Table of Contents
9.a  Scope & Process................................................................................................................................. 2
9.b  Roles and Responsibilities.................................................................................................................. 4
9.c  Standards and Jurisdiction .................................................................................................................. 5
9.d  Estimated Timeline ............................................................................................................................ 7
9.e  Estimated System Modifications & Costs ........................................................................................... 8
9.f  Prioritization System......................................................................................................................... 8
9.g  Opportunities to Progress Applications ............................................................................................ 9
9.h  Study Results.......................................................................................................................................... 9
10.a Contact Information.............................................................................................................................. 10
10.b Stakeholder Meetings........................................................................................................................... 10
9.a  Scope & Process

At an overall level, when the interconnection of distributed generation (DG) to Massachusetts Electric Company’s (MEOc) electric power system (EPS) has the potential to impact a neighboring EPS (distribution or transmission), further analysis and/or study will be required. Examples of potential impacts on a neighboring EPS include reverse power flow onto the bulk transmission system and the establishment of new retail delivery points (for example, new/upgraded substations, transformers) to provide the distribution capacity necessary to accommodate greater amounts of large-scale DG projects interconnecting to MEOc’s EPS. The purpose of this monthly report is to provide updates for ongoing ASO studies that implicate three or more DG or more than 15MW of DG capacity in accordance with the DPU 19-55 Interim Guidance.

Western/Central Scope Cluster Study
The Western/Central MA Transmission Cluster Study (Cluster Study) was recommended for approval at the NEPOOL Reliability Committee (RC) meeting on May 19, 2020. There are no ongoing ASO studies in this area.

Southern Scope
There is one comprehensive study in this area that affects 5 projects for approximately 18MW. The study is being performed by NEP with inputs from two additional ASOs to determine the impacts of these interconnections on the transmission system in accordance with ISO-NE rules and planning procedures. The following table includes the ASO study group and study level:

<table>
<thead>
<tr>
<th>Study Group</th>
<th>Study Level</th>
<th>Substation</th>
<th># of Projects</th>
<th># of kW</th>
<th>Total kW</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group 6</td>
<td>Comprehensive</td>
<td>UXBRIDGE SUBSTATION</td>
<td>3</td>
<td>10,050</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>WHITINS POND SUBSTATION</td>
<td>2</td>
<td>7,925</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total</td>
<td>5</td>
<td>17,975</td>
<td></td>
</tr>
</tbody>
</table>

Northern Scope
There is one comprehensive study in this area that affects 3 projects for approximately 7MW.

<table>
<thead>
<tr>
<th>Study Group</th>
<th>Study Level</th>
<th>Substation</th>
<th># of Apps</th>
<th># of kW</th>
<th>Total kW</th>
</tr>
</thead>
<tbody>
<tr>
<td>King Street/ West Amesbury</td>
<td>Comprehensive</td>
<td>West Newbury</td>
<td>3</td>
<td>10,980</td>
<td>10,980</td>
</tr>
</tbody>
</table>

Western Scope
There are no ASO studies in this area.

Process
ISO New England Tariff Process Applicable to DG Interconnections
There are two primary ISO-NE tariff processes that are potentially applicable to the interconnection review of new DG resources:
1. ISO-NE’s interconnection processes, pursuant to Schedules 22 and 23 of the ISO New England Open Access Transmission Tariff (OATT)\(^1\), and
2. ISO-NE’s Proposed Plan Application (PPA) process, pursuant to Section I.3.9 of the ISO New England Transmission, Markets, and Services Tariff (ISO Tariff).\(^2\)

**Jurisdiction for Interconnection**

DG projects fall under one of two jurisdictions for interconnection: state or federal. A developer proposing to interconnect a DG resource to a state-jurisdictional distribution facility must follow the associated state interconnection process. A developer proposing to interconnect a DG resource to a Federal Energy Regulatory Commission (FERC)-jurisdictional distribution facility must follow the ISO-NE’s interconnection process under Schedule 22 or 23 of the OATT (unless it falls under one of the exemptions identified in Schedule 23).\(^3\)

Most of the DG being installed in New England is interconnecting to the lower-voltage distribution system through state interconnection processes, which are administered by the states’ electric distribution companies. In these cases, the DG developer is an interconnection customer of the electric distribution company, not the ISO. A DG developer should contact the owner of the distribution facilities and/or ISO-NE to determine whether the feeder to which the DG facility proposes to interconnect is state- or FERC-jurisdictional.

**Overview of Section I.3.9 Proposed Plan Application Process**

Regardless of the jurisdiction for interconnection, DG resources of 1 MW or greater will require review by the ISO pursuant to Section I.3.9 of the ISO Tariff to ensure the proposed system change does not have a significant adverse impact on the regional power system. This is true even in cases where the project is interconnecting under the state process.

The Section I.3.9 PPA process has been part of the region’s planning processes for decades. ISO-NE, as the Regional Transmission Organization for New England, is responsible for reviewing and approving proposed system changes because these changes may impact the stability, reliability, or operating characteristics of the New England power system.

Figure 1 provides an illustration of the general process flow for DG projects that require review by the ISO pursuant to Section I.3.9 of the ISO Tariff.

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3. Exemptions: The state interconnection process will apply if a DG resource is interconnecting to a FERC-jurisdictional distribution facility and the project will:
   a. Produce energy to be consumed only on the retail customer’s site,
   b. Not sell its output into the ISO markets, or
   c. Sell 100% of its output as a Qualifying Facility (QF) to the interconnecting utility under a Public Utility Regulatory Policies Act (PURPA) contract.
Commencement of the Transmission Study of PPA (ISO-NE Planning Procedures)

NEP commences a transmission study when it has sufficient information about firm MW values for the proposed generator(s) and has determined how and where the generator(s) will interconnect to MECo’s EPS (e.g., MECo system modifications and transmission system injection points). MECo gathers this information from Interconnecting Customers and coordinates with NEP to facilitate a transmission study.

For generation resources 5 MW and above, MECo works with NEP on the PPA requirement during MECo’s detailed study phase of the interconnection process. For generation resources between 1 MW and 5 MW, MECo had been working with NEP to issue the Generator Notification Forms (GNFs) to ISO-NE during MECo’s detailed design phase as well; ISO-NE was not requiring transmission impact analyses for these applications. Because of the significant number of proposed DG project interconnection applications between 1 MW and 5 MW received through the first half of 2018, ISO-NE is exercising its discretion to request impact analyses from NEP for applications between 1 MW and 5 MW. As a result, MECo has been submitting GNFs for applications between 1 MW and 5 MW to ISO-NE for review at or around 20 business days after the commencement of a distribution system impact study.

Please refer to the “Central MA Transmission Cluster Study” power point presentation dated August 13, 2019, slides 23-25, for detail around National Grid’s current PP5-1 Process.

9.b Roles and Responsibilities

Below is a list of the various roles and responsibilities associated with transmission studies:

- **MECo** – Interconnecting Company & Coordinator, includes the following functions:
• **Customer Energy Integration (CEI)** - Coordinate with developers from application to interconnection
• **Distribution Planning (DPAM)** - Analyze and develop interconnection solutions at distribution level; assist in coordination across National Grid in development of most viable solution; coordinate engineering studies with ASOs (such as NEP and ISO-NE)
• **Substation Engineering** - Develop substation level solutions based on defined distribution and transmission needs
• **Protection Engineering** - Develop protection strategies to preserve safety and reliability given complex effects of high DG volume
• **Design, Resource Planning, Operations** - All downstream departments that implement the engineered solutions required for safe and reliable interconnections

**NEP** – a National Grid affiliate and also an ASO, includes the Transmission Planning and Asset Management (TPAM) function that is responsible to complete transmission-related analyses when NEP is the transmission provider in the area, including transfer analyses and transmission system impact studies.

**ISO-NE** – the Independent System Operator established in accordance with the NEPOOL Agreement and applicable FERC approvals, responsible for managing the bulk power generation and transmission systems in New England. Provides guidance and oversight to NEP analyses and responsible for ensuring compliance with ISO-NE Tariffs Schedule 22 and Schedule 23 as well as Section I.3.9. The ISO-NE will determine whether such interconnections will have a cumulative impact on facilities used for the provision of regional transmission service.

**New England Power Pool (NEPOOL) Reliability Committee (RC)** – The RC is a standing technical committee of NEPOOL, which is made up of Market Participants from across the region and serves as the ISO’s principal advisory body. The RC provides advisory input to ISO-NE on the design and oversight of reliability standards for the New England power system. RC meetings are held on a monthly basis and consider matters such as Proposed Plan Applications for generation and transmission projects. After an advisory vote by the RC, the ISO will issue a determination approving or denying a PPA.

**ASO** - Any neighboring Electric Power System (EPS) not under control of MECo (i.e. municipal light company or other regulated utility)

**Governance Participant** – a signatory to the NEPOOL agreement.

### 9.c Standards and Jurisdiction

In most cases, as is the case for the DG seeking to interconnect to MECo’s EPS in the western/central and southern areas, the need for a transmission impact study is defined by ISO-NE Planning Procedures. Specifically, pursuant to ISO-NE’s tariff, Section I.3.9.1, and ISO-NE Planning Procedures PP5-14 and PP5-

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4 Entitled, “Procedure for Review of Governance Participant’s Proposed Plans (Section I.3.9 Applications: Requirements, Procedures, and Forms).”
(collectively “ISO-NE Planning Procedures”), any proposed generation resource above 1 MW must be reviewed by ISO-NE and brought before the NEPOOL RC for approval. ISO-NE Planning Procedures PP5-1 and PP5-3 provide guidelines for the PPA application and review process.

Under the ISO-NE Planning Procedures, for each proposed generation resource 5 MW or greater, ISO-NE requires a formal transmission system impact study. Although proposed generation resources between 1 MW and 5 MW generally do not automatically trigger a transmission system impact study, ISO-NE has the discretion to request further analysis of the impact consistent with ISO-NE Planning Procedures, on an as-needed basis. Commencing around September 2018, ISO-NE started to exercise that discretion and has been requesting additional impact analyses from NEP on generation resources between 1 MW and 5 MW.

Prior to this, for the most part, for a project that was sized between 1 MW and 5 MW, a GNF would have been required, which did not include any study or analysis. This requested evaluation by ISO-NE for generation resources between 1 MW and 5 MW required a change in process for MECo with respect to the processing of MECo’s interconnection applications, coordination with NEP, and the timing of these notifications to ISO-NE. The change in process also contributed to the inclusion of between 1 MW and 5 MW projects in the Western/Central Cluster Study and the southern transmission studies.

The attached link offers additional information relative to the ISO-NE Planning Procedures I.3.9.: https://ngus.force.com/servlet/servlet.FileDownload?file=0150W00000FEqTu

Typically, for MECo interconnected generation resources, NEP submits the PPA application on the generator’s behalf and performs the required transmission analysis and studies in coordination with the ISO-NE and any other ASO. While ISO-NE’s Planning Procedures allow generators that are a Governance Participant under ISO-NE Tariff to submit their own PPA applications for their projects, if the project results in the need for transmission system upgrades, an affected transmission owner is required to submit its own PPA application for the proposed transmission system upgrades. Importantly, regardless of whether the generating facility PPA is submitted by a Governance Participant or NEP, the same aforementioned transmission system impact studies and NEPOOL RC approval are required. The ISO-NE Planning Procedures do not specify the manner in which NEP should perform a transmission study where there is a high volume of proposed distribution company, e.g., MECo, interconnected generator resource applications and capacity coming into an area in a short time frame, as is the case in all National Grid territories in MA. Therefore, NEP considered the ongoing challenges in these areas, including the saturation and system constraints and best practices for system planning, to assure the safety and reliability of the transmission system. In the context of these considerations, NEP developed its study methodology with the following goals in mind:

- **Speed**: Facilitate developer interconnection as quickly as possible.
- **Reliability**: Ensure that the interconnections do not compromise the reliability of the transmission system.

5 Entitled, “Guidelines for Conducting and Evaluating Proposed Plan Application Analyses.”
• **Coordination**: Ensure the distribution upgrades are appropriately represented in the study assumptions.

• **Process**: Abide by ISO-NE Planning Procedures and Tariff requirements.

• **Solutions**: Develop the appropriate set of upgrades for each of the western/central area DG and southern area DG, as opposed to determining individual case-by-case upgrades, which more efficiently uses time, material and human resources, and avoids duplicative, out-of-date and/or unnecessary infrastructure (at the customer’s cost).

• **Efficiency**: The study of individual projects in the same area would be performed sequentially, or, subject to ISO-NE’s approval, in a group approach. By way of comparison, a single typical 5 MW transmission system impact study would take approximately 3 months. The goal of grouping the projects in either a Cluster Study like the western/central area, or discrete substation analyses in the southern area is to gain significant efficiency over individual sequential project analysis by evaluating many hundreds of MWs at one time.

With these goals considered, and consistent with NEP’s obligation in Section 3.03(b) of the Transmission Operating Agreement (TOA)\(^6\) to notify ISO-NE of situations where the interconnection of multiple DG resources may have cumulative impacts on the facilities used for the provision of regional transmission service\(^7\), NEP began communicating with ISO-NE to assess the preferred way to evaluate the impact of this volume of generation proposing to interconnect in the same area. ISO-NE elected to exercise its discretion under the Planning Procedures and requested that the study include generation projects between 1 MW and 5 MW given the saturation in the area and the potential aggregate impacts to the transmission system. For the central/western MA area, NEP and ISO-NE determined that it would be more efficient to cluster the PPAs and the associated transmission system study, rather than submit individual applications and studies for each project. In addition, in the southern area, NEP and ISO-NE determined discrete analyses at multiple substations would be more efficient.

### 9.d Estimated Timeline

Non-comprehensive study duration is approximately 3-5 months and a comprehensive study duration is approximately 4-6 months.

**Western/Central MA Cluster Study**

The Western/Central MA Transmission Cluster Study (Cluster Study) was recommended for approval at the NEPOOL Reliability Committee (RC) meeting on May 19, 2020. There are no ongoing ASO studies in this area.

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\(^6\) The Transmission Operating Agreement was executed by ISO-NE and the region’s Participating Transmission Owners (PTO) when ISO-NE became the Regional Transmission Organization for New England in 2005, and sets forth the roles and responsibilities of the PTOs and ISO-NE as it pertains to the operation and planning of the regional transmission system.

\(^7\) The failure of a PTO to appropriately implement the requirements of the TOA, Section I.3.9 of the ISO-NE Tariff, or ISO-NE’s Planning Procedures, could subject a PTO to liability for breach of the TOA, ISO-NE’s Tariff, and NERC reliability requirements. In this event, FERC has the authority to pursue criminal liability and/or levy fines up to $1 million per day for violations of the Federal Power Act, FERC regulations, orders or tariffs.
Southern MA
The comprehensive study will be presented at the June 2020 RC meeting.

Northern MA
There is one remaining comprehensive study and it is expected to complete by June 2020.

Western MA
Currently there are no ASO studies in this area.

9.e Estimated System Modifications & Costs

Western/Central MA Cluster Study
See the “Summary of Central/Western MA Part 2 Cluster Study Results “ posted to the DG Stakeholder Webpage.

Southern MA
The ongoing comprehensive transmission study will be presented to the Reliability Committee in June 2020 with no adverse impacts identified.

Northern MA
There is one comprehensive study remaining. The study will be presented to the Reliability Committee in June 2020 with no adverse impacts identified.

Western MA
There are no ASO studies in this area.

9.f Prioritization Criteria

The Company will prioritize projects based on the following (a more formal queue management process is being considered under docket D.P.U. 19-55):

1. Has customer paid its full construction advance for system modifications?
2. When did the Company receive customer payment?
3. What is the date of the customer’s anticipated authority to interconnect?
4. What stage is the project within the Company’s construction process?
5. How far along is the customer’s construction (developers will need to self-certify the responses to these questions through execution of a Project Self-Certification Regarding Land Use Rights)?
   a. Does customer have all necessary local permits to construct?
   b. Does customer have site control?
6. Has the necessary generator notification form been approved by the ISO’s RC?

If the Company determines there is an opportunity to advance projects during the ASO study, the Company will consider the above criteria to prioritize the projects that may advance.
On November 4, 2019, National Grid released a Project Self-Certification Regarding Land Use Rights (Project Self-Certification). This was first to be used for Interconnecting Customers in Part 2 of the Western/Central MA Cluster Study which is posted on its website (https://ngus.force.com/s/article/DG-Stakeholder-Updates). The Project Self-Certification is intended to help prioritize projects in an ASO study for the purpose of advancing projects based on project maturity. Once an Interconnecting Customer is able to make the requisite certifications, it should submit a fully-executed Project Self-Certification to the Company through the Company’s DG Portal. The date that the fully-executed Project Self-Certification is submitted through the Company’s DG Portal is the date that will be used for purposes of prioritization with respect to land use rights.

Additional information on prioritization is available in the December 5, 2019 stakeholder meeting presentation also available on its website (https://ngus.force.com/s/article/DG-Stakeholder-Updates).

9.g  Opportunities to Progress Applications

**Western/Central MA Cluster Study**
There are no ongoing ASO studies in this area.

**Southern MA**
There are no opportunities to progress applications ahead of the on-going ASO study at this time.

**Northern MA**
There are no opportunities to progress applications ahead of the on-going ASO study at this time.

**Western MA**
There are no ASO studies in this area.

9.h  Study Results

**Western/Central MA Cluster Study**
See the “Summary of Central/Western MA Part 2 Cluster Study Results “ posted to the DG Stakeholder Webpage.

**Southern MA**
The one comprehensive study is ongoing and there were no adverse impacts found.

**Northern MA**
The one comprehensive study is ongoing and there were no adverse impacts found.

**Western MA**
There are no ASO studies in this area.
10.a Contact Information

**All MA**

**Western/Central MA Cluster Study**
Andrea Agra – 781-907-3040 email: Andrea.Agra@nationalgrid.com

**Southern MA**
Joe Vuto – 781-907-1435 email: Joseph.Vuto@nationalgrid.com

**Northern MA**
Sahir Shakir - 781-907-2687 email: Sahir.Shakir@nationalgrid.com

**Western MA**
Jennifer Chalifoux - 978-725-1029 email: Jennifer.Chalifoux@nationalgrid.com

10.b Stakeholder Meetings

The last stakeholder meeting was held on March 19, 2020. The presentation from this meeting is available on the ASO Study website: https://ngus.force.com/s/article/DG-Stakeholder-Updates. There are no additional stakeholder meetings scheduled at this time.

Due to the COVID-19 crisis, Massachusetts Electric Company and Nantucket Electric Company, each d/b/a National Grid (“the Company”) determined the need to declare a Force Majeure Event pursuant to the “Standards for Interconnection of Distributed Generation”, MDPU No. 1320 (“Tariff”) Section 3.7. The Force Majeure Event started on Friday March 27, 2020. At this time, the duration of this Force Majeure Event is unknown and is being closely monitored. The Company is taking steps to mitigate the Force Majeure Event by continuing to process distributed generation applications and projects. The Company, however, will be entitled to suspend or modify its performance of obligations pursuant to this notice and under the Tariff to the extent that the effect of the Force Majeure Event cannot be mitigated by the use of commercially reasonable efforts. The Company will notify customers whose DG project is directly impacted by the Event. All customers will be kept informed of the scope and duration (to extent known) of this Force Majeure Event and of the steps the Company is taking to mitigate the effects of the Event on its performance through periodic updates on the Company’s distributed generation website: https://ngus.force.com/s/article/MA-Force-Majeure-Declarations.

Please contact your CEI representative with any questions.