



October 7, 2019

The Honorable Kimberly D. Bose, Secretary  
Federal Energy Regulatory Commission  
888 First Street, N.E.  
Washington, D.C. 20426

Re: ISO New England Inc.  
Docket No. RM18-9-000  
Response to Letter Dated September 5, 2019 Regarding Participation of Distributed  
Energy Resource Aggregations in Markets Operated by Regional Transmission  
Organizations and Independent System Operators

Dear Secretary Bose:

In a letter dated September 5, 2019 (the “September 5 Letter”), the Office of Energy Policy and Innovation of the Federal Energy Regulatory Commission (the “Commission”) requested information regarding ISO New England Inc.’s (“ISO-NE”) policies and procedures that affect the interconnection of distributed energy resources (“DER”). ISO-NE’s answers to the questions posed in the September 5 Letter, together with a brief introduction of ISO-NE’s role in the interconnection of DERs, are provided as Attachments A, B and C to this transmittal letter.

Respectfully submitted,

/s/ Monica Gonzalez

Monica Gonzalez, Esq.  
Assistant General Counsel –  
Operations and Planning  
ISO New England Inc.  
One Sullivan Road  
Holyoke, MA 01040-2841  
Tel: (413) 535-4178  
[mgonzalez@iso-ne.com](mailto:mgonzalez@iso-ne.com)

## ATTACHMENT A

### ISO-NE ANSWERS TO QUESTIONS POSED IN THE COMMISSION'S SEPTEMBER 5 LETTER

ISO-NE<sup>1</sup> responses to the questions posed in the September 5 Letter regarding ISO-NE's policies and procedures that affect the interconnection of distributed energy resources ("DER")<sup>2</sup> are provided in Section II of this Attachment A, and in Attachments B and C. To facilitate the Commission's consideration of those responses, Section I of this attachment provides a brief overview of the applicable arrangements in New England and ISO-NE's role pursuant to those arrangements. These arrangements form the basis for the responses provided below.

#### I. BACKGROUND

The questions in the September 5 Letter relate back to the Notice of Proposed Rulemaking issued by the Commission on November 17, 2016, in Docket No. RM16-23-000, concerning electric storage and DER participation in markets operated by regional transmission organizations ("RTOs") and independent system operators ("ISOs"),<sup>3</sup> and the Technical Conference held on April 10-11, 2018 in this docket on the DER NOPR's proposed DER aggregation reforms.<sup>4</sup> As the ISO-NE Comments state and the ISO-NE Statement at the April Technical Conference echoes,<sup>5</sup> ISO-NE supports the Commission's efforts to minimize barriers

---

<sup>1</sup> Capitalized terms used but not otherwise defined in this response have the meanings ascribed thereto in the ISO-NE Transmission, Markets and Services Tariff (the "ISO-NE Tariff"). Section II of the ISO-NE Tariff contains the Open Access Transmission Tariff (the "ISO-NE OATT"). Schedule 22 contains the Standardized Large Generator Interconnection Procedures ("LGIP") and Large Generator Interconnection Agreement ("LGIA"), and Schedule 23 contains the Standardized Small Generator Interconnection Procedures ("SGIP") and Small Generator Interconnection Agreement ("SGIA"). The LGIP and SGIP are collectively referred to herein as the "Interconnection Procedures," and the LGIA and SGIA as the "Interconnection Agreements."

<sup>2</sup> The Commission defines DERs as:

a source or sink of power that is located on the distribution system, any subsystem thereof, or behind a customer meter. These resources may include, but are not limited to, electric storage resources, distributed generation, thermal storage, and electric vehicles and their supply components.

See September 5 Letter at n 1.

<sup>3</sup> See *Electric Storage Participation in Markets Organized by Regional Transmission Organizations and Independent System Operators*, 157 FERC ¶ 61,121 (2016) ("DER NOPR").

<sup>4</sup> See Notice of Technical Conference, Docket Nos. RM18-9-000 and AD18-10-000 (Feb. 15, 2018) ("April Technical Conference").

<sup>5</sup> See *Electric Storage Participation in Markets Organized by Regional Transmission Organizations and Independent System Operators*, Comments of ISO New England Inc., Docket Nos. RM18-9-000 and AD18-10-000 (filed Feb. 13, 2017) ("ISO-NE Comments").

to the participation of DERs in the markets administered by RTOs and ISOs.<sup>6</sup> Indeed, ISO-NE has a long history of allowing DERs to participate in the New England Markets, and, overtime, has taken significant actions to further facilitate their participation in those markets.<sup>7</sup> As of September 1, 2019, DERs comprise about 19 percent, or 7,437 megawatts (“MW”) of the region’s total electrical capacity. The majority of those DERs are in the form of solar photovoltaics (“PV”) and energy efficiency. ISO-NE projects that by end of year 2028 cumulative installed PV nameplate capacity will exceed 6,700 MW and the cumulative impact of energy efficiency resources on reducing summer peak load will be approximately 5,400 MW.<sup>8</sup> This growth in DER is driven, in part, by the New England states’ continuing support for these technologies.

While ISO-NE supports the Commission’s efforts, it strongly urges the Commission to afford regional flexibility for each RTO and ISO to address the integration of DERs into the electric power system and wholesale markets in any final order on DERs. Each RTO and ISO has different market designs, processes and procedures that have evolved over time, that reflect different, complex settlement and communication infrastructure, and that reflect important regional differences. As noted above, the New England region has been successful in integrating DERs, as shown by the amount of DER additions underway. Flexibility is warranted to enable the participation of DERs in the wholesale markets consistent with each region’s existing market design, processes, and procedures, and in a manner that does not reduce transparency and accuracy of information available to the RTO/ISO, the transmission owners, and distribution companies in the operation of the power system. Flexibility is also necessary to accommodate regional differences in the RTO/ISO operational, planning and other arrangements, including the interconnection constructs implemented pursuant to those arrangements.

---

<sup>6</sup> See also *Participation of Distributed Energy Resource Aggregations in Markets Operated by Regional Transmission Organizations and Independent System Operators, et al.*, Post-Technical Conference Comments of ISO New England Inc., Docket Nos. RM18-9-000 and AD18-10-000 (June 26, 2018) (“Post-Technical Conference Comments”); *Participation of Distributed Energy Resource Aggregations in Markets Operated by Regional Transmission Organizations and Independent System Operators, et al.*, Statement of Henry Yoshimura, ISO New England Inc. (filed Apr. 9, 2018) (“ISO-NE Statement”).

<sup>7</sup> See ISO-NE Comments at 3-5.

<sup>8</sup> See *2019–2028 Forecast Report of Capacity, Energy, Loads, and Transmission* (2019 CELT Report) (Apr. 30, 2019), <http://www.iso-ne.com/system-planning/system-plans-studies/celt#>.

Under the New England RTO arrangements, ISO-NE does not have Operational Authority or visibility into the Participating Transmission Owners' ("PTO")<sup>9</sup> Distribution Systems.<sup>10</sup> Despite this, consistent with Order Nos. 2003 and 2006<sup>11</sup> and the TOA, ISO-NE is responsible for administering the Interconnection Procedures that are applicable to all Generating Facilities<sup>12</sup> that plan to interconnect to the Administered Transmission System for the purpose of "transmitting electric energy in interstate commerce or selling electric energy at wholesale in interstate commerce."<sup>13</sup> The Administered Transmission System includes existing Pool

---

<sup>9</sup> The PTOs include: Town of Braintree Electric Light Department; Central Maine Power Company; Maine Electric Power Company; Chicopee Electric Light Department; Connecticut Municipal Electric Energy Cooperative; Connecticut Transmission Municipal Electric Energy Cooperative; Emera Maine (Bangor Hydro Division); The City of Holyoke Gas and Electric Department; Green Mountain Power Corporation; Town of Hudson Light and Power Department; Massachusetts Municipal Wholesale Electric Company; Town of Middleborough Gas & Electric Department; New England Power Company d/b/a National Grid; New Hampshire Electric Cooperative, Inc.; New Hampshire Transmission, LLC; Eversource Energy Service Company on behalf of certain of its affiliates: The Connecticut Light and Power Company, NSTAR Electric Company, and Public Service Company of New Hampshire; Taunton Municipal Lighting Plant; Town of Norwood Municipal Light Department; Town of Reading Municipal Light Department; The United Illuminating Company; Unitil Energy Systems, Inc.; Fitchburg Gas and Electric Light Company; Vermont Electric Power Company; Vermont Electric Cooperative, Inc.; Vermont Transco, LLC; Vermont Public Power Supply Authority; Shrewsbury Electric and Cable Operations; and Town of Wallingford, Connecticut Department of Public Utilities Electric Division.

<sup>10</sup> See ISO New England Inc., *Transmission Operating Agreement* at Art. 3 (May 15, 2015), [https://www.iso-ne.com/static-assets/documents/regulatory/toa/v1\\_er07\\_1289\\_000\\_toa\\_composite.pdf](https://www.iso-ne.com/static-assets/documents/regulatory/toa/v1_er07_1289_000_toa_composite.pdf) ("TOA"). See also Schedule 23 at Att. 1, defining "Distribution System" as:

The Interconnecting Transmission Owner's facilities and equipment used to transmit electricity to ultimate usage points such as homes and industries directly from nearby generators or from interchanges with higher voltage transmission networks which transport bulk power over longer distances. The voltage levels at which Distribution Systems operate differ among areas.

<sup>11</sup> *Standardization of Generator Interconnection Agreements and Procedures*, Order No. 2003, FERC Stats. & Regs. ¶ 31,146 (2003), *order on reh'g*, Order No. 2003-A, FERC Stats. & Regs. ¶ 31,160, *order on reh'g*, Order No. 2003-B, FERC Stats. & Regs. ¶ 31,171 (2004), *order on reh'g*, Order No. 2003-C, FERC Stats. & Regs. ¶ 31,190 (2005), *aff'd sub nom. Nat'l Ass'n of Regulatory Util. Comm'rs v. FERC*, 475 F.3d 1277 (D.C. Cir. 2007), *cert. denied*, 552 U.S. 1230, (Feb. 25, 2008). See also *Standardization of Small Generator Interconnection Agreements and Procedures*, Order No. 2006, FERC Stats. & Regs. ¶ 31,180, *order on reh'g*, Order No. 2006-A, FERC Stats. & Regs. ¶ 31,196 (2005), *order on clarification*, Order No. 2006-B, FERC Stats. & Regs. ¶ 31,221 (2006).

<sup>12</sup> See Schedule 23 at Att. 1 (defining "Generating Facility" as the "Interconnection Customer's device for the production and/or storage for later injection of electricity identified in the Interconnection Request, but shall not include the Interconnection Customer's Interconnection Facilities."). See also Revisions to the Large Generator Interconnection Procedures and Agreement in Schedule 22 of Section II to the ISO New England Inc. Transmission, Markets and Services Tariff in Compliance with FERC Order Nos. 845 and 845-A, Docket No. ER19-1051-000 (filed May 22, 2019) (revising definition of "Generating Facility" in Schedule 22 of the ISO-NE OATT). For purposes of these responses, we refer to Generating Facilities that are DERs as "DER Generating Facilities".

<sup>13</sup> Order 2003 at P 804. See also Order No. 2003-A at P 730 ("Order No. 2003 provides that if a 'distribution' facility is used for both wholesale and bundled retail sales; *i.e.*, it has a dual use, 'the Final Rule applies to interconnection to these facilities only for the purpose of making sales of electric energy for resale in interstate commerce.'"); Order No. 2006 at PP 5-7 (confirming that "the application of this Final Rule is the same as with Order No. 2003 for Large Generating Facilities").

Transmission Facilities (“PTF”),<sup>14</sup> Non-PTF,<sup>15</sup> and distribution facilities that are subject to the Tariff (*i.e.*, “OATT Interconnection Distribution Facilities”).<sup>16</sup> Because ISO-NE does not have Operational Authority over or visibility into distribution facilities, including the subset of those that are OATT Interconnection Distribution Facilities, it coordinates with and relies on the PTOs to provide information regarding those facilities in administering the Interconnection Procedures.

Consistent with the TOA and the Interconnection Procedures, all DERs that, at the time of the request, are proposing to interconnect to non-OATT Interconnection Distribution Facilities or to interconnect to the Administered Transmission System, but not for the purpose of making sales of electric energy for resale in interstate commerce, are subject to the interconnection processes administered by the PTOs and/or their distribution company affiliates pursuant to tariffs under the jurisdiction of state or local authorities.<sup>17</sup> However, the PTOs or their affiliated distribution companies have an obligation under the TOA to notify ISO-NE when the

---

<sup>14</sup> See ISO-NE Tariff at § 1.2.2 (defining, “PTF” as “the transmission facilities owned by PTOs which meet the criteria specified in Section II.49 of the OATT”).

<sup>15</sup> See *id.* (defining, “Non-PTF” as “the transmission facilities owned by the PTOs that do not constitute PTF, OTF or MTF”).

<sup>16</sup> See TOA at Schedule 1.01 (defining, “OATT Interconnection Distribution Facility” as a “distribution facility that is subject to the generator interconnection procedures of the ISO OATT. An OATT Interconnection Distribution Facility is not a Transmission Facility subject to the Operating Authority of the ISO pursuant to this Agreement.”). See also Order No. 2003-A at P 710 (explaining, “Order No. 2003 applies to interconnections to the facilities of a public utility’s Transmission System that are subject to the public utility’s OATT at the time the interconnection is requested. Facilities subject to the OATT are: transmission facilities used to transmit electric energy in interstate commerce either at wholesale or for unbundled retail sales; and ‘distribution’ facilities that are used for wholesale sales in interstate commerce.”).

<sup>17</sup> ISO-NE’s Interconnection Procedures specify when the procedures do not apply to an Interconnection Request. The exemptions are consistent with those specified in Order Nos. 2003 and 2006. See Schedule 23, SGIP at § 1.1.1, providing:

The Small Generator Interconnection Procedures (“SGIP”) and Small Generator Interconnection Agreement (“SGIA”) shall apply to Interconnection Requests, as defined in Attachment 1, pertaining to Small Generating Facilities, except that the SGIP and SGIA shall not apply to: (i) a retail customer interconnecting a new Generating Facility that will produce electric energy to be consumed only on the retail customer’s site; (ii) a request to interconnect a new Generating Facility to a distribution facility that is subject to the Tariff if the Generating Facility will not be used to make wholesale sales of electricity in interstate commerce; or (iii) a request to interconnect a Qualifying Facility (as defined by the Public Utility Regulatory Policies Act, as amended by the Energy Policy Act of 2005 and the regulations thereto), where the Qualifying Facility’s owner intent is to sell 100% of the Qualifying Facility’s output to its interconnected electric utility. In the event the SGIP and SGIA do not apply, the Interconnection Customer shall follow the applicable state tariff, rules or procedures regarding generator interconnections.

See also *id.* (“In the event the SGIP and SGIA do not apply, the Interconnection Customer shall follow the applicable state tariff, rules or procedures regarding generator interconnections.”); *id.* at § 1.2.3 (“The Interconnecting Transmission Owner shall be responsible for determining whether the proposed Point of Interconnection is on a distribution facility that is subject to the Tariff.”).

interconnection of multiple generators to non-OATT Interconnection Distribution Facilities may have cumulative impacts affecting facilities used for regional transmission service.<sup>18</sup>

Given the scope of the questions in the September 5 Letter, ISO-NE's responses below focus primarily on the Interconnection Procedures set forth in Schedules 22 and 23 of the ISO-NE OATT. For completeness, ISO-NE notes that the ISO-NE Tariff also contains a Proposed Plan Application process in Section I.3.9 (the "Section I.3.9 Process"). The Section I.3.9 Process is the long-standing process by which ISO-NE reviews proposed system changes (*e.g.*, transmission or generation additions or modifications) to ensure they do not have a significant adverse impact on the regional power system.<sup>19</sup> Thus, regardless of the jurisdiction for interconnection, proposed system changes to accommodate a DER Generating Facility's interconnection to the system may require review by ISO-NE pursuant to Section I.3.9.

ISO-NE's Interconnection Procedures and the Section I.3.9 Process have provided the necessary tools to facilitate the non-discriminatory, open access interconnection of DER Generating Facilities to the PTOs' Distribution System in New England, as well as the coordination and review of those interconnections by all affected systems (*e.g.*, PTOs and distribution companies) to ensure the reliable, safe and efficient interconnection of those resources. So far this year, these provisions have successfully facilitated coordination among the ISO, PTOs and distribution companies for the assessment of approximately 500 MWs of proposed DER Generating Facility interconnections to the Administered Transmission System and non-OATT Distribution Facilities throughout the New England Control Area (mostly in Massachusetts and Rhode Island) that have come forward in response to the New England states' clean energy programs and policy initiatives.

---

<sup>18</sup> See TOA at Art. 3.03(b):

The PTOs or their distribution company Affiliates, as applicable, shall notify the ISO of situations where the interconnection of multiple generators to distribution facilities that are not OATT Interconnection Distribution Facilities may have cumulative impacts affecting the facilities used for the provision of regional transmission service and shall, in such situations, consult with the ISO in its performance of such studies. The ISO will determine whether such interconnections will have a cumulative impact on facilities used for the provision of regional transmission service.

<sup>19</sup> See ISO-NE Tariff at § I.3.9.1, providing:

Each Market Participant and Transmission Owner shall submit to the ISO, in such form, manner and detail as the ISO may reasonably prescribe, (i) any new or materially changed plan for additions to or changes to any generating and demand resources or transmission facilities rated 69 kV or above subject to control of such Market Participant or Transmission Owner, and (ii) any new or materially changed plan for any other action to be taken by the Market Participant or Transmission Owner, except for retirements of or reductions in the capacity of a generating resource or a demand resource, which may have a significant effect on the stability, reliability or operating characteristics of the Transmission Owner's transmission facilities, the transmission facilities of another Transmission Owner, or the system of a Market Participant.

See also *ISO New England Planning Procedures No. 5-1, Procedures for Review of Governance Participant's Proposed Plans (Section I.3.9 Applications: Requirements, Procedures, and Forms)*, ISO New England Inc. (March 9, 2018), [https://iso-ne.com/static-assets/documents/rules\\_proceeds/isone\\_plan/pp05\\_1/pp5\\_1.pdf](https://iso-ne.com/static-assets/documents/rules_proceeds/isone_plan/pp05_1/pp5_1.pdf) ("PP 5-1").

The foregoing discussion and the detailed answers to the questions posed in the September 5 Letter that follow emphasize the need for flexibility to accommodate regional differences in the RTO/ISO markets, planning and operational constructs. Over the years, ISO-NE, together with its regional stakeholders, have carefully crafted a set of rules and processes to accommodate the successful development and integration of DERs into the regional power system. These rules and processes were conscientiously designed to respect jurisdictional boundaries between state- and federal-regulated entities, ensure the reliable, safe and efficient interconnection of DERs, and preserve wholesale market efficiency and integrity. Certainly improvements can be made; however, requiring each RTO and ISO to adhere to a standardized approach could severely disrupt the balanced set of rules and processes that New England has already developed, which could stymie DER development in the region. Accordingly, ISO-NE asks the Commission to afford flexibility to each RTO and ISO to work with its regional stakeholders to build upon the rules and processes it has already implemented to further the successes it has achieved to date.

## II. RESPONSES TO DATA REQUESTS

### Question 1

**Under your RTO's/ISO's existing rules for small generator interconnection, if a DER seeks to participate in wholesale markets and plans to interconnect at the distribution level, please describe the step-by-step process by which that resource would interconnect to the system.**

### Response to Question 1

Schedule 23 of the ISO-NE OATT governs the proposed interconnections of Small Generating Facilities (20 MW or less) to the Administered Transmission System, which includes OATT Interconnection Distribution Facilities, for the purpose of transmitting electric energy in interstate commerce or selling electric energy at wholesale in interstate commerce.<sup>20</sup> Schedule 23 was accepted by the Commission in response to compliance filings under Order No. 2006 and associated orders.

Under the Schedule 23, an Interconnection Customer (in this case, the DER developer seeking to sell in the wholesale markets) submits to ISO-NE an Interconnection Request<sup>21</sup> for a Small Generating Facility's interconnection to the Administered Transmission System. In the Interconnection Request, the Interconnection Customer specifies, among other things, the point on the Administered Transmission System at which it wishes to interconnect. If the point to which the Interconnection Customer seeks to interconnect is a distribution facility, ISO-NE coordinates with the respective PTO to confirm whether the facility is an OATT Interconnection Distribution Facility at the time of the request. If the point of interconnection is on a non-OATT

---

<sup>20</sup> See TOA at Art. 3.03(a). *See also* Schedule 23 at § 1.

<sup>21</sup> There are two levels of Interconnection Service available for Interconnection Customers in New England: Capacity Network Interconnection Service, which allows the Interconnection Customer to supply both energy and capacity in the New England Markets, and Network Resource Interconnection Service, which allows Interconnection Customer to supply energy only.

Interconnection Distribution Facility, ISO-NE notifies the Interconnection Customer so that it may proceed with an interconnection request to the relevant PTO or its affiliated distribution company pursuant to state interconnection rules.

Once a valid Schedule 23 Interconnection Request is established, ISO-NE assigns a Queue Position to the Interconnection Request. The Interconnection Request's Queue Position determines the order in which ISO-NE performs the Interconnection Studies and the cost responsibility for the upgrades necessary to accommodate the request. The interconnection process culminates with a three-party Interconnection Agreement among ISO-NE, the PTO (as the Interconnecting Transmission Owner) and the Interconnection Customer, based on the *pro forma* contained in Schedule 23, Exhibit 1. The Interconnection Agreement, in turn, sets out the rights and obligations of the parties with respect to: permitting, siting, and construction of the Small Generating Facility, Interconnection Facilities, Distribution Upgrades, Network Upgrades, and Affected System Upgrades; cost responsibility for those facilities and upgrades; and, ultimately, the provision of Interconnection Service to facilitate the Small Generating Facility's participation in the New England Markets.

As mentioned in Section I above, regardless of the jurisdiction for a given small generator interconnection, such interconnection also may require ISO-NE's review under Section I.3.9, the details of which are set forth in the ISO-NE Planning Procedures. The Section I.3.9 process consists of: an initial assessment; the submittal of an application/notification; the review and consideration of the application/notification; and the approval/rejection of the application/notification. Each of these steps are detailed in Section 1.1 of PP 5-1.

Under Section I.3.9, all new or increased generation interconnections equal to or greater than 5 MW require a Proposed Plan Application supported by the appropriate level of analysis;<sup>22</sup> all new or increased generation interconnections greater than 1 MW, but less than 5 MW require a notification, unless ISO-NE determines the proposed plan will have a cumulative impact on facilities used for the provision of regional transmission service, in which case, a Proposed Plan Application is required. PP 5-1 requires the proposed plan proponent to engage with ISO-NE early in the process "for guidance regarding the appropriate level of study required or whether a Proposed Plan Application is needed."<sup>23</sup>

---

<sup>22</sup> See PP 5-1 at § 1.1.1 (explaining, "[t]he intention of the Proposed Plan process is to match study effort and review effort appropriate to the complexity of the proposed change."). This early engagement helps ensure timely and successful completion of the Section I.3.9 Process. It also allows for the level of study work identified to be included as part of the studies to be performed pursuant to the applicable interconnection process.

<sup>23</sup> See *id.*



**Question 1.a:**

**What are the respective roles of the RTO/ISO and the distribution utility in that process?**

**Response to Question 1.a**

In administering the Interconnection Procedures and, for the most part, the Section I.3.9 Process, ISO-NE communicates primarily with the PTOs.

Schedule 23 allocates the responsibilities assigned to the “Transmission Provider” in the Commission’s *pro forma* SGIP and SGIA between ISO-NE and the PTO, and recognizes the required coordination between them in carrying out their respective roles. As the RTO, ISO-NE is the lead party responsible for administering the interconnection process and the PTOs have responsibility to provide information to ISO-NE to facilitate the administration of the process. The Interconnection Studies are coordinated and led by ISO-NE, with ISO-NE performing the studies to assess the impacts on the transmission system, and the PTOs (or, pursuant to the TOA, their distribution company affiliates) performing the studies to assess the impacts on the distribution system. ISO-NE, in coordination with the PTOs, identifies the upgrades necessary to interconnect the Small Generating Facility, and the PTOs (or their distribution company affiliates) provide cost estimates and the construction schedule for such upgrades. ISO-NE and the PTOs prepare the initial drafts of the Interconnection Agreements. ISO-NE leads in the development and negotiation of the agreements, with the PTOs leading on matters related to the cost of upgrades to their facilities, schedule for construction of such facilities, any financial obligations of the PTOs, and any provisions related to physical impacts of the interconnection on the PTOs’ facilities or other assets.<sup>24</sup>

Under Section I.3.9, either the DER developer as a Market Participant, or the Transmission Owner (or its distribution company affiliate) on behalf of a non-Market Participant developer is required to submit the Proposed Plan Application or notification, together with a supporting transmission study led and performed by the Transmission Owner (in coordination with ISO-NE). Once the study is complete, the Transmission Owner (or the Market Participant) is required to present the study results and any required transmission upgrades to the New England Power Pool Reliability Committee for an advisory vote. ISO-NE issues a determination approving or denying the proposed plans after the Reliability Committee’s advisory vote.

---

<sup>24</sup> See TOA at Art. 2.05.

### **Question 1.b**

**How would the DER ascertain whether it must interconnect pursuant to a state-jurisdictional interconnection process or a Commission-jurisdictional process?**

### **Response to Question 1.b**

A DER developer may contact ISO-NE, the PTO, or the distribution company with its interconnection plans for assistance in determining the process applicable to its proposed interconnection.<sup>25</sup> While OATT Interconnection Distribution Facilities are subject to the Interconnection Procedures, those facilities are not subject to ISO-NE's Operating Authority, and ISO-NE does not have visibility to those facilities. Therefore, when a DER developer contacts ISO-NE, ISO-NE coordinates with the relevant PTO regarding the status of the distribution facility in order to direct the DER developer to the applicable interconnection process.

### **Questions 1.c.**

**How does your RTO/ISO define the physical boundaries of a distribution facility when determining whether a distribution facility to which a new DER seeks interconnection is already subject to an Open Access Transmission Tariff (OATT) for purposes of making wholesale sales?**

### **Response to Question 1.c**

In administering the Interconnection Procedures, ISO-NE coordinates all determinations regarding the status of a distribution facility with the relevant PTO to confirm that it is part of the Administered Transmission System as an OATT Interconnection Distribution Facility at the time of the request. For these purposes, ISO-NE considers distribution facilities to be the portion of the electric system connected to an existing circuit breaker or auto re-closer on a circuit or a feeder leaving a substation – so the physical boundary of a distribution facility would be the circuit breaker or auto re-closer.<sup>26</sup> ISO-NE also considers any three-phase or single-phase laterals supplied by the feeder, which are typically protected by pole top fuses alone, as part of the feeder. Attachment C contains 5 figures illustrating the methodologies some of the PTOs have employed in demarcating the physical boundaries for purposes of assessing the status of the distribution facility at the time a request is made.

Next, ISO-NE confirms with the relevant PTO that the distribution facility element (*e.g.*, the feeder and/or circuit) is an OATT Interconnection Distribution Facility. This determination is guided by Order Nos. 2003 and 2006, which provide that the Commission's interconnection

---

<sup>25</sup> ISO-NE developed a web guide – the Interconnection Process Guide – which provides information on how to contact ISO-NE with questions regarding the application of ISO-NE's Interconnection Procedures. See ISO New England Inc., *The Interconnection Process Guide*, <https://www.iso-ne.com/participate/applications-status-changes/interconnection-process-guide/> (last visited Oct. 7, 2019).

<sup>26</sup> For clarity, the determination is feeder-based. For example, it is ISO-NE's understanding that an entire distribution bus is not automatically categorized as OATT Interconnection Distribution Facility when one of the existing distribution feeders connected to the bus hosts an existing commercial wholesale transaction. The converse is also true. For example, ISO-NE further understands that an upstream 12.5 kV distribution facility does not automatically become an OATT Interconnection Distribution Facility when one of the existing downstream feeders is categorized as OATT Interconnection Distribution Facility.

rules apply to distribution facilities that are being “used for jurisdictional service such as carrying power to a wholesale power customer for resale and are included in the [ISO-NE] OATT.”<sup>27</sup> Several factors are considered in this assessment; such as, whether the proposed generator is the first on the distribution facility seeking to sell energy in the wholesale markets, whether there is distribution service that is subject to the ISO-NE OATT, etc.

## **Question 2**

**Does the interconnection process described in response to Question# 1 differ based on whether or not the DER is a Qualifying Facility, and if so, how?**

## **Response to Question 2**

If the DER Generating Facility is a Qualifying Facility that will be selling 100% of its output to the directly interconnected host utility pursuant to a state implementation of PURPA, Schedule 23 does not apply and state interconnection processes are followed.<sup>28</sup> Consistent with Order No. 2003, Schedule 23 applies if the Qualifying Facility is interconnecting to the Administered Transmission System and will be engaging in any third-party sales, including to the New England Markets.<sup>29</sup>

---

<sup>27</sup> Order No. 2003 at P 803. *See also id.* at P 804 (asserting jurisdiction over those distribution facilities being used “to transmit electric energy in interstate commerce” or “for the purpose of making sales of electric energy for resale in interstate commerce.”).

<sup>28</sup> *See* Order No. 2006 at PP 516 (“When an electric utility is required to interconnect under section 292.303 of the Commission’s regulations, that is, when it purchases the QF’s total output, the state has authority over the interconnection and the allocation of interconnection costs.”). Note, in accordance with Order No. 2003-A at n 168, the Commission exercises jurisdiction over a Qualified Facility’s interconnection to a non-OATT distribution facility to make jurisdictional wholesale sales. Schedule 23, however, does not apply to such an interconnection because a non-OATT distribution facility is not part of the Administered Transmission System.

<sup>29</sup> *See id.* at P 517:

The Commission thus exercises jurisdiction over a QF's interconnection if the QF's owner sells any of the QF's output to an entity other than the electric utility directly interconnected with the QF. This Final Rule applies when the owner of the QF seeks interconnection with a facility subject to the OATT to sell any of the output of the QF to a third party. This applies to a new QF that plans to sell any of its output to a third party and to an existing QF interconnected with an electric utility or on-site customer that decides in the future to sell any of its output to a third party. States continue to exercise authority over QF interconnections when the owner of the QF sells the output of the QF only to the interconnected utility or to on-site customers.

### **Question 3**

**Does the interconnection process described in response to Question# 1 differ if the DER seeking to participate in wholesale markets is interconnecting behind a retail customer meter (whether on the distribution or transmission system), and if so, how?**

### **Response to Question 3**

If the DER reduces the load of a facility, or adjusts the net load of a facility using behind-the-meter generation or storage that does not inject power to the system, Schedule 23 does not apply.<sup>30</sup> If the DER is a Generating Facility seeking to inject power to the system, regardless of whether the injection is through the retail meter facilities, Interconnection Service of some form is required, and such service must be requested pursuant to Schedule 23 if the interconnection is to an OATT Interconnection Distribution Facility. If the interconnection is to a non-OATT Interconnection Distribution Facility, then the interconnection request for service would be subject to the state interconnection process.

### **Question 4**

**Does the interconnection process described in response to Question# 1 allow studies for bi-directional service (i.e., both from a DER to the transmission system and from the transmission system to a distribution-connected wholesale customer)?**

### **Response to Question 4**

Yes. If the DER is a Small Generating Facility that can inject and consume (*e.g.*, a battery), under Schedule 23, ISO-NE assesses both impacts relative to the requested Interconnection Service. The Interconnection Customer has the opportunity to specify the modes of operation for which service is requested. If the Small Generating Facility includes a storage device that will be charged from the grid (and not solely from a co-located generating device), then the Interconnection Studies will review the impacts on the transmission system for such an operating mode. The Interconnection Studies performed pursuant to Schedule 23 will be considered in the Small Generating Facility's separate transmission service request pursuant to the applicable process.

---

<sup>30</sup> See Order No. 2006 at P 488 (explaining that Order No. 2006 does not apply to load interconnections).

### **Question 5**

**Under the interconnection process described in response to Question# 1, and assuming all of the individual DERs in the aggregation are new resources, which of the following would apply: (1) an aggregation of DERs located at multiple points of interconnection would be studied as one aggregated resource by your RTO/ISO and require only a single Generator Interconnection Agreement (GIA); (2) each individual DER would be studied individually and require its own GIA; (3) each DER would be studied individually with the aggregation still only requiring a single GIA; or (4) a different approach (please describe if a different approach would be used).**

### **Response to Question 5**

Of the options listed, #4 (“a different approach”) is most applicable to the process followed by ISO-NE.<sup>31</sup> Specifically, under Schedule 23 of the ISO-NE OATT, an Interconnection Request would be required for each individual DER Small Generating Facility at each site and behind a single point of interconnection, and each Small Generating Facility proposed in each Interconnection Request would require its own Interconnection Agreement.<sup>32</sup> The Small Generating Facility behind a single point of interconnection, however, may comprise multiple units or devices on the same site.<sup>33</sup> Under Schedule 23, two or more Interconnection Requests may be studied in a cluster if the conditions for Clustering are triggered.<sup>34</sup>

---

<sup>31</sup> ISO-NE did not select Option #2, because it references “studies” being performed individually, and ISO-NE does not interpret “studies” to mean the same thing as “requests.”

<sup>32</sup> See Schedule 23, SGIP at § 1.3 (providing, “The Interconnection Customer must submit a separate Interconnection Request for each site. The Interconnection Customer must comply with the requirements specified in Section 1.3.1 for each Interconnection Request even when more than one request is submitted for a single site.”). See also *ISO New England Operating Procedure No. 14 - Technical Requirements for Generators, Demand Response Resources, Asset Related Demands and Alternative Technology Regulation Resources*, ISO New England Inc. at Part II.A.8 (Apr. 1, 2019), [https://www.iso-ne.com/static-assets/documents/rules\\_proceeds/operating/isone/op14/op14\\_rto\\_final.pdf](https://www.iso-ne.com/static-assets/documents/rules_proceeds/operating/isone/op14/op14_rto_final.pdf) (accommodating aggregation of generator units that are “at the same physical site or” are “part of the project that, by its technical nature, require coordinated control of the various units being combined to form a generator.”).

<sup>33</sup> See *id.* at § 4.10.2 (stating, “If the Interconnection Request is for a Small Generating Facility that includes multiple energy production devices at a site for which the Interconnection Customer seeks a single Point of Interconnection, the Interconnection Request shall be evaluated on the basis of the aggregated capacity of multiple devices.”).

<sup>34</sup> See *id.* at § 1.5.3 (describing the Clustering process).

### **Question 6**

**In contrast with the scenario in Question# 5, please assume that at least some of the individual DERs in a proposed aggregation are existing resources already interconnected and in service. If multiple existing and new DERs were able to aggregate at separate points of interconnection across your RTO/ISO to participate in wholesale markets as an aggregation rather than as individual resources, under what circumstances would your RTO's/ISO's existing interconnection procedures and study processes apply to the individual DERs in the aggregation? If multiple existing and new DERs were able to aggregate at separate points of interconnection across your RTO/ISO to participate in wholesale markets as an aggregation rather than as individual resources, under what circumstances would your RTO's/ISO's existing interconnection procedures and study processes apply to the aggregation? Would any revisions be needed to accommodate aggregations of DERs (existing and new) at multiple points of interconnection?**

### **Response to Question 6**

Please refer to the responses to Question 5.

As mentioned in response to Question 5, ISO-NE's Interconnection Procedures do not provide for a single Interconnection Request of multiple DER Generating Facilities located at multiple points of interconnection across the New England Control Area, and they would need to be revised to accommodate such a construct. As currently effective, the Interconnection Procedures would apply to each *existing* DER Generating Facility that is interconnected to the Administered Transmission System and is seeking to commence wholesale market participation for the first time (*e.g.*, a DER Generating Facility interconnected behind-the-meter requires a new Interconnection Request to come in front of the meter).<sup>35</sup> The Interconnection Procedures would also apply to each *new* DER Generating Facility seeking to participate in the wholesale markets if it is interconnecting to a facility that is part of the Administered Transmission System. The procedures, however, would not apply to any of the interconnections if the DER is seeking to reduce the load of a facility, or adjust the net load of a facility using behind-the-meter generation and/or storage without injecting power to the system.

The ISO-NE Comments detail ISO-NE's concerns with the Commission's proposed DER aggregation reforms.<sup>36</sup> It should further recognized that the separate Interconnection Request requirement for each Generating Facility located at single site behind a single point of interconnection allows ISO-NE to study and model the resource at its specific location so that its impact on the power system can be properly evaluated. Briefly, under the Interconnection Procedures, ISO-NE offers Network Resource Interconnection Service pursuant to the Network Capability Interconnection Standard. Under this minimum

---

<sup>35</sup> Under ISO-NE's Interconnection Procedures, a request to "commence participation in the wholesale markets by an existing Generating Facility that is interconnected with the Administered Transmission System" requires a new Interconnection Request. See Schedule 23 at Att. 1 (defining "Interconnection Request").

<sup>36</sup> See ISO-NE Comments at 30-58 (detailing the concerns with proposed DER aggregation reforms).

interconnection standard, other generators may be dispatched down to relieve violations caused by the addition of the new generator. Studying an aggregation would require all of the resources to be running together – resulting in a higher level of interconnection. On the flip side, one of the other aggregated resources, by running in the study, could mask a violation that would otherwise be identified had it been studied separately. This would create a “must-run” dependency, which is also not allowed under ISO-NE’s procedures. The existing Interconnection Agreement construct also is not designed to accommodate an aggregated resource across multiple points on the system. The Interconnection Agreement are structured to clearly define the boundaries of the Interconnection Customer’s and the Interconnecting Transmission Owner’s facilities, along with the associated rights and responsibilities for installation, maintenance, and other contractual matters.

It should be noted, however, that, while ISO-NE’s Interconnection Procedures do not provide for a single Interconnection Request comprising multiple Generating Facilities across the New England Control Area, the ISO-NE Tariff permits aggregation across points of interconnection and behind a point of interconnection for certain types of DERs (*e.g.*, Demand Response Resources (“DRRs”)<sup>37</sup> and Alternative Technology Regulation Resources (“ATTRs”)<sup>38</sup>) for market participation purposes. For example, pursuant to Section III.8.1.2(a) of the ISO-NE Tariff, a DRR must comprise of one or more Demand Response Assets<sup>39</sup> within the same DRR Aggregation Zone,<sup>40</sup> thereby allowing a DRR to be composed of multiple Demand Response Assets at different points of interconnection. Section III.8.1.1(a) provides that a Demand Response Asset may be as small as 10 kW, and Section III.8.1.1(f) states that a Demand Response Asset itself may be composed of multiple end-use customers each smaller than 10 kW located at different points of interconnection if demand at all locations represents a homogeneous population. Section III.13.1.4 requires an

---

<sup>37</sup> See ISO-NE Tariff at § I.2.2 (defining, DRR as “an individual Demand Response Asset or aggregation of Demand Response Assets within a DRR Aggregation Zone that has been registered in accordance with Section III.8.1.2.”).

<sup>38</sup> See *id.* (defining, ATTR as “one or more facilities capable of providing Regulation that have been registered in accordance with the Asset Registration Process. An Alternative Technology Regulation Resource is eligible to participate in the Regulation Market.”).

<sup>39</sup> See *id.* (defining, “Demand Response Asset” as “an asset comprising the demand reduction capability of an individual end-use customer at a Retail Delivery Point or the aggregated demand reduction capability of multiple end-use customers from multiple delivery points (as described in Section III.8.1.1(f)) that has been registered in accordance with III.8.1.1.”).

<sup>40</sup> See *id.* (defining, “DRR Aggregation Zone” as “a Dispatch Zone entirely within a single Reserve Zone or Rest of System or, where a Dispatch Zone is not entirely within a single Reserve Zone or Rest of System, each portion of the Dispatch Zone demarcated by the Reserve Zone boundary.”).

On-Peak Demand Resource<sup>41</sup> or Seasonal Peak Demand Resource<sup>42</sup> to be a minimum of 100 kW and to comprise one or more assets within a single Load Zone, thereby allowing these resources to be composed of multiple assets each smaller than 100 kW located at different points of interconnection.

In summary, while the Interconnection Procedures do not contemplate aggregated interconnections, this in no way prevents interconnected resources from participating in the markets to the full extent provided therein.

### **Question 6.a**

**Under existing tariff rules, which entity (i.e., the RTO/ISO or distribution utility) would be responsible for processing the interconnection of the individual DERs seeking to join an aggregation?**

### **Response to Question 6.a**

The entity responsible for processing the interconnection request would be determined by the status of the facility to which the DER Generating Facility plans to interconnect (*i.e.*, if the facility is part of the Administered Transmission System, then the request would fall under ISO-NE's Interconnection Procedures), and the purpose for the interconnection.

### **Question 6.b**

**For existing DERs that are currently not participating in wholesale markets and that interconnected under a state-jurisdictional process, under your current interconnection procedures would the DER's decision to participate in an aggregation trigger the RTO/ISO interconnection process? Would additional studies be necessary to ensure that participation in your RTO's/ISO's wholesale markets through an aggregation does not cause reliability problems on the transmission system? If so, what studies? If not, why not? For example, would the original state-jurisdictional interconnection process have already studied the DER in a variety of operational scenarios that eliminate the need for further studies prior to wholesale market participation in your region?**

### **Response to Question 6.b**

Under ISO-NE's Interconnection Procedures, a new Interconnection Request would be required for an existing DER Generating Facility that has previously interconnected to the Administered Transmission System pursuant to the state interconnection process to then

---

<sup>41</sup> *See id.* (defining, "On-Peak Demand Resource" as "a type of Demand Capacity Resource and means installed measures (e.g., products, equipment, systems, services, practices and/or strategies) on end-use customer facilities that reduce the total amount of electrical energy consumed during Demand Resource On-Peak Hours, while delivering a comparable or acceptable level of end-use service. Such measures include Energy Efficiency, Load Management, and Distributed Generation.").

<sup>42</sup> *See id.* (defining, "Seasonal Peak Demand Resource" as "a type of Demand Capacity Resource and shall mean installed measures (e.g., products, equipment, systems, services, practices and/or strategies) on end-use customer facilities that reduce the total amount of electrical energy consumed during Demand Resource Seasonal Peak Hours, while delivering a comparable or acceptable level of end-use service. Such measures include Energy Efficiency, Load Management, and Distributed Generation.").



subsequently commence wholesale market participation.<sup>43</sup> ISO-NE would take into account existing studies in determining the scope of the Interconnection Studies<sup>44</sup> required under the Interconnection Procedures to assess the proposed request's impacts on the system.<sup>45</sup> Additional Interconnection Studies, however, would be required to assess the Generating Facility's compliance with various requirements, including the Commission's voltage and frequency response requirements.

### **Question 6.c**

**If existing distribution-level DERs that are currently not participating in wholesale markets join aggregations and start making wholesale sales for the first time, how would that new wholesale use of existing DERs and their associated distribution facilities impact your assessment of whether those distribution facilities are subject to your OATT? Would Commission-jurisdictional interconnection procedures apply to subsequent requests to interconnect to those distribution facilities? Why or why not?**

### **Response to Question 6.c**

Consistent with Order Nos. 2003 and 2006, a decision by an existing DER Generating Facility to engage in selling electric energy in the wholesale markets would subject the distribution facility to which it is interconnected to the ISO-NE OATT and any subsequent requests for interconnections of new, or Material Modifications to existing, DER Generating Facilities to that facility that are also seeking to make wholesale electricity sales in the markets would be subject to ISO-NE's Interconnection Procedure.<sup>46</sup>

### **Question 6.d**

**For large and small generator interconnections subject to Order Nos. 2003 and 2006, the transmission provider is required to coordinate between the interconnection customer and "affected systems" (i.e., third-party transmission systems) to ensure that any needed affected system issues are resolved. With respect to new DERs seeking to interconnect to distribution facilities that are subject to a Commission-jurisdictional OATT, do the relevant small generator interconnection procedures in your region treat the transmission system to which the relevant distribution facilities are connected as an "affected system" in order to address any needed transmission upgrades at the initial interconnection stage?**

---

<sup>43</sup> See Schedule 22 at § 2 (providing, an Interconnection Request is required to "(v) commence participation in the wholesale markets by, an existing Generating Facility, that is interconnected to the Administered Transmission System"). See also Schedule 23 at § 1.1.

<sup>44</sup> Interconnection Studies include the: Interconnection Feasibility Study, Interconnection System Impact Study and the Interconnection Facilities Study.

<sup>45</sup> See, Schedule 22 at § 7.4 ("The System Operator and Interconnecting Transmission Owner shall utilize existing studies to the extent practicable when it performs the study.").

<sup>46</sup> See Order No. 2003 at P 804.

### **Response to Question 6.d**

No. Under Schedule 23 of the ISO-NE OATT, the Interconnection Studies would assess the impact of the Small Generating Facility's interconnection on both the transmission and distribution systems of the Interconnecting Transmission Owner. ISO-NE would also coordinate the Interconnection Studies with Affected Parties to assess potential impacts on their "Affected Systems," but those are electric systems of entities other than the Interconnecting Transmission Owner.<sup>47</sup>

### **Question 7**

**If the individual DERs in an aggregation are seeking to interconnect to a combination of distribution facilities, some of which are subject to a Commission- jurisdictional OATT and some that are not subject to an OATT, would any, all, or only a subset of the DERs in the aggregation be required to go through the interconnection process you described in response to Question #1 and to execute GIA(s) under your tariff? Please explain.**

### **Response to Question 7**

As discussed in response to Questions 1, 5 and 6, each individual DER Generating Facility that is interconnecting to an OATT Interconnection Distribution Facility for the purpose of making sales of electric energy in the New England Markets would be required to submit an Interconnection Request under Schedule 23 and execute a three-party Interconnection Agreement based on the *pro forma* in Schedule 23.<sup>48</sup>

### **Question 8**

**If available, please provide data on or estimates of the number of individual DERs in your region that are directly participating today in your RTO/ISO markets as compared to DERs in your region that are not participating in wholesale markets. If possible, please provide estimates by resource type and participation model (i.e., generator, demand response, etc.).**

### **Response to Question 8**

As an initial matter, in New England, a DER may participate in the wholesale markets as a Settlement Only Resource ("SOR")<sup>49</sup> or as demand resources ("DRs"), which, collectively,

---

<sup>47</sup> See Schedule 23 at Att. 1 (defining "Affected System" as "[a]ny electric system that is within the Control Area, including, but not limited to, generator owned transmission facilities, or any other electric system that is not within the Control Area that may be affected by the proposed interconnection.").

<sup>48</sup> ISO-NE also assesses the impacts of a proposed generating facility's interconnection that is subject to the state interconnection process in accordance with Section 3.03(b) of the TOA. The review of the impacts of those interconnections is performed under Section I.3.9, as briefly described in the Introduction, above.

<sup>49</sup> See ISO-NE Tariff at § I.2.2 (defining, SORs as "generators of less than 5 MW or otherwise eligible for Settlement Only Resource treatment as described in ISO New England Operating Procedure No. 14 and that have elected Settlement Only Resource treatment as described in the ISO New England Manual for Registration and Performance Auditing."). The data provided in response to Question 6 does not include Generator Assets that are modeled in the market as SOR, but are connected to the Distribution System. While interconnected to the

include DRRs, On-Peak Demand Resources, or Seasonal Peak Demand Resources. SORs are Generator Assets that are each less than 5 MW and are often connected to the Distribution System; DRs comprise behind-the-meter measures installed at end-use customer facilities (*e.g.*, price responsive demand, energy efficiency, load management, behind-the-meter generation and storage) that reduce end-use electricity demand. DERs that do not participate in the wholesale markets as supply resources reduce the net load served by the bulk power system, which reduces wholesale clearing prices and costs allocated to Market Participants serving retail customers. The capacity of SORs, DRs, and an estimate load-reducing DERs (*i.e.*, solar PV) participating in the New England wholesale markets as of September 1, 2019 are shown in Table 1 below:

**TABLE 1: New England Distributed Energy Resources as of 09/01/2019**

<b>Distributed Energy Resource (DER) Category</b>	<b>Settlement Only Resource (SOR) Nameplate Capacity (MW)</b>	<b>Demand Resource (DR) Maximum Capacity (MW)</b>	<b>Total DER Capacity (MW)</b>
Energy Efficiency	-	2,822	2,822
Demand Response (excluding behind-the-meter DG capacity)*	-	214	214
Natural Gas Generation	22	246	269
Generation Using Other Fossil Fuels	63	354	416
Generation Using Purchased Steam	-	23	23
Non-Solar Renewable Generation ( <i>e.g.</i> , hydro, biomass, wind)	437	21	458
Solar PV Generation participating in the wholesale market	1,127	129	1,256
Electricity Storage	-	4	4
Solar PV Generation <i>not</i> participating in the wholesale market**	-	-	1,975
<b>Total DER Capacity</b>	<b>1,649</b>	<b>3,813</b>	<b>7,437</b>
<b>Total DER Capacity/Total System Operable Capacity***</b>	<b>4.2%</b>	<b>9.8%</b>	<b>19.0%</b>

\* To avoid double-counting, demand response capacity includes the sum of the maximum interruptible capacities of registered demand response assets less any behind-the-meter generation or storage capacity located at these assets.

\*\* Based on Final 2019 PV Forecast: <https://www.iso-ne.com/static-assets/documents/2019/04/final-2019-pv-forecast.pdf>

\*\*\* System Operable Capacity (Seasonal Claimed Capability) plus SOR and DR Capacity as of 08/28/2019 (MW): 39,055

ISO-NE does not have visibility to all the DERs in the New England Control Area that are not participating in wholesale markets as supply resources. However, it has developed a forecast for behind-the-meter solar PV facilities given the increased penetration of these facilities in New England. As shown in Table 1, there are approximately 1,975 MW of solar PV generation not participating in the markets as supply resources. ISO-NE does not have similar estimates for other types of devices that are not participating in wholesale markets as supply resources (*e.g.*, some combined heat and power facilities, batteries, etc.).

Distribution System, these assets are typically higher than 5 MW and are transmitting the same level of data (*e.g.*, telemetry) as the assets connected to the transmission system.

**Questions 9, 9.a, and 9.b**

**Do you or the distribution utilities in your region have data on or estimates of how many distribution facilities, as defined in your answer to Question # 1.c. above, are currently subject to an OATT compared to the total number of distribution facilities in the RTO/ISO footprint?**

- a. If yes, please provide this data or estimates.**
- b. How is this information managed and updated?**

**Response to Questions 9, 9.a, and 9.b**

ISO-NE does not have this information, because the distribution facilities fall outside of its Operational Authority and its visibility. However, ISO-NE requested this information from the PTOs, as its counterparties under the TOA. Specifically, ISO-NE asked the PTOs to provide:

- (a) data/total estimates of number of distribution facilities in your Local Network;
- (b) data/total estimate of the subset of the facilities in (a) that are subject to the OATT – these are defined in the TOA as ‘OATT Interconnection Distribution Facilities’;
- (c) any assumptions used in developing the estimates in (a) and (b);
- and (d) how the data is managed and updated – e.g., database, case-by-case determinations, etc.

The PTOs addressed this request expeditiously to meet the response deadline, and the responses received are reflected in Attachment B.

**Question 10**

**Is your RTO/ISO engaged in any ongoing discussion or coordination with state or local authorities regarding the interconnection process for DERs? If so, please describe this discussion or coordination.**

**Response to Question 10**

Yes. ISO-NE has been and continues to be actively engaged in discussions and coordination with PTOs, the PTOs’ distribution company affiliates, and their corresponding state regulators in several of the New England states regarding interconnections of DER Generating Facilities. ISO-NE’s participation in these discussions has been primarily to explain the ISO-NE Interconnection Procedures, the Section I.3.9 Process, and ISO-NE’s role in each of those processes. ISO-NE also has participated in these discussions as a technical resource for the PTOs, their distribution company affiliates, and their state or local authorities as they consider ways to improve the state interconnection processes in preparation for, or to address the already-present, surge of requests for DER Generating Facilities seeking to interconnect to the Distribution System.

For some context, as of May of this year, approximately 240 applications have been made by DER Generating Facilities seeking to interconnect in Western Massachusetts, totaling approximately 940 MW. All of these proposed facilities are sized between 1 and 5 MW. These requests were largely made in response to the New England states' clean energy programs and policies. All of these DER Generating Facilities are seeking to interconnect to non-OATT Interconnection Distribution Facilities and, therefore, are subject to the state interconnection processes administered by the relevant PTO and its distribution company affiliates. As briefly described in Section I above, the PTOs (and their distribution company affiliates) are required to notify ISO-NE when the interconnection of multiple generators to non-OATT Interconnection Distribution Facilities, such as those in Western Massachusetts, may have cumulative impacts affecting those facilities used for regional transmission service. ISO-NE's review of the impacts of these proposed interconnections is achieved through the Section I.3.9 Process.

Previously, a Section I.3.9 notification without transmission studies usually sufficed for DER Generating Facility interconnections to non-OATT Interconnection Distribution Facilities greater than 1 MW and less than 5 MW. However, with the high penetration of DER Generating Facility interconnections to non-OATT Interconnection Distribution Facilities, in some instances, such as those proposed in Western Massachusetts, ISO-NE has determined that the interconnections will have cumulative impacts on facilities used for the provision of regional transmission service, thereby prompting the need for transmission studies.

In addition to engaging in discussions with PTOs and their state or local regulators, ISO-NE also has supported various meetings with certain PTOs and their customers under the state interconnection processes (*i.e.*, developers), and state or local regulators to discuss delays to projects' commercial operation given the need for transmission studies. At these meetings, ISO-NE's participation has been focused on explaining the Section I.3.9 Process, the role of ISO-NE vis-à-vis the PTO (or its distribution company affiliates) in that process, and steps that can be taken to help ensure the timely and successful completion of the process.<sup>50</sup>

### **Question 11**

**If a DER needs to transmit its output over distribution facilities to make sales into the RTO/ISO markets, are there any existing tariff provisions that govern such service? If so, please list and describe such provisions and describe whether that service is bi-directional.**

### **Response to Question 11**

Once interconnected, whether under Schedule 23 of the ISO-NE OATT if the proposed interconnection was to an OATT Interconnection Distribution Facility, or a state interconnection process if the proposed interconnection was to a non-OATT Interconnection Distribution Facility

---

<sup>50</sup> See, e.g., ISO New England Inc. Presentation, *ISO New England Review of Distributed Energy Resource Proposals and Coordination with Distribution Companies* (June 21, 2019), [https://www.iso-ne.com/static-assets/documents/2019/06/iso\\_new\\_england\\_der\\_interconnection\\_discussions\\_national\\_grid\\_meeting\\_june\\_21\\_2019\\_final.pdf](https://www.iso-ne.com/static-assets/documents/2019/06/iso_new_england_der_interconnection_discussions_national_grid_meeting_june_21_2019_final.pdf) (presenting to DER developers at a National Grid meeting in Rhode Island); ISO New England Review of Distributed Energy Resource Proposals and Coordination with Distribution Companies ISO New England Inc. Presentation, *ISO New England Review of Distributed Energy Resource Proposals and Coordination with Distribution Companies* (May 30, 2019), [https://www.iso-ne.com/static-assets/documents/2019/05/iso\\_new\\_england\\_der\\_interconnection\\_discussions\\_national\\_grid\\_meeting\\_may\\_30\\_2019\\_final.pdf](https://www.iso-ne.com/static-assets/documents/2019/05/iso_new_england_der_interconnection_discussions_national_grid_meeting_may_30_2019_final.pdf) (presenting to DER developers at a National Grid meeting in Massachusetts).

for participation in the wholesale electricity markets, the interconnection service resulting from those processes can be used to support a DER Generating Facility's participation in the New England Markets. In addition to interconnection service, Local Service and/or distribution service also may be required for the DER Generating Facility to transmit its output over the Local Network<sup>51</sup> and distribution facilities, respectively. Local Service, which allows a DER Generating Facility to transmit its output on (or serve its service/charging load from) the Local Network, is offered by the PTOs pursuant to Schedule 21 of the ISO-NE OATT. Distribution service or retail service, which allows a DER Generating Facility to transmit its output on (or serve its station service/charging load from) the distribution facilities, is offered by the PTOs or their distribution company affiliates pursuant to bilateral wholesale distribution agreements on file with the Commission or distribution tariffs subject to the jurisdiction of state or local authorities.

---

<sup>51</sup> See ISO-NE OATT at § I.2.2 (defining "Local Network" as "the transmission facilities constituting a local network as identified in Attachment E, as such Attachment may be modified from time to time in accordance with the Transmission Operating Agreement."). See TOA at Art. 3.03(e) (providing, "Local Network" "consist of those networks of Transmission Facilities identified on Attachment E of the ISO OATT as of the Operations Date. The Local Networks shall only be changed to reflect the effectuation of a merger, acquisition, or consolidation and reorganization, to add a new PTO from outside of the New England Control Area, or to reflect the withdrawal from the ISO of a PTO").

**ATTACHMENT B**

**PTOs' DATA IN RESPONSE TO QUESTION 9**

**CENTRAL MAINE POWER COMPANY**

By email dated September 20, 2019, Central Maine Power responded:

- (a) Data/total estimate of number of distribution facilities in your Local Network: 470
- (b) Data/total estimate of the subset of the facilities in (a) that are subject to the OATT – these are defined in the TOA as “OATT Interconnection Distribution Facilities”: 31
- (c) Any assumptions used in developing the estimates in (a) and (b); None.
- (d) How the data is managed and updated – e.g., database, case-by-case determinations, etc: Case by case basis (i.e., when a new generator comes on line, the data is refreshed).

**CONNECTICUT MUNICIPAL ELECTRIC ENERGY COOPERATIVE**

By email dated September 27, 2019, Connecticut Municipal Electric Energy Cooperative (“CMEEC”) responded:

The six CMEEC MEUs and MTUA are not FERC jurisdictional and therefore have no distribution facilities subject to OATT. These systems do have interconnection agreements available for third parties seeking to sell into ISO Markets. No such agreements are currently in place. CMEEC follows ISO-NE procedures regarding interconnection including interconnections at the distribution level.

Because the systems we represent have no distribution facilities subject to an OATT our response to the poised questions are:

- (a) Data/total estimate of number of distribution facilities in your Local Network;-  
-NA
- (b) Data/total estimate of the subset of the facilities in (a) that are subject to the OATT – these are defined in the TOA as “OATT Interconnection Distribution Facilities”; None
- (c) Any assumptions used in developing the estimates in (a) and (b); NA
- (d) How the data is managed and updated – e.g., database, case-by-case determinations, etc. NA

**EMERA MAINE**

By email dated October 2, 2019, Emera Maine responded:

Of Emera Maine’s 168 distribution circuits, 119 currently have some form of Distributed Generation at this time. However, only four (4) distribution circuits are subject to the OATT, due to currently interconnected generators that are participating in the wholesale markets. At this time we are not managing a list of these circuits, but making case-by-case determinations.

**EVERSOURCE**

By email dated October 3, 2019, Eversource responded:

- (a) Data/total estimate of number of distribution facilities in your Local Network;

Eversource has generally utilized ISO-NE’s definition of the physical boundaries of a “distribution facility” that was provided via an email on September 25, 2019. Using the ISO’s general guidelines, with some limited exceptions, the Eversource system contains the following number of distribution facilities. This should be considered an estimate and, as noted below, Eversource would assess the physical boundaries a particular distribution facility on a case-by-case basis when evaluating a request to interconnect.

By State

New Hampshire:	Approximately 190
Massachusetts:	Approximately 660
Connecticut:	Approximately 1,160

- (b) Data/total estimate of the subset of the facilities in (a) that are subject to the OATT – these are defined in the TOA as “OATT Interconnection Distribution Facilities”:

In considering whether a facility is subject to the OATT for the purposes of this question, Eversource assumed that all distribution facilities with a registered Settlement Only Generator have been used for wholesale purposes. Eversource also estimated the number of wholesale loads served by Eversource distribution facilities and assumed that each of these arrangements constituted a wholesale sale. Using the above general guidelines, the Eversource system contains the following number of distribution facilities that are subject to the OATT:

By State

New Hampshire:	Approximately 75
Massachusetts:	Approximately 205
Connecticut:	Approximately 30

- (c) Any assumptions used in developing the estimates in (a) and (b);



Assumptions are noted above.

Eversource understands that there are distribution-connected resources that have cleared in Forward Capacity Auctions for future Capacity Commitment Periods but have not yet entered commercial operation. This will cause the number of distribution facilities subject to the OATT to increase over the next few years as these resources begin to engage in wholesale sales.

Eversource further understands that individual and aggregated DERs can participate in the ISO-NE Capacity Market as Demand Resources or Price Responsive Demand. For the purposes of this response, Eversource assumed that DERs participating in the Capacity Market in this manner do not create a wholesale sale across a distribution facility.

- (d) How the data is managed and updated – e.g., database, case-by-case determinations, etc.

Eversource does not maintain a system-wide database of distribution facilities or those which are subject to the OATT. A determination of whether a distribution facility is subject to the OATT is typically made on a case-by-case basis when Eversource receives an interconnection request on a specific distribution facility. For each specific interconnection request, Eversource will first define the distribution facility to which the resource may interconnect. Next, Eversource screens that facility for the existence of wholesale transactions, e.g. registered generators or wholesale delivery customers.

### **GREEN MOUNTAIN POWER**

By email dated October 3, 2019, Green Mountain Power responded:

- (a) Data/total estimate of number of distribution facilities in your Local Network;  
GMP has 297 distribution circuits/feeders on its system.
- (b) Data/total estimate of the subset of the facilities in (a) that are subject to the OATT – these are defined in the TOA as “OATT Interconnection Distribution Facilities”;  
10
- (c) Any assumptions used in developing the estimates in (a) and (b);
- Interconnections to distribution substation bus, rather than circuit/feeders were not included (note, there is only one such interconnection);
  - Excluded distribution circuits/feeders that only had one or more of the following active DERs:
    - net metering;

- QFs selling 100% of output directly to GMP or to the Vermont composite system under Vermont’s standard offer program and Rule 4.100 PURPA implementation;
- Behind the meter batteries;
- 10kW pole-mounted solar panels;
- ATRR batteries;
- GMP-owned behind the meter generation less than 5 MW load reducers that are not ISO NE registered assets; and
- Non-GMP-owned behind the meter generation less than 5 MW load reducers that are not ISO NE registered assets (e.g., 68kW waste-wood generator at a mill).

(d) How the data is managed and updated – e.g., database, case-by-case determinations, etc.

GMP utilizes an Oracle database. Updates are incorporated as new DERs are interconnected.

**MASSACHUSETTS MUNICIPAL WHOLESALE ELECTRIC COMPANY**

By email dated October 1, 2019, The City of Holyoke Gas and Electric Department, Chicopee Electric Light Department, and Shrewsbury Electric and Cable Operations responded:

Town	Feeders Owned by Town	Feeders with DERs Engaged in Market Activities	Assumptions	Data Management Case by Case Basis
Chicopee	17	2	None	Case by Case Basis
Holyoke	51	6	None	Case by Case Basis
Shrewsbury	23	0	None	Case by Case Basis

**NEW ENGLAND POWER d/b/a NATIONAL GRID**

By email dated October 3, 2019, New England Power responded:

**FERC DER Docket (RM18-9-000) Information Request Question #9**

- a) **Data/total estimate of number of distribution facilities in your Local Network;**
- National Grid’s electric distribution subsidiaries in MA and RI<sup>1</sup> have approximately 1,831 distribution facilities in total.

---

<sup>1</sup> National Grid’s electric distribution subsidiaries include Massachusetts Electric Company, Nantucket Electric Company and The Narragansett Electric Company.

**b) Data/total estimate of the subset of the facilities in (a) that are subject to the OATT – these are defined in the TOA as “OATT Interconnection Distribution Facilities”;**

- National Grid estimates that approximately 40 distribution facilities in Rhode Island and Massachusetts are subject to the OATT.

**c) Any assumptions used in developing the estimates in (a) and (b);**

- 1. New England Power provides transmission service through an integrated facilities agreement with its distribution affiliates Massachusetts Electric Company, Nantucket Electric Company and The Narragansett Electric Company. Those distribution facilities are identified in FERC-filed agreements and support New England Power Company’s provision of local network service to wholesale customers.
- 2. DER is participating in a sale for resale and/or engaging in the forward capacity market.
- 3. DER is not selling its entire output to National Grid pursuant to a state net metering program or as a Qualifying Facility.

**(d) How the data is managed and updated – e.g., database, case-by-case determinations, etc.**

- Jurisdictional status of small generators is determined at the interconnection application stage.  
Distribution facilities considered to be within the Local Network or OATT Interconnection Distribution facilities are monitored in a Salesforce data repository.

If a customer elects to make a sale for resale and National Grid is not notified in advance, a change in asset registration will trigger National Grid to review the circumstances of the change to file the interconnection agreement. The circuit information will be added to Salesforce.

## **NEW HAMPSHIRE TRANSMISSION**

By email dated September 12, 2019, New Hampshire Transmission responded:

Since NHT doesn’t own or operate a distribution system nor have any experience with interconnection requests from DER’s, [NHT doesn’t] believe NHT has anything to offer in terms of assisting with responses to the DER-related questions discussed during the PTO-AC teleconference call held yesterday.

**THE UNITED ILLUMINATING COMPANY**

By email dated October 4, 2019, The United Illuminating Company (“UI”) responded:

- (a) Data/total estimate of number of distribution facilities in your Local Network: 341
- (b) Data/total estimate of the subset of the facilities in (a) that are subject to the OATT – these are defined in the TOA as “OATT Interconnection Distribution Facilities”: 5
- (c) Any assumptions used in developing the estimates in (a) and (b); None, however, in (b) [UI] counted the Bridgeport Fuel Cell Park Generating Facility as 1, even though it is interconnected via 3 circuits. If [UI] should have counted it as 3 then (b) should be increased from 5 to 7.
- (d) How the data is managed and updated – e.g., database, case-by-case determinations, etc: Case by case determinations

**ENERGY NEW ENGLAND INC. (ENE)**

By email dated October 7, 2019, ENE, on behalf of Belmont Municipal Light Department (MA), Block Island Utility District (RI), Braintree Electric Light Department (MA), Concord Municipal Light Department (MA), City of Danvers Electric Division (MA), Georgetown Municipal Light Department (MA), Groveland Municipal Light Department (MA), Hingham Municipal Light Department (MA), Village Of Hyde Park (VT), Littleton Electric Light & Water (MA), Massachusetts Bay Transportation Authority (MBTA), Middleborough Gas & Electric, Merrimac Municipal Light Department (MA), Middleton Municipal Electric Department (MA), North Attleborough Electric Department (MA), Norwood Municipal Light Department (MA), Pascoag Utility District (RI), Reading Municipal Light Plant (MA), Rowley Municipal Light Plant (MA), Taunton Municipal Light Plant (MA), Wellesley Municipal Light Plant (MA), Town of Wallingford CT Department of Public Utilities Electric Division (CT), Westfield Gas & Electric Department (MA), Stowe (VT) Electric Department (VT),<sup>2</sup> responded:

Town	Feeders Owned by Town	Feeders with DERs Engaged in Market Activities	Assumptions	Data Management Case by Case Basis
Belmont	8	0	None	Case by Case Basis
Block Island	6	0	None	Case by Case Basis
Braintree	22	0	None	Case by Case Basis
Concord	8	0	None	Case by Case Basis
Danvers	37	0	None	Case by Case Basis

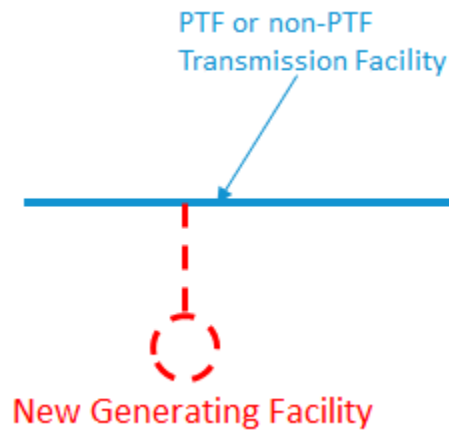
<sup>2</sup> Not all of these entities are Participating Transmission Owners under the TOA.

Georgetown	4	0	None	Case by Case Basis
Groveland	4	0	None	Case by Case Basis
Hingham	12	0	None	Case by Case Basis
Hyde Park	1	0	None	Case by Case Basis
Littleton	6	2	None	Case by Case Basis
MBTA	27	0	None	Case by Case Basis
Middleborough	12	0	None	Case by Case Basis
Merrimac	4	0	None	Case by Case Basis
Middleton	2	0	None	Case by Case Basis
North Attleborough	11	0	None	Case by Case Basis
Norwood	24	0	None	Case by Case Basis
Pascoag	5	0	None	Case by Case Basis
Rowley	4	0	None	Case by Case Basis
Reading	2	2	None	Case by Case Basis
Taunton	53	0	None	Case by Case Basis
Wellesley	28	0	None	Case by Case Basis
Wallingford	24	0	None	Case by Case Basis
Westfield	14	0	None	Case by Case Basis
Stowe	6	0	None	Case by Case Basis

**ATTACHMENT C**

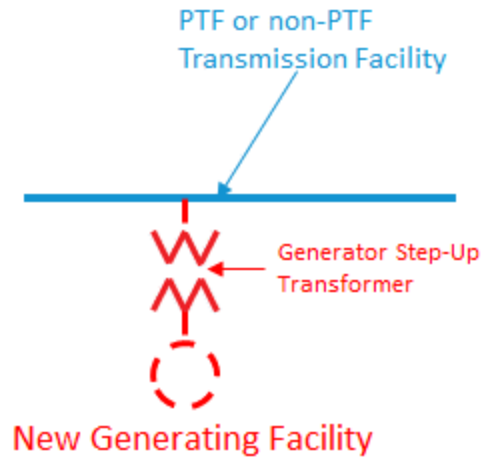
**EXAMPLES ASSOCIATED WITH QUESTION 1.c**

The following examples are intended to illustrate methods the PTOs have employed in determining the status of a distribution facility based on the physical boundary delineation described in response to Question 1.c.



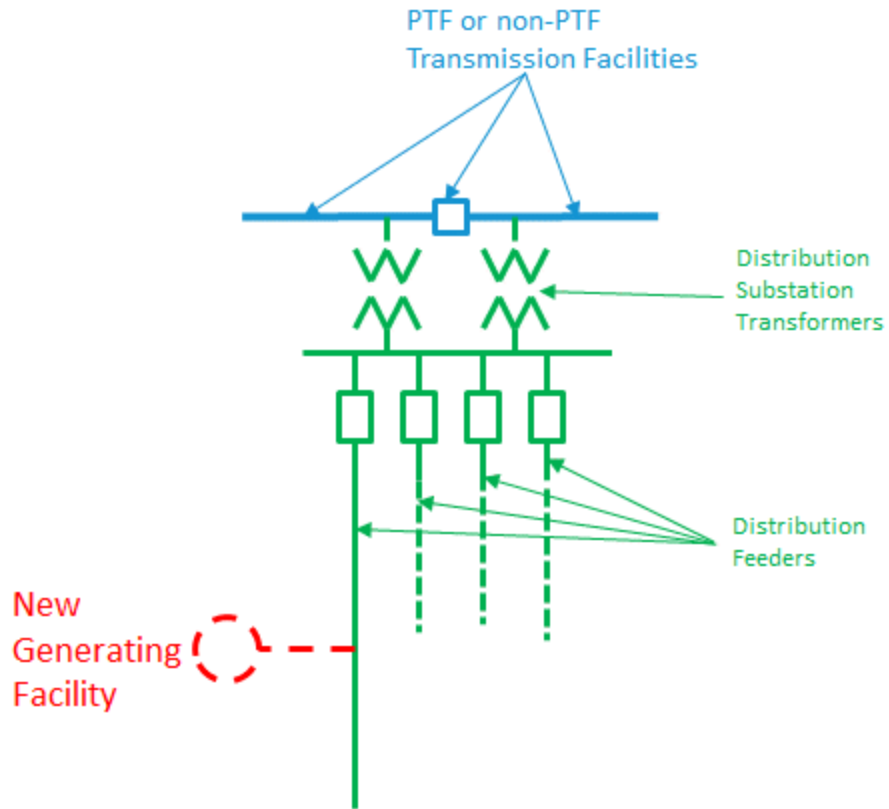
*Figure 1*

*A request for a direct connection of a Generating Facility to PTF or Non-PTF, which are transmission facilities, is subject to ISO-NE Interconnection Procedures, unless one of the exemptions applies.*



*Figure 2 –*

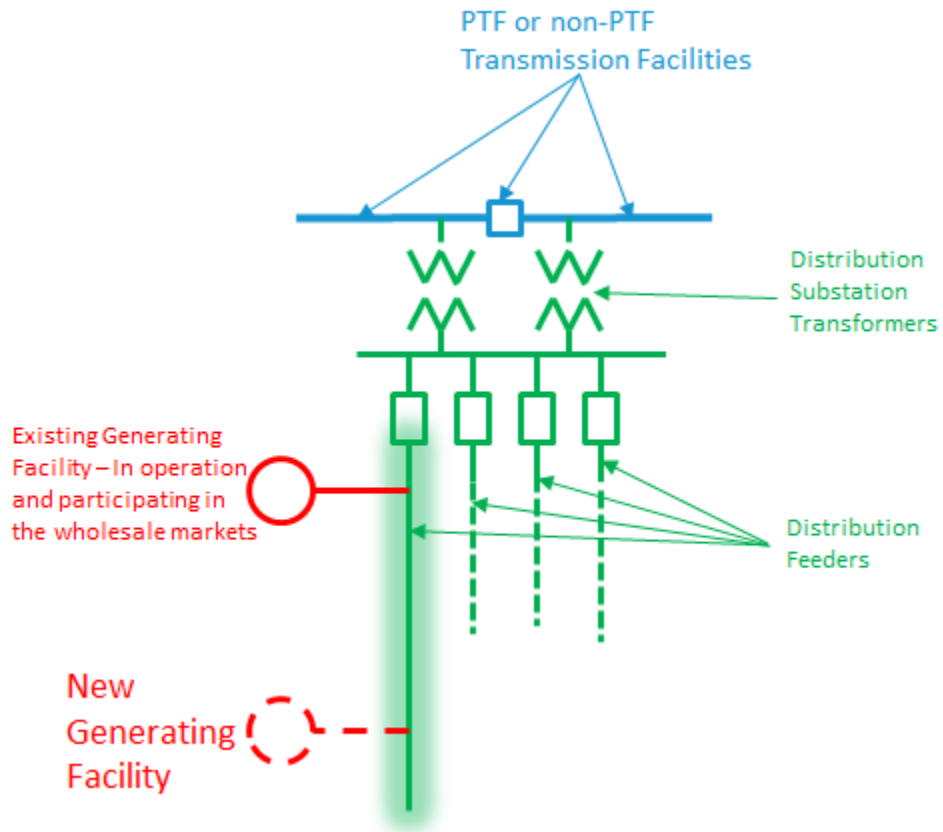
*A request for a direct connection of a Generating Facility using a generator step-up transformer to PTF or Non-PTF is subject to the ISO-NE Interconnection Procedures, unless one of the exemptions applies.*



**Figure 3**

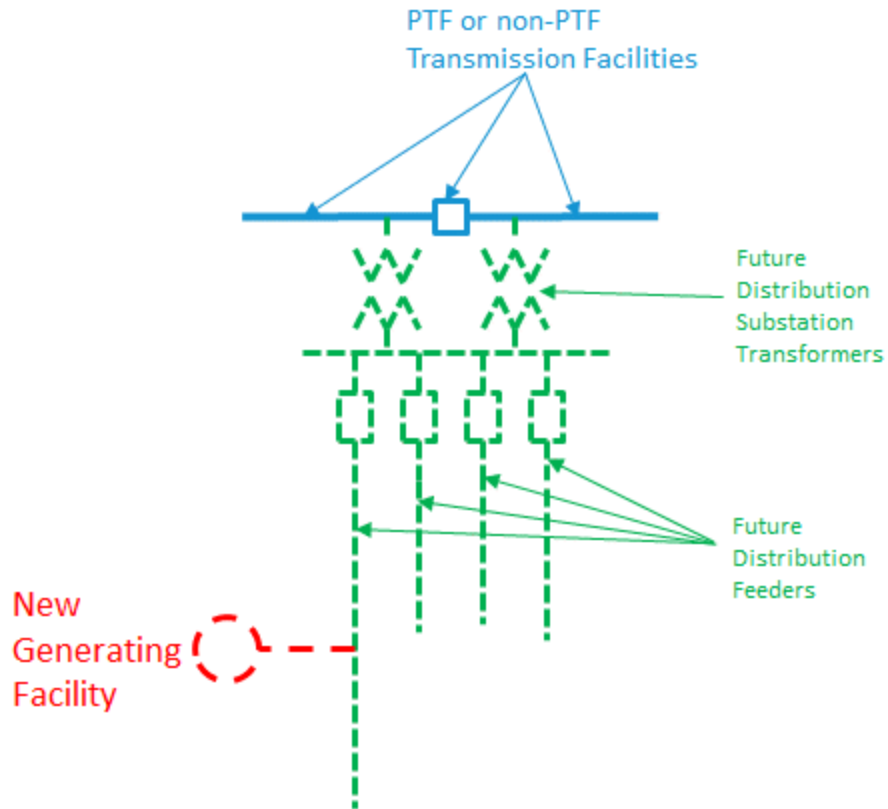
*A request to connect a Generation Facility to the Distribution System at a distribution facility that does not host an existing wholesale transaction at the time of the request is not subject to the ISO-NE Interconnection Procedures.*





**Figure 4**

*A request to connect a Generation Facility to the Distribution System at a distribution facility that does host an existing wholesale transaction at the time of the request is subject to the ISO-NE Interconnection Procedures, unless one of the exemptions applies.*



**Figure 5**

*In assessing a request to connect a Generation Facility to an existing distribution facility that the PTO has determined is non-OATT distribution, a PTO may identify the need to build out the Distribution System in order to accommodate the request (as opposed to simply connecting to the existing distribution facility). The ISO-NE Interconnection Procedures have not been triggered in this scenario.*