of the presentation to customers for reference).

There are no study results available at this time for the 2021 Level 0 ASO in Greater Boston and western MA.

Regarding *DG Guidelines For Interconnection* item E (10), applicants should direct any questions and correspondence to their Account Executive so that inquiries can be directed in a timely manner to the appropriate party for a response. The Company also utilizes the questions that come in to update its FAQs list on the ASO website.