

**UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION**

**Reforms of Generator Interconnection) Docket No. RM17-8-000
Procedures and Agreements)**

COMMENTS OF THE ISO NEW ENGLAND INC.

ISO New England Inc. (“ISO-NE”)¹ submits these comments in response to the Notice of Proposed Rulemaking issued by the Federal Energy Regulatory Commission (“Commission”) in the above-referenced docket on December 15, 2016.² The Interconnection Reforms NOPR proposes to revise the Commission’s regulations and the *pro forma* Large Generator Interconnection Procedures (“LGIP”) and the *pro forma* Large Generator Interconnection Agreement (“LGIA”) to incorporate a number of significant reforms that Transmission Providers, including regional transmission organizations and independent system operators (“RTOs/ISOs”), would need to reflect in their respective LGIPs and LGIAs. The NOPR sets out the proposed reforms for notice and comment, indicating that they are intended to improve certainty, promote more informed interconnections, and enhance the interconnection process³ in order to remedy potential shortcomings in existing interconnection processes.⁴

¹ Capitalized terms used but not otherwise defined in these comments have the meaning ascribed thereto in the ISO-NE Transmission, Markets and Services Tariff (the “Tariff”), including the Open Access Transmission Tariff (the “OATT”), which is Section II of the Tariff, and Market Rule 1, which is Section III of the Tariff.

² *Reforms of Generator Interconnection Procedures and Agreements*, Notice of Proposed Rulemaking, 157 FERC ¶ 61,212 (Dec. 15, 2016) (the “Interconnection Reforms NOPR” or “NOPR”).

³ *See id.* at PP 5-8 (explaining the reforms would (1) improve certainty in the interconnection process by providing Interconnection Customers more predictability in the process; (2) improve transparency by providing Interconnection Customers more information and thereby promote more informed interconnections; and, (3) enhance the interconnection process by making use of unused existing

I. EXECUTIVE SUMMARY

ISO-NE agrees with the Commission that several of the proposed reforms in the Interconnection Reforms NOPR will likely further the stated objectives and can be implemented in the New England region. Indeed, as discussed in Section III of these comments, ISO-NE's interconnection procedures⁵ already provide mechanisms that largely achieve many of the NOPR's objectives pursuant to existing interconnection processes, which have been continuously improved since the initial compliance with Order No. 2003.⁶ However, as also described in these comments, ISO-NE is concerned that some of the specific proposals (and the corresponding revisions to the *pro forma*) may be overly prescriptive if put forward in a "one-size-fits-all" approach, and may have unintended consequences of deteriorating aspects of the existing interconnection process that are currently working well in New England, or even disrupting existing constructs established to address concerns unique to the region.

Since the implementation of Order No. 2003, each RTO/ISO, including ISO-NE, has established its own set of improvements to the interconnection process to meet the unique needs of the region. Recognition of the successes in these efforts, which have

interconnection service, providing for earlier interconnection service, and accommodating modifications throughout the process.

⁴ *See id.* at PP 3-4.

⁵ The interconnection procedures administered by ISO-NE as the RTO for New England are set forth in Schedules 22, 23 and 25 of the OATT. Schedule 22 contains the Large Generator Interconnection Procedures and Agreement ("LGIP" and "LGIA"), Schedule 23 contains the Small Generating Facility Interconnection Procedures and Agreement ("SGIP" and "SGIA"), and Schedule 25 contains the Elective Transmission Upgrade Interconnection Procedures and Agreements ("ETU IP" and "ETU IA"), which are based on Schedule 22 (collectively, the "Interconnection Procedures").

⁶ *Standardization of Generator Interconnection Agreements and Procedures*, Order No. 2003, FERC Stats. & Regs. ¶ 31,146 (2003) ("Order No. 2003"), *order on reh'g*, Order No. 2003-A, FERC Stats. & Regs. ¶ 31,160 ("Order No. 2003-A"), *order on reh'g*, Order No. 2003-B, FERC Stats. & Regs. ¶ 31,171 (2004) ("Order No. 2003-B"), *order on reh'g*, Order No. 2003-C, FERC Stats. & Regs. ¶ 31,190 (2005) (Order No. 2003-C), *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 (2008).

resulted in interconnection processes evolving differently overtime, is critically important to maintain the advances made. ISO-NE urges the Commission not mandate the adoption of “one-size-fits-all” proposals even where the proposed constructs have been adopted in one region, as they might not be suitable for others. Instead, ISO-NE requests that the Commission focus primarily on setting out the desired outcomes as captured in the NOPR’s objectives, and allow each region to further their attainment with those objectives in ways that are compatible with the unique constructs and concerns of each region. ISO-NE recognizes and appreciates the Commission’s openness in the NOPR to allowing regional flexibility under the “regional reliability variations” or the “independent entity variations” standards.⁷ Consistent with that proposal, ISO-NE further requests that any final rule issued in this proceeding explicitly allow for appropriate regional flexibility.

With respect to the specific proposals in the Generator Interconnection NOPR that are intended to improve certainty in the interconnection process, as further discussed in Section III.A, below, ISO-NE:

- Supports the Commission’s efforts to address the problem of cascading restudies. Scheduled periodic restudies, however, should not be mandated in recognition of different cluster study designs, which might not benefit from a regularly scheduled restudy construct, and given other means to achieve the stated objective.
- Supports the Commission’s efforts to facilitate resolution of disagreements over interconnection matters, and believes that the dispute resolution procedures already contained in the ISO-NE LGIP and LGIA adequately handle interconnection-related disputes. ISO-NE’s RTO role should not be expanded to include dispute resolution services given its role in the interconnection process, which can lead to potential disputes between ISO-NE and other parties. The mutual agreement for alternative

⁷ See NOPR at P 232.

resolution methods should not be removed given the potential for introducing unnecessary delays and uncertainties in the process.

- Believes cost caps for Network Upgrades should not be mandated given differences in cost allocation constructs. Further, as described below, there are other means to achieve certainty in cost estimates.

As further described in Section III.B, below, ISO-NE continuously interacts with Interconnection Customers on the basis of the fundamental principle of transparency, and provides information beyond that already required under the existing interconnection rules in order to facilitate more informed interconnections. With respect to the reforms proposed to promote more informed interconnections, ISO-NE:

- Supports the Commission’s proposal for Transmission Providers to document the methodologies used to identify contingent facilities in the *pro forma* LGIP. As described below, ISO-NE already identifies contingent facilities, and supports documenting its methodology to facilitate Interconnection Customer’s considerations of Interconnection Study results and promote more informed interconnections.
- Concurs that Interconnection Customers’ direct access to more detailed information, such as study models and assumptions, can promote more informed interconnections. However, given the extensive information that is already available, additional, duplicative posting requirements are unnecessary.
- Supports the Commission’s efforts to improve Interconnection Customers’ access to information that can further inform their decisions regarding where to site their Generating Facilities. A “one-size-fits-all” list for representing such information, however, should not be prescribed in recognition of regional differences, including variations in market designs. In New England, information on congestion that meets the NOPR’s intent is already reflected in the Locational Marginal Prices. Additionally, ISO-NE has invested considerable efforts in studies that provide details about areas on the New England system in which interconnection will be challenging and potentially very costly. Through these study efforts, ISO-NE has provided Interconnection Customers and other interested parties significant system data on limitations and potential solutions to facilitate their understanding of the system topology issues they may encounter before they select a Point of Interconnection or enter the interconnection queue.

- Appreciates the commission’s desire to have greater transparency regarding study timings and delays; however, given the existing requirements and the extensive information already provided in compliance with them, ISO-NE does not believe that new reporting requirements are warranted to achieve that objective.
- Believes that more details on the processes used to achieve the required coordination with Affected Systems would promote more informed interconnections. ISO-NE, however, does not believe that additional prescribed *pro forma* guidelines or standardized processes are necessary given the existing coordination processes, pursuant to which ISO-NE consistently coordinates with Affected Systems throughout the interconnection process.

As described in Section III.C, below, ISO-NE’s Interconnection Procedures already provide mechanisms that achieve some of the objectives of the proposed reforms that are intended to enhance interconnection processes. With respect to these reforms, ISO-NE:

- Supports the Commission’s proposal to formalize a process for Interconnection Customers to request Interconnection Service below a propose Generating Facility’s capacity. As described below, ISO-NE has been able to accommodate this construct under the existing Interconnection Procedures in terms of Interconnection Service. A final rule, however, should clearly require that any output-limiting device be identified and described in the project description provided at the beginning of the study process. Identification of such equipment should be part of the Generating Facility’s design so to avoid unintended consequences.
- Opposes the Commission’s proposal to extend the current “limited operation” rules pursuant to which a Generating Facility can already interconnect and operate prior to the completion of certain Interconnection Facilities or Network Upgrades to the extent safe and reliable in order to incorporate an entirely new interconnection process and agreement construct for allocating Interconnection Service on a provisional basis to a Generating Facility prior to the completion of required Interconnection Studies. Allocating Interconnection Service on a provisional basis, as proposed in the NOPR, would unnecessarily introduce another layer of queue management complexities and uncertainties in the interconnection process that do not currently exist in New England.
- Opposes a requirement to adopt the proposed Surplus Interconnection Service construct in New England, as unnecessary since Interconnection

Customers can already achieve the NOPR’s intended outcome through mechanisms provided for in the ISO-NE markets, and implementation of the design proposed in the NOPR would significantly disrupt or misalign those existing mechanisms.

- Supports the proposed requirement for Transmission Providers to establish procedures for accommodating technological changes, which is consistent with recently-implemented improvements in New England that included a set of rules specifically designed to deal as productively as possible with Material Modification reviews in the context of changing technology. However, for the reasons provided below, a single approach for structuring technological changes procedures should not be mandated.

In response to the Commission’s requests in the NOPR, Section III.C of these comments also addresses ISO-NE’s successful processing of Interconnection Requests for electric storage resources using the existing interconnection procedures and agreements, and how the recently-implemented modeling requirements for inverter-based technologies have improved the study process for these types of technology.

II. BACKGROUND

On September 8, 2015, ISO-NE filed comments in response to the AWEA Petition, wherein AWEA advocated for “one-size-fits-all” changes to the interconnection procedures to address its claims that Transmission Providers nationwide are not performing Interconnection Studies in a timely and accurate manner.⁸ The ISO-NE Comments conveyed the concerns that the AWEA Petition failed to recognize the importance of approved, regional variations in interconnection processes, as well as the differences in the nature and scope of any concerns from region to region.⁹ The ISO-NE

⁸ See *American Wind Energy Association*, Comments of ISO New England Inc.; Docket No. RM15-21-000 (filed Sept. 8, 2015) (“ISO-NE Comments”). See also *American Wind Energy Association*, Petition for Rulemaking to Revise Generator Interconnection Procedures; Docket No. RM15-21-000 (filed June 19, 2015) (“AWEA Petition”).

⁹ See ISO-NE Comments at 27-30.

Comments also provided a detailed description of the Interconnection Procedures, the significant enhancements that have already been implemented to address concerns unique to the region, and the recent interconnection challenges being experienced together with the then-ongoing efforts to address them.¹⁰ Subsequently, on May 13, 2016, ISO-NE participated in the Commission’s Technical Conference on selected issues related to the AWEA Petition, and other generator interconnection issues, including interconnection of electric storage resources.¹¹ On June 30, 2016, ISO-NE submitted comments in response to the Commission’s Notice Inviting Post-Technical Conference Comments providing additional information to address specific questions posed regarding the generator interconnection issues discussed at the Technical Conference.¹²

For context, and to facilitate the Commission’s consideration of these comments, ISO-NE provides a brief overview of the Interconnection Procedures, highlighting key regional variations and specific issues in the region and the solutions developed to address them. Detailed descriptions are provided in the ISO-NE Comments in response to the AWEA Petition and the ISO-NE Post-Technical Conference Comments.

¹⁰ *See id.* at 7-27.

¹¹ *See Review of Generator Interconnection Agreements and Procedures, et al.*, Written Comments of Alan McBride Director of Transmission Strategy and Services ISO New England Inc.; Docket Nos. RM16-12-000, *et al.*

¹² *See Review of Generator Interconnection Agreements and Procedures, et al.*, Comments of ISO New England Inc.; Docket Nos. RM16-12-000, *et al.* (filed June 30, 2016) (“ISO-NE Post-Technical Conference Comments”).

A. New England Interconnection Procedures and Their Improvements

While based on the Order No. 2003 *pro forma* LGIP and LGIA, the ISO-NE Interconnection Procedures necessarily reflect regional differences that are significant.¹³ The proposed Schedule 22 of the ISO OATT submitted in compliance with Order No. 2003 retained existing rules and policies, including a single Interconnection Service pursuant to the Minimum Interconnection Standard (“MIS”)¹⁴ and the “but-for” cost allocation provisions under Schedules 11 and 12 of the OATT.¹⁵ The unique market rules of ISO-NE also contributed to the need for regional variations from the Order No. 2003 *pro forma*. Variations were warranted because of ISO-NE’s regional market design, which does not make use of firm transmission service. Instead of utilizing physical rights, transmission service in New England is scheduled in real-time energy markets based on security-constrained economic dispatch outcomes.¹⁶ Finally, as described below, the initial and subsequent levels of Interconnection Service offered through the period of time since the issuance of Order No. 2003 have been designed to correlate with the level of market participation requested (or pursued) by the Interconnection Customer.¹⁷

¹³ See *New England Power Pool, et al.*, 109 FERC ¶ 61,155 (2004) (“Order No. 2003 Compliance Order”). The approved independent entity variations were also carried forward into Schedule 23 of the OATT, which was filed in compliance with Order Nos. 2006, *et al.* See *ISO New England Inc.*, 119 FERC ¶ 61,293 (2007); *ISO New England Inc.*, 115 FERC ¶ 61,050 (2006).

¹⁴ See Order No. 2003 Compliance Order at PP 36-50. See also *ISO New England Inc. and New England Power Pool*, 121 FERC ¶ 61,070 (2007) (“October 19, 2007 Order”) (addressing commitment to develop tariff revisions to address the relationship between Forward Capacity Market and the interconnection process).

¹⁵ See Order No. 2003 Compliance Order at PP 83-85.

¹⁶ See *ISO New England Inc.*, 123 FERC ¶ 61,133 at PP 13-17 (2008).

¹⁷ See *ISO New England Inc. and New England Power Pool*, 126 FERC ¶ 61,080 at P 14 (2009) (“FCM/Queue Amendments Order”).

Since incorporating the LGIP and LGIA in Schedule 22 of the OATT, the Interconnection Procedures have undergone significant enhancements to address concerns unique to the region, resulting in additional Commission-approved regional variations. In a 2008 joint filing with the Participating Transmission Owners (“PTOs”) through the PTO Administrative Committee (“PTO AC”)¹⁸ and New England Power Pool Participants Committee (“NEPOOL”),¹⁹ ISO-NE revised its Tariff, including Schedules 22 and 23, to accommodate implementation of the Forward Capacity Market (“FCM”).²⁰ Among other things, these modifications, referred to as the “FCM/Queue Amendments,” improved the coordination between the FCM and the interconnection queue process for the allocation of interconnection capability on the system. As initially implemented, Schedules 22 and 23 reflected a single Interconnection Service level – the Network Resource Interconnection Service (“NRIS”) – based on the MIS that had provided generation interconnecting to the system with full market access, including eligibility for capacity credits. The FCM/Queue Amendments continued to provide resources the option of NRIS, but formalized that NRIS would no longer be sufficient to participate in the capacity market.²¹ The FCM/Queue Amendments also introduced a new type of Interconnection Service, called Capacity Network Resource Interconnection Service (“CNRIS”), achieved through a resource’s successful participation in the FCM.²²

¹⁸ ISO-NE shares its Section 205 rights over the Interconnection Procedures in the manner specified in Section 2.05 of the Transmission Operating Agreement between the PTOs and ISO-NE. Under the Interconnection Procedures, the PTOs carry out the role of the Interconnecting Transmission Owner.

¹⁹ NEPOOL provides the sole Participant Processes for advisory voting on proposed changes to the Tariff in accordance with the Participants Agreement and the Transmission Operating Agreement.

²⁰ See FCM/Queue Order, 126 FERC ¶ 61,080.

²¹ See *id.* at P 14.

²² See *id.*

The CNRIS option affords Interconnection Customers the ability to interconnect their facilities for capacity under the intra-zonal deliverability standard, called the Capacity Capability Interconnection Standard, up to the facility’s Capacity Network Resource (“CNR”) Capability.²³ The CNR Capability is based on the Interconnection Customer’s Capacity Supply Obligation obtained through the FCM. To achieve full coordination with the FCM and the interconnection queue processes, New England also shifted from a “first-come, first-served” approach to a “first-cleared, first-served” construct for the allocation of CNRIS.²⁴ The resulting integrated processing, while complicated, has been successful for multiple capacity periods.

Since the FCM/Queue Amendments, ISO-NE, in collaboration with the PTO AC and with stakeholder support, has made further improvements to the Interconnection Procedures to enable the interconnection of various types of new resources. For example, in 2015, ISO-NE implemented new rules to manage the interconnection of Elective Transmission Upgrades (“ETU”).²⁵ More specifically, through a new Schedule 25 designed to set forth interconnection requirements and obligations for ETUs, similar to those of internal Large Generating Facilities, ETUs are now able to establish and maintain a meaningful Queue Position.²⁶ These modifications, referred to as the “ETU

²³ *See id.*

²⁴ *See id.* at PP 15-16. The FCM/Queue Amendments essentially merged the processing of the ISO-NE interconnection queue with participation of resources in the FCM. The integration of these processes provides for an annual group study – CNR Group Study – of resources seeking to participate in the same upcoming Forward Capacity Auction (“FCA”). Resources that clear in the FCA obtain CNRIS on a “first-cleared, first-served” basis. NRIS, however, is assigned based on the traditional “first-come, first-served” serial queue construct.

²⁵ *See ISO New England Inc.*, 151 FERC ¶ 61,024 (2015) (“ETU Rule Changes Order”). ETUs are transmission facilities that are interconnected to the Administered Transmission System, but are funded solely by participants in the ETU and not by regional transmission customers.

²⁶ *See id.* at PP 6-7.

Rule Changes,” also established the ability to obtain Interconnection Service for certain types of External ETUs, and created mechanisms for ETU interconnections within the New England Control Area (“Internal ETUs”) to become directly associated with specific Generating Facilities seeking CNRIS so that they can be studied together and thereby improve the Generating Facility’s ability to interconnect and qualify for the FCM.²⁷ The addition of interconnection requirements and obligations for ETUs similar to those of internal Large Generating Facilities helped streamline the overall queue and provided certainty in the process for those ETUs that continued in the queue. Since the implementation of the ETU Rule Changes in 2015, ISO-NE has successfully completed Interconnection Studies for four major External ETU interconnections to neighboring Control Areas.

B. Ongoing Improvements to New England’s Interconnection Process

The above-described major efforts have significantly improved interconnection queue processing in New England. In most cases, the interconnection process is working well throughout the New England Transmission System with Interconnection System Impact Studies (“SIS”) being completed, on average, within a year of execution of the SIS Agreement. This, however, has not been the case for studies associated with Interconnection Requests for resources seeking to interconnect in the Northern and Western Maine parts of the system.

The Northern and Western Maine areas of the system are comprised of a transmission network that was built to serve low levels of area load, and are already oversubscribed with wind farm interconnections to date, leaving the relatively weak

²⁷ See *id.* at PP 9-10.

transmission system at its performance limit with no remaining margin.²⁸ Despite the limited transmission infrastructure in the area, the ISO-NE interconnection queue contains requests for approximately 3,500 MW (as of April 2017) of new resources (mostly wind) seeking to interconnect in the area.²⁹ Simply put, significant infrastructure is needed to interconnect the quantity of proposed resources in Maine. While the primary obstacle to interconnection for these resources is a physical one of limited transmission infrastructure, ISO-NE has identified all of the key contributing factors to the Maine queue study backlog, each of which has introduced significant complexities to the Interconnection Studies, requiring more effort and time to those studies,³⁰ and in July 2015, ISO-NE, in conjunction with stakeholders, initiated a programmatic effort to address them.

First, as part of that effort, ISO-NE focused on addressing the complexities introduced by the nature of the generation technology (primarily wind and inverter-based generation) being proposed. That effort resulted in a February 2016 joint filing of ISO-NE and PTO AC (with stakeholder support) proposing revisions to the Interconnection Procedures to incorporate new technical and modeling data requirements, including detailed up-front project design and standardized model requirements, for wind and inverter-based generators designed to make these technologies more “study-ready,” similar to conventional generators.³¹ The 2016 Improvements, approved by the

²⁸ See ISO-NE Comments at 13-17.

²⁹ The ISO-NE interconnection queue is available on the ISO-NE website at <https://irtt.iso-ne.com/reports/external>.

³⁰ See ISO-NE Comments at 12-18.

³¹ See *ISO New England Inc. and Participating Transmission Owners Administrative Committee*, Revisions to Schedules 22, 23 and 25 of the Open Access Transmission Tariff Related to Certain Interconnection Process Improvements; Docket No. ER16-946-000, *et al.* (filed Feb. 16, 2016) (the “2016 Improvements”).

Commission in April 2016 under the “independent entity variation” standard,³² also included clarifications of ISO-NE’s Material Modification review procedures and other provisions to accommodate technology changes while minimizing potential impacts to lower-queued project. Improvements are already being observed as a result of the implementation of these changes. For example, in 2016, a new inverter-based electric storage facility seeking to interconnect in Southern Maine completed the entire interconnection process and achieved Commercial Operation in approximately a year.

While the 2016 Improvements provided key tools to expediting Interconnection Study work for wind and inverter-based generators, they alone were not expected to resolve the Maine queue backlog. As noted above, there is a lack of transmission infrastructure in this relatively remote region, far from New England’s load centers. In early 2016, ISO-NE engaged in further discussions with stakeholders to respond the identified infrastructure challenge, which potentially lent itself to a cluster study approach.³³ Careful consideration, however, was warranted to minimize the uncertainties and restudy exposure issues that can be experienced with cluster study constructs, as expressed in the AWEA Petition and at the Technical Conference.³⁴ In parallel with this effort, ISO-NE initiated a strategic infrastructure study under the Regional System Planning Process in Attachment K of the OATT to identify a comprehensive transmission expansion that could enable the interconnection of resources proposed in Maine.

³² See *ISO New England Inc. and Participating Transmission Owners Administrative Committee*, 155 FERC ¶ 61,031 (April 15, 2016) (accepting the 2016 Improvements).

³³ A clustering approach would allow Interconnection Requests to be studied together and share the cost of the significant new transmission upgrades.

³⁴ See, e.g., AWEA Petition at 22.

The combined efforts resulted in proposed revisions to the Interconnection Procedures to incorporate a new methodology for considering Interconnection Requests and allocating interconnection costs on a cluster basis when a specified set of conditions are present in the ISO-NE interconnection queue. The proposed revisions to the Interconnection Procedures will incorporate a clustering approach to expedite Interconnection Request processing in certain circumstances. The clustering approach will be triggered where a backlog of two or more Interconnection Requests seeking to interconnect in the same electrical part of the system is likely to persist with the continued application of the serial queue study process due to the need for new common significant infrastructure to interconnect the resources. This is the situation observed, for example, in Northern and Western Maine. The application of the clustering approach will be limited and targeted because the serial queue study construct is generally working well throughout the New England system except in Northern and Western Maine, and the imposition of clustering in all circumstances would run counter to key objectives of the cluster design, such as limiting the likelihood of restudies. The clustering methodology will further many of the stated objectives in the NOPR. It consists of several mechanisms designed to increase certainty and reduce the likelihood of restudies, including a two-phased study process specifically designed to provide Interconnection Customers meaningful early information in the first phase of the study process regarding the likely ultimate outcome and cost of the infrastructure needed for the cluster study effort. The approach also provides reasonable opportunities for Interconnection Customers to decide, on the basis of that information, whether or not to proceed to interconnection.

The proposed revisions to the Interconnection Procedures to incorporate this clustering methodology were supported by New England stakeholders and all six New England states, and are expected to be filed with the Commission at a later date.³⁵

III. COMMENTS

A. Specific Comments on Proposals to Improve Certainty

1. Scheduled, periodic cluster restudies should not be required, as they are neither appropriate for all study approaches, nor necessary given other means to achieve the intended objective.

In the Interconnection Reforms NOPR, the Commission proposes to require Transmission Providers to conduct cluster restudies on a scheduled, periodic basis, and update their LGIPs to indicate the frequency of cluster restudies and post the dates of these restudies on the Transmission Provider's OASIS.³⁶ The NOPR indicates these proposed reforms are intended to mitigate the problem of cascading restudies by providing clear milestones that can serve as decision points for Interconnection Customers.³⁷ To effectuate this proposal, the Commission proposes to revise the restudy provisions in Sections 6.4, 7.6 and 8.5 of the *pro forma* LGIP to specifically reflect the Transmission Provider's established restudy schedule.³⁸

While ISO-NE supports the Interconnection Reforms NOPR's stated objective, a final rule in this proceeding should not mandate scheduled, periodic restudies for New England. As illustrated herein, not all cluster study approaches are the same. There are

³⁵ The NEPOOL Transmission Committee and the NEPOOL Participants Committee supported the revisions in January and February of this year, respectively. The PTOAC supported the changes in February.

³⁶ See NOPR at P 46.

³⁷ See *id.* at P 47.

³⁸ See *id.* at PP 48-49.

important regional differences in the appropriate cluster study designs given the different needs driving their development. Correspondingly, scheduled, periodic restudies might not be appropriate in all instances. Nor are they necessary given other means to achieve the stated objective.

To illustrate, ISO-NE's LGIP already reflects, in Section 3.2.1.3, a regular schedule for capacity group restudies that is based on the annual FCM qualification process. As briefly described above, in New England, CNRIS is achieved through the FCM. As part of the qualification process for the FCM, ISO-NE conducts an annual CNR Group Study that only includes the Interconnection Requests for CNRIS associated with resources that are seeking to participate in the same upcoming FCA in order to achieve CNRIS. That CNR Group Study is always subject to a one-time regularly scheduled restudy that takes place after the completion of the FCA for the purpose of finalizing the upgrades among those resources that actually cleared in the same FCA.

In contrast, ISO-NE's proposed revisions to the Interconnection Procedures that were recently developed with, and supported by stakeholders, incorporate a clustering approach that does not include provisions for scheduled restudies. Under the proposed clustering approach, a scheduled restudy would result in less certainty for Interconnection Customers, because the study outcome would simply be delayed to a later point in time. Nevertheless, the clustering approach accomplishes the intent of the Interconnection Reforms NOPR through the following key features: (1) a two-phased cluster study structure designed to provide Interconnection Customers significant information about the likely outcome of the cluster effort (*e.g.*, the magnitude of transmission infrastructure and associated costs, as well as, the identification of projects that are eligible for inclusion in cluster studies) in the first phase, thereby providing a reasonable opportunity

for Interconnection Customers that are ready to move forward to elect to proceed to the second-phase cluster studies and for those that are not ready to commit to move forward to either step aside to the bottom of the interconnection queue or withdraw from the interconnection queue altogether; (2) significant potentially forfeitable cluster participation deposit requirements for Interconnection Customers that proceed to the second-phase cluster studies, with time-specific off-ramps designed to allow Interconnection Customers' withdrawals without forfeiting the deposit; and, (3) provisions for backfilling with lower-queued requests in the event of withdrawals to minimize the need to restudy. These key features achieve the NOPR's stated objective by establishing milestones that can serve as decision points for Interconnection Customers, similar to other study approaches recently approved by the Commission.³⁹

Given the differences in cluster study approaches, and that there are other means to achieve the NOPR's intent, it is not necessary for a final rule to impose a blanket scheduled periodic cluster restudy requirement in the *pro forma* LGIP. Instead, any final rule issued in this proceeding should afford regional flexibility for RTOs/ISOs to develop appropriate measures that meet the NOPR's stated objectives in a manner that accounts for the respective cluster study constructs and that addresses restudy concerns being experienced in the region.

2. Existing dispute resolution procedures already adequately handle interconnection-related disputes.

To provide Interconnection Customers more predictability in the interconnection process, the Commission proposes to revise section 35.28(g)(9) of its regulations to require RTOs/ISOs to incorporate in their tariffs generator interconnection dispute

³⁹ See *Midcontinent Independent System Operator, Inc.*, 158 FERC ¶ 61,003 (2017).

resolution procedures providing for RTOs/ISOs to serve as neutral decision-makers (*e.g.*, as mediators or arbitrators) in interconnection disputes.⁴⁰ In addition, the Commission proposes to require RTOs/ISOs to eliminate from those procedures the requirement for mutual agreement of the parties to submit a dispute to arbitration, and allow a disputing party to unilaterally initiate the arbitration process.⁴¹

ISO-NE supports the Commission's efforts to facilitate the resolution of disagreements over interconnection matters. However, ISO-NE believes that the dispute resolution procedures already contained in the ISO-NE LGIP and LGIA adequately handle disputes that may develop on interconnection matters. Therefore, additional reforms are not needed.

Furthermore, the Commission's proposal for RTOs/ISOs to serve as decision-makers over interconnection dispute matters would be inappropriate for New England, given ISO-NE's role in the interconnection process. Since implementation of Order No. 2003, the Interconnection Procedures have reflected a three-party construct pursuant to which the role of the *pro forma* "Transmission Provider" is carried out by ISO-NE as the System Operator and/or the respective PTO as the Interconnecting Transmission Owner. Under that construct, given its status as the RTO for New England, ISO-NE serves the role of the Transmission Provider for many functions, including the overall administration of the interconnection process, the conduct of Interconnection Studies, and the operations and reliability of the system, while in some cases the PTOs serve the Transmission Provider role (*e.g.*, providing cost estimates for upgrades identified in

⁴⁰ See NOPR at PP 84-85.

⁴¹ See *id.* at P 85.

Interconnection Studies, and the design, procurement and construction of certain facilities). Although disputes seldom arise in New England, given ISO-NE's Transmission Provider role and the actions taken pursuant to that role, disputes can arise between ISO-NE and the Interconnection Customer or the Interconnecting Transmission Owner.⁴² Thus, placing ISO-NE in the role of decision-maker over interconnection dispute matters would not be appropriate. Further, ISO-NE is an RTO and dispute resolution services are a specialty field best left to trained legal personnel, such as those found in the Commission's Office of Administrative Law Judges. If the Commission determines that there is a need to revise the existing *pro forma* LGIP and LGIA dispute resolution provisions to provide for a mediator to preside over discussions regarding interconnection disputes, ISO-NE suggests that it may be more appropriate for the Commission to adopt the same approach provided in the *pro forma* SGIP, which directs the parties to address their issues through the Commission's Dispute Resolution Service.

ISO-NE is also concerned with the Commission's proposal to subject all parties to arbitration if initiated by the disputing party, particularly without limitations (*e.g.*, a defined scope of matters that are eligible for resolution or timeframes for resolution), given the potential for unnecessary delays and uncertainties in the interconnection process.⁴³ At the outset, the absence of mandatory arbitration under the *pro forma* LGIP and LGIA, as the Interconnection Reforms NOPR suggests, does not leave a disputing

⁴² See, *e.g.*, *ISO New England Inc.*, 140 FERC ¶ 61,175 (2012) (regarding filing of an unexecuted LGIA, because Interconnection Customer challenged ISO-NE determination of the need and cost responsibility of a dynamic reactive device for a wind project).

⁴³ See Order No. 2003 at P 130 (recognizing delays that can be introduced by Dispute Resolution, and their impacts on lower-queued Interconnection Customers). While the *pro forma* LGIP permits withdrawal of an Interconnection Request while Dispute Resolution is pending, that alone introduces significant uncertainties for lower-queued projects stemming from the potential reinstatement of the withdrawn request and study assumptions.

party without recourse.⁴⁴ Indeed, the ISO-NE LGIP already specifies, in Section 13.5, the mechanisms a disputing party may pursue in the event the parties do not agree to submit a dispute to arbitration.⁴⁵ ISO-NE believes the current Commission-approved construct set forth in Section 13.5 is appropriate. When a party initiates the dispute resolution process to address disagreements relating to ISO-NE's management of the interconnection queue and the resolution sought either impacts the status of another interconnection project in the queue, or contravenes the filed rate, established planning procedures or practices, a Section 206 complaint with the Commission for the dispute to be resolved in a public proceeding with defined timeframes is the appropriate recourse.⁴⁶ This construct minimizes the potential for unnecessary delays and uncertainties in the interconnection process.

Therefore, the Commission's final rule should not adopt a requirement for RTOs/ISOs to eliminate the mutual agreement requirement for alternative dispute resolution methods. The elimination of the existing *pro forma* construct, which provides

⁴⁴ See *id.* at P 290.

⁴⁵ Section 13.5 of the ISO-NE LGIP provides:

(i) in the case of disputes arising out of or in conjunction with the LGIA, the System Operator and Interconnecting Transmission Owner shall jointly file an unexecuted LGIA . . . with the Commission . . . or (ii) in the case of disputes arising out of or in conjunction with any other matter regarding the administration of the LGIP, the System Operator may terminate the Interconnection Request and the Interconnection Customer may seek relief pursuant to Section 206 of the Federal Power Act.

⁴⁶ For example, a disputing party challenged ISO-NE's maintenance of a higher-queued Interconnection Request in the queue on the basis of the disputing party's position that the higher-queued project was not real given challenges the project was experiencing in the state permitting process. Meanwhile, the Interconnection Customer with the higher Queue Position was compliant with the requirements of and actively progressing through the interconnection queue process, providing no reason for ISO-NE to seek to withdraw the request from the interconnection queue. In that occurrence, had the disputing party sought to pursue arbitration, ISO-NE would have declined to agree to arbitration. In this type of scenario, the appropriate recourse is for the disputing party to file a Section 206 complaint with the Commission for the dispute to be resolved in a public proceeding, wherein the impacted party (*e.g.*, a higher-queued Interconnection Customer) can intervene.

for disputing parties to avail themselves of alternative methods of dispute resolution, provided that the parties agree, could result in disagreements being submitted to arbitration, consuming significant ISO-NE resources and introducing unnecessary delays and uncertainties in the interconnection process for other queued projects that may be dependent on the progress of the project in dispute.

3. Cost caps for Network Upgrades should not be mandated given differences in cost allocation constructs, and other means to achieve certainty.

In the Interconnection Reforms NOPR, the Commission seeks comments on whether it should revise the *pro forma* LGIP and LGIA to impose cost caps that would limit an Interconnection Customer's Network Upgrade costs at the higher bound of a Transmission Provider's cost estimates plus a stated accuracy margin.⁴⁷ The Commission states that it is considering capping costs as a means to increase cost certainty for Interconnection Customers, which could minimize the impacts of late-stage withdrawals and discipline the study process to produce more accurate cost estimates.⁴⁸

The Commission should not mandate a cost cap for Network Upgrades given the significant differences in approaches to ratepayer support for Network Upgrades in different regions. As briefly described in Section II of these comments, the Order No. 2003 compliance filing, left intact the cost allocation arrangements established in the New England region for upgrade cost allocation, including the provisions applicable to the costs of Generator Interconnection Related Upgrades, which are contained in Schedules 11 and 12 of the OATT. The interconnection cost allocation methodology provided for under Schedule 11 allocates to the Interconnection Customers all costs of

⁴⁷ See NOPR at P 95.

⁴⁸ See *id.*

interconnection that would not have been incurred but for the interconnection. In turn, in New England, Interconnection Customers do not pay for the regional transmission service needed to deliver the interconnected generator's output to load. Instead, load pays for regional transmission service. Implementation of a cost cap would shift "excess" costs to ratepayers that the Interconnection Customer should bear. Accordingly, under the current New England's "but for" cost allocation design, capping is not an option.

Cost caps are also unnecessary to provide Interconnection Customer's greater cost certainty. In New England, issues associated with significant variance of transmission owner cost estimates do not generally arise in the context of the serial study process. Section 7.3 of the ISO-NE LGIP already requires the Interconnecting Transmission Owners to provide "non-binding good faith estimate of cost responsibility" at the SIS stage. Interconnection Customers are receiving cost estimates at the SIS stage, and few Interconnection Customers are seeking Interconnection Facilities Studies, signaling that they are receiving sufficiently accurate estimates at the SIS stage, or they are entering into engineering and procurement agreements with the transmission owners. In the context of the cluster study process, ISO-NE's proposed two-phased cluster study process, described above, includes features to minimize the impacts of the late-stage withdrawals, such as, off-ramps that afford Interconnection Customers an opportunity to withdraw based upon unexpected increases in upgrade costs.

B. Specific Comments on Proposals to Promote More Informed Decisions

1. ISO-NE already identifies contingent facilities, and supports documenting its methodology to facilitate more informed interconnections.

To promote more informed interconnections, the Commission proposes to require Transmission Providers to describe in a new Section 3.8 of the *pro forma* LGIP the methodology used to determine contingent facilities⁴⁹ in evaluating an Interconnection Request, and for the list of contingent facilities to be provided to Interconnection Customers at the conclusion of the SIS.⁵⁰ The methodology must be sufficiently transparent to determine why a specific contingent facility is identified and how it relates to the Interconnection Request.⁵¹ In addition, the Commission proposes for Transmission Providers to provide, upon Interconnection Customer's request, the estimated network upgrade costs and estimated in-service completion time associated with each identified contingent facility unless such information is commercially sensitive.⁵² Lastly, the Commission seeks comments on how Transmission Providers are currently identifying contingent facilities, and whether the processes should be standardized.⁵³

ISO-NE already identifies contingent facilities, and supports the Commission's proposal for Transmission Providers to document the methodology used to identify these facilities in the *pro forma* LGIPs. While, to date, ISO-NE has not experienced issues

⁴⁹ The Commission proposes to define contingent facilities as "those unbuilt interconnection facilities and network upgrades upon which the interconnection request's costs, timing, and study findings are dependent, and if not built, could cause a need for restudies of the interconnection request or a reassessment of the network upgrades and/or costs and timing." *See id.* at P 105.

⁵⁰ *See id.* at P 103

⁵¹ *See id.*

⁵² *See* NOPR at P 104.

⁵³ *See id.* at P 105.

with the identification of contingent facilities, documenting the methodology applied to identify contingent facilities in ISO-NE should facilitate Interconnection Customer's considerations of Interconnection Study results and promote more informed interconnections.

In general, ISO-NE identifies as contingent facilities upgrades that are required to accommodate a higher-queued Interconnection Customer or that are part of a transmission project that is included in the Base Case for the Interconnection Studies associated with a lower-queued Interconnection Request. Any contingent facilities that are identified during the evaluation of an Interconnection Request are memorialized in the Interconnection Study reports and in the Interconnection Agreements. Estimated costs and in-service completion time associated with the contingent facilities are available in the Interconnection Study reports for the previously-queued project identified as primarily responsible for the cost of the facility, and those reports are available to all Interconnection Customers, subject to CEII, on the ISO-NE website.

While ISO-NE's methodology is designed to identify contingent facilities, it may not capture all potential withdrawal scenarios. As the Interconnection Reforms NOPR recognizes, the potential business risk remains for Network Upgrades originally assigned to a higher-queued Interconnection Customer that withdraws its Interconnection Request to become the responsibility of a lower-queued Interconnection Customer if still needed to support the latter's interconnection.⁵⁴ ISO-NE's LGIP, however, provides Interconnection Customers the option to pursue an Optional Interconnection Study after the SIS for additional information by assessing its Interconnection Requests based on the

⁵⁴ *See id.* at P 89.

Interconnection Customer's assumptions regarding higher-queued Interconnection Requests (*e.g.*, exclude Interconnection Requests).⁵⁵ Under the Optional Interconnection Study provisions, Interconnection Customers also have the option to proceed to an Interconnection Agreement on the basis of the Optional Interconnection Study results.⁵⁶

Given the differences in Interconnection Study approaches and cost allocation methodologies, the Commission should avoid prescribing or standardizing a methodology for determining contingent facilities. As proposed, the Commission's requirement for Transmission Providers to detail the methodologies for determining contingent facilities appropriately balances the need for regional flexibility to maintain the existing methodologies designed to align with the respective Interconnection Study constructs with the need to improve transparency regarding the interconnection process and the information available to Interconnection Customers to facilitate more informed interconnections.

2. Given the existing requirements, the proposed additional posting requirements for study models and assumptions are unnecessary.

In furtherance of transparency regarding the interconnection process, the Commission proposes to require Transmission Providers to detail the network model assumptions used during the Interconnection Feasibility Study and during the SIS, in the respective study agreement attachments.⁵⁷ In addition, the Commission proposes to revise section 2.3 of the *pro forma* LGIP to require Transmission Providers to provide

⁵⁵ See LGIP at § 10.

⁵⁶ See *id.* at § 10.5.

⁵⁷ See NOPR at P 118.

network model details on their OASIS sites.⁵⁸ The Commission seeks comments on these proposals.

ISO-NE supports the Commission’s objective to achieve greater transparency and promote more informed interconnections. To that end, consistent with existing requirements set forth in Section 2.3 of the ISO-NE LGIP, ISO-NE already makes Base Cases and study assumptions directly available to Interconnection Customers (subject to CEII). Indeed, as part of ISO-NE’s efforts to promote more informed interconnections, the 2016 Improvements revised the *pro forma* Base Case provisions to clarify for Interconnection Customers that such information was directly available to them, and encourage developers to access Base Cases – either prior to submitting an Interconnection Request or during the interconnection process – to inform their decisions as to their project designs, project location, and Point of Interconnection.⁵⁹ Detailed information about assumptions underlying Interconnection Studies, which are reflected in Base Cases, is also provided in the ISO-NE Planning Procedures and Planning Guidelines.⁶⁰ These procedures and guides are vetted with stakeholders in the stakeholder process, and posted on the ISO-NE website. Given the extensive information that is already available, ISO-NE does not believe that additional, duplicative posting requirements are necessary.

⁵⁸ See *id.* at P 119.

⁵⁹ See 2016 Improvements at 21-22.

⁶⁰ The ISO New England Planning Procedure No. 5-6, Interconnection Planning Procedure for Generation and Elective Transmission Upgrades is available on the ISO-NE website at https://www.iso-ne.com/static-assets/documents/rules_proceeds/isone_plan/pp05_6/pp5_6.pdf (“PP5-6”). The ISO New England Inc. Transmission Planning Technical Guide is also available on the ISO-NE website at https://www.iso-ne.com/static-assets/documents/2017/01/planning_technical_guide_1_23_2017.pdf (the “Technical Guide”).

3. The Commission should not prescribe a “one-size-fits-all” approach for representing congestion and curtailment information given regional differences.

The Commission proposes revisions to section 37.6 of its regulations to require Transmission Providers to post prescribe congestion and curtailment information in one location on their OASIS sites.⁶¹ In particular, the Commission proposes Transmission Providers post disaggregated, or more granular, congestion and curtailment information, representing: (1) total hours of curtailment on all interfaces, (ii) total hours of Transmission Provider-ordered generation curtailment and transmission service curtailment due to congestion on that facility or interfaces, (iii) the cause of congestion, and (iv) total megawatt hours of curtailment due to a lack of transmission for that month.⁶² This information, as explained in the NOPR, is intended to reduce uncertainties associated with as-available service, as well as better inform Interconnection Customers of the risks surrounding as-available transmission service.⁶³ The Commission also seeks comment on whether there is congestion and curtailment information that is specific to an Interconnection Request and whether Transmission Providers should be required to provide that information to Interconnection Customers through the study process.⁶⁴

ISO-NE supports the Commission’s objective to improve Interconnection Customers’ access to information that can further inform their decisions regarding where to site their generating facilities. The Commission, however, should not prescribe a “one-size-fits-all” list for representing such information. Regional flexibility is warranted to

⁶¹ See NOPR at P 128.

⁶² See *id.* at P 130.

⁶³ See *id.* at P 128.

⁶⁴ See *id.* at P 133.

accommodate differences in the manner in which such information is available in each region given variations in transmission, operation and market designs. Thus, RTOs/ISOs should be afforded the opportunity to identify the relevant congestion and curtailment information in their region and the information that is already available to Interconnection Customers to meet the NOPR's stated objective.

Because of the unique market design, the specific congestion and curtailment information identified in the NOPR is not relevant in New England. As briefly noted above, in New England, physical transmission rights are not offered, and curtailments are not achieved through Transmission Loading Relief ("TLR").⁶⁵ Instead, information on congestion that meets the NOPR's intent is reflected in the Locational Marginal Prices ("LMPs"), which are calculated every five minutes at over 1,000 pricing nodes (*i.e.*, locations) on the transmission system, and are already provided in numerous pricing reports that are publicly available on the ISO-NE website.⁶⁶

For background, in New England, commitment and dispatch of generating resources through the Day-Ahead Energy Market is performed the day prior to the start of each Operating Day, based on an hourly scheduling framework, while real-time dispatch during the Operating Day is done multiple times throughout an hour using a security-

⁶⁵ The congestion and curtailment information listed in the NOPR relates to availability of *pro forma* transmission service and internal flow gates, neither of which is applicable in ISO-NE. *See id.* at PP 122, 128 and 130 (relating curtailment to availability of firm or non-firm capacity on the system). The OATT, however, does not offer Commission *pro forma* transmission services for use of the regional transmission system, referred to as Pool Transmission Facilities ("PTF"). Instead, in New England, Regional Network Service ("RNS") allows generating resources to deliver energy and capacity to serve load on any point on the PTF, without the need for scheduling of transmission service or to acquire advance reservations prior to the use of the PTF. RNS is designed to work in conjunction with the ISO-NE markets; it allows for use of the PTF based on the market scheduling of energy injections and withdrawals on the PTF.

⁶⁶ Reports on LMPs and other data related to New England's energy markets are available on the ISO-NE website at <https://www.iso-ne.com/isoexpress/web/reports/pricing>.

constrained economic commitment and dispatch system.⁶⁷ The Day-Ahead and Real-Time markets generate LMPs, which reflect the marginal cost to supply an additional MWh of energy at each location on the system while respecting transmission and reserve constraints.⁶⁸ The difference in LMPs at one location versus another is due to transmission constraints (assuming no loss or reserve impacts). In an unconstrained system, the LMP is set by the marginal (lowest cost) Dispatchable Resource.⁶⁹ Congestion occurs when the least cost Dispatchable Resource cannot be dispatched to meet the next increment of load without violating reliability limits (*e.g.*, thermal, voltage, stability) causing higher priced generation to be dispatched up to serve the next megawatt of load. In cases where an area is import constrained, this results in the LMP being higher within the constrained location (*i.e.*, the higher priced generation is being dispatched within the location). In cases where an area is export constrained, this results in the LMP being lower within the constrained location (*i.e.*, lower priced generation is being backed down in that location).

The management of congestion in New England was further enhanced in May 2016 when ISO-NE implemented market rule changes, referred to as “Do Not Exceed

⁶⁷ See Tariff at § III.1.7.6.

⁶⁸ See *id.* at § III.1.7.7. See also *id.* at § III.2.

⁶⁹ See *id.* at §§ III.1.11.3 and III.1.11.6. A Dispatchable Resource is one that submits a price-based Supply Offer into the Energy Market and is dispatched by ISO-NE in accordance with the economic characteristics and physical operating characteristics of the resource as reflected in the Supply Offer. A Dispatchable Resource is able to receive Dispatch Instructions electronically from the ISO-NE control room, directing the generator to move from its current output level to another output level (up or down). In contrast, a Non-Dispatchable Resource is not capable of receiving electronic Dispatch Instructions from ISO-NE. Instead, in order to provide energy to the system, the Market Participant has to request approval from ISO-NE to bring the generator on-line (via a Self-Schedule), and determine what level of generation it would provide to the system through re-declaring certain operating parameters. To instruct a change in output of a Non-Dispatchable Resource, ISO-NE must manually call the participant and provide such instructions. During emergency conditions, providing such manual instructions takes critical additional time and impedes efficient and timely resolution of the condition.

(“DNE”) Dispatch Changes,” subjecting wind and hydro intermittent resources that traditionally have been non-dispatchable, to economic dispatch and participate in price formation in Real-Time.⁷⁰ This means that when transmission limits start to bind, resources that have been traditionally non-dispatchable may be dispatched down and may set the price reflecting the lower value of energy in the export-constrained area, rather than being manually curtailed, which would not result in a congestion price being reflected to the market. With the DNE Dispatch Changes in place, dispatch can now reflect energy Supply Offers of wind and hydro intermittent resources, and they are now able to set price when marginal. The DNE Dispatch Changes enhance reliable system operation by eliminating much of the need for manual curtailment of these resources. These improved price signals will better inform future decisions about siting of resources. In October 2016, ISO-NE filed additional revisions to the market rules, referred to as the “Resource Dispatchability Changes,” to broaden the range of resources required to be subject to economic dispatch.⁷¹ The Resource Dispatchability Changes further improve price formation, which will provide more accurate locational signals to developers when considering where to locate new resources.

As noted above, historical LMP information is already posted on the ISO-NE website to allow Interconnection Customers to better understand where congestion occurs

⁷⁰ See *ISO New England Inc. and New England Power Pool, Do Not Exceed (“DNE”) Dispatch Changes*; Docket No. ER15-1509-000 (filed Apr. 15, 2015). See also *ISO New England Inc. and New England Power Pool*, 152 FERC ¶ 61,065 (2015). On August 21, 2015, ISO-NE made a compliance filing, which was accepted by the Commission in a letter order issued on October 1, 2015, in Docket No. ER15-1509-002.

⁷¹ These resources included biomass and other facilities that may or may not have been classified as intermittent, but were registered in the ISO-NE market system as non-dispatchable. See *ISO New England Inc. and New England Power Pool, Revisions to Increase Resource Dispatchability*; Docket No. ER17-68, *et al.* (filed Oct. 12, 2016). See also *ISO New England Inc. and New England Power Pool*, 157 FERC ¶ 61,189 (2016).

in the power system, which can then be used to infer where historical curtailment occurred. With the inclusion of the recent DNE Dispatch and the Resource Dispatchability enhancements this historical information now includes meaningful congestion information for the parts of the system that have experienced the addition of resources, such as wind, solar and hydro, that have been traditionally non-dispatchable, which historically had to be curtailed and thus did not send locational price signal to the market.

In addition, in areas with chronic and pronounced transmission limitations, such as areas of Maine, ISO-NE has produced several studies regarding system limitations and continues to provide details regarding the scope of system upgrades needed to relieve given constraints.⁷² This work is presented and discussed from its formative stage through completion at the Planning Advisory Committee and posted on the ISO-NE website. These efforts provide considerable additional context and insight into the system phenomena behind the spreadsheet data regarding curtailments. They provide Interconnection Customers, as well as, transmission owners, policy makers, regulators and other interested parties, with a tremendous amount of system data that spells out limitations and potential solutions to facilitate their understanding of the system topology issues they may encounter before they select a Point of Interconnection and enter the interconnection queue.⁷³

While ISO-NE does not object to providing readily available information regarding the likelihood of being constrained at an Interconnection Request's proposed

⁷² See ISO-NE Comments at 20-23 (providing examples of some of the study work that has been undertaken to inform developers of the areas in New England in which interconnection will be very challenging and potentially very costly).

⁷³ See *id.* at 22-23 (listing some of ISO-NE's presentations to the Planning Advisory Committee).

Point of Interconnection, ISO-NE strongly disagrees with a requirement to perform individual Interconnection Request curtailment risk assessment and market congestion studies, and running varying dispatch scenarios, as those do not fall within the scope of Interconnection Studies. In addition, conducting these types of services for Interconnection Customers would divert Transmission Provider resources and lengthen the time needed to perform the actual Interconnection Studies,⁷⁴ the sole focus of which should remain the identification of upgrades required to meet the interconnection standard associated with the requested service level. Therefore, the Commission should not impose a requirement for Transmission Providers to provide Interconnection Request-specific curtailment and congestion information in Interconnection Studies.

4. ISO-NE’s supports defining Generating Facility to include electric storage devices.

The Commission proposes to revise the definition of “Generating Facility” in the *pro forma* LGIP and LGIA to explicitly include electric storage devices.⁷⁵ ISO-NE supports the Commission’s proposal to revise the “Generating Facility” definition to explicitly include electric energy storage devices, consistent with the changes made in the *pro forma* SGIP and SGIA to comply with Order No. 792.⁷⁶ The proposed change is also consistent with the manner in which ISO-NE is implementing the Interconnection Procedures. While the definition of “Generating Facility” in the ISO-NE LGIP and

⁷⁴ To the extent the Commission extends the scope of Interconnection Studies to include curtailment risk and market congestion assessments, which ISO-NE strongly opposes, the Commission should also revise the study timeframes specified in the *pro forma* LGIP, as they do not currently account for the time needed to perform these additional services. See NOPR at P 148 (proposing study-related reporting requirements that are measured against the timeframes currently specified in the *pro forma* LGIP).

⁷⁵ See *id.* at P 138.

⁷⁶ *Small Generator Interconnection Agreements and Procedures*, Order No. 792, 78 Fed. Reg. 73,239 (Dec. 5, 2013), 145 FERC ¶ 61,159 (2013) (“Order No. 792”), *order on clarification*, Order No. 792-A, 146 FERC ¶ 61,214 (2014) (“Order No. 792-A”).

LGIA do not explicitly include or exclude electric storage devices, ISO-NE is successfully processing the interconnection of these devices through the generator interconnection procedures.

5. Given the breath of information that is already provided to Interconnection Customers regarding Interconnection Study delays, ISO-NE does not believe that additional reporting requirements are warranted.

In the Interconnection Reforms NOPR, the Commission expresses concerns about continued interconnection queued delays, noting that, at times, it is not clear to Interconnection Customers why and where queue delays are occurring, and the underlying causes of the delays.⁷⁷ To provide further transparency, the Commission proposes to incorporate in Section 3.4 of the *pro forma* LGIP a requirement for Transmission Providers to post summary statistics related to processing Interconnection Studies on their OASIS sites on a quarterly basis,⁷⁸ and to file information reports with the Commission if more than 25% of any study type exceeds study deadlines for Interconnection Requests for two consecutive quarters.⁷⁹

ISO-NE appreciates the Commission's desire to ensure a high degree of transparency regarding study timing and delays; however, ISO-NE does not believe that new reporting requirements are warranted to achieve that objective. In New England, there is no lack of transparency regarding interconnection queue delays and the underlying causes of such delays. Pursuant to the *pro forma* LGIP's OASIS posting requirements, which are reflected in Section 3.4 of the ISO-NE LGIP, ISO-NE already

⁷⁷ See NOPR at P 147.

⁷⁸ See *id.* at PP 148-149.

⁷⁹ See *id.* at P 148.

maintains a list of all valid Interconnection Requests on its OASIS. That list, among other things, reflects the status of each Interconnection Request in the interconnection process. In addition, as the NOPR acknowledges in Paragraph 151, Transmission Providers are already required in Sections 6.3, 7.4 and 8.3 of the *pro forma* LGIP, which are also reflected in the ISO-NE LGIP, to inform Interconnection Customers of study delays, the reasons for the delays, and provide them a status on the schedule for completing the study. Consistent with these existing requirements, ISO-NE communicates with individual project developers basic interconnection challenges they may experience based on the geographical location of the proposed interconnection. These communications occur as early as the Scoping Meeting, and can include written correspondence describing all of the issues that will be encountered and potential need for significant upgrades. ISO-NE also provides Interconnection Customers with monthly – and many times, weekly – updates on the progress of their respective Interconnection Requests, including (where study dependency exist) the status of studies for higher-queued Interconnection Requests, and of their own respective studies.⁸⁰ Additionally, ISO-NE notifies individual Interconnection Customers when the study deliverables for the Interconnection Request are delayed.⁸¹

⁸⁰ As a result of recent enhancements to ISO-NE’s Interconnection Request Tracking Tool (“IRTT”) application, Interconnection Customer now have automated access to information about their pending Interconnection Requests, including information on expected start date of the current phase, expected completion date of the current phase, and the reason for any delays in the process. Each time information about an Interconnection Request is modified, the IRTT sends a notification to the Interconnection Customer.

⁸¹ For example, with respect to SIS delays, when ISO-NE determines that it will not be able to complete the study within the time period provided, ISO-NE notifies the Interconnection Customers and provides an estimated start date if the study has not commenced and completion date with an explanation of the reasons why additional time is required. In addition to these notifications, Interconnection Customers can look at the ISO-NE posted interconnection queue for the status of studies of higher-queued Interconnection Requests.

Further, as noted above, ISO-NE has undertaken significant study efforts at the Planning Advisory Committee to identify and provide data around areas of the system with significant interconnection challenges, not only to Interconnection Customers, but any interested entity such as policy makers. In the Maine areas, studies go back almost a decade, providing information regarding system limitations and quantifying at a high level the types of investments that would be needed to interconnect significant levels of generation. This work has continued and ISO-NE is in the process of completing a new study for the Maine area that will provide a wealth of information regarding system limitations and identifying the types of system upgrades that will be necessary to enable the interconnection of proposed resources in Maine. That study will serve as the basis for the upgrade work identified for ISO-NE's first cluster study effort, once those provisions are filed and approved.

Given the existing requirements and the information that ISO-NE already provides that exceeds them, ISO-NE does not believe that additional reporting requirements are necessary. If the Commission determines that additional requirements are warranted, ISO-NE requests that the Commission revise the proposed reporting construct so that performance is evaluated in accordance with the Reasonable Efforts standard and not the timeframes that are currently set out in in the *pro forma* LGIP. The timeframes specified in the *pro forma* LGIP do not always accommodate for real contingencies and interconnection design issues.⁸² Forcing the tight timelines onto every

⁸² For example, the *pro forma* LGIP study timeframes do not account for the additional complex analysis in the Maine area of the system, which must consider the interactions among weakly interconnected generators, complicated existing special protection systems, and with neighboring systems in New Brunswick. For an illustration of the additional analysis that must be performed in the SIS analyses wind/inverter-based generators as compared to conventional generators, see the Prepared Testimony of Mr.

situation could lead to unintended consequences; such as, studies being done too quickly for the sake of meeting the specified timeframe, creating the potential that some key impacts might be underestimated or even missed during a study.⁸³ Alternatively, the Commission should allow regional flexibility for ISO-NE to work within its region to evaluate and revise the timeframes for conducting Interconnection Studies to more realistically reflect the time that it takes to complete them, and the reporting metrics should be based on those revised timeframes. This may also warrant a corresponding change to the reporting frequency; quarterly reporting may be too short of a timespan.

In addition, consistent with Order No. 890,⁸⁴ ISO-NE requests that the Commission clarify that the starting point for Interconnection Study metrics can be the date when the study begins or some other agreed upon date instead of the date the study agreement is signed.⁸⁵ This is particularly important in ISO-NE where Interconnection Customers are provided a 65-day advance notice of when the SIS is expected to

Alan McBride on Behalf of ISO New England at pages 7-14 submitted in support of the 2016 Improvements.

⁸³ See *Standardizing Generator Interconnection Agreements and Procedures Advanced Notice of Proposed Rulemaking*, Comments of ISO New England Inc.; Docket No. RM02-1-000 at 20-21 (filed Feb. 1 2002) (requesting flexibility to ensure studies are technically thorough).

⁸⁴ *Preventing Undue Discrimination and Preference in Transmission Service*, Order No. 890, 72 FR 12266 (Mar. 15, 2007), FERC Stats. & Regs. ¶ 31,241, *order on reh'g*, Order No. 890-A, 73 FR 2984 (Jan. 16, 2008), FERC Stats. & Regs. ¶ 31,261 (2007), *order on reh'g and clarification*, Order No. 890-B, 73 FR 39092 (July 8, 2008), 123 FERC ¶ 61,299 (2008), *order on reh'g*, Order No. 890-C, 74 FR 12540 (Mar. 25, 2009), 126 FERC ¶ 61,228 (2009), *order on clarification*, Order No. 890-D, 74 FR 61511 (Nov. 25, 2009), 129 FERC ¶ 61,126 (2009).

⁸⁵ See Order No. 890 at P 747 (clarifying the 60-day due diligence period starts on the date the transmission study agreement is executed unless the transmission provider and the customer agree on an alternative day for the transmission provider to begin the study, and explaining that, while the transmission provider and customer may not alter the length of the study period, they can mutually agree as to the day on which the study begins).

commence and a 60-day period to true-up the proposed projects' technical data without triggering material modification in effort to further accommodate technology changes.⁸⁶

Lastly, ISO-NE requests that the Commission extend the period for posting the information to be provided under proposed section 3.5.4(ii) from 30 to 60 days to allow sufficient time for the Transmission Provider to collect the information, such as invoices, from third party consultants. Thirty days from the end of the calendar quarter may not be sufficient time to gather the proposed data.

6. ISO-NE does not believe that prescribed guidelines and standardized processes for Affected System coordination are needed given existing coordination processes.

With respect to Affected Systems coordination, the Commission seeks comment on whether it should prescribe guidelines for Affected System analysis and coordination or if it should impose study requirements and associated timelines on Affected Systems that are also public utility transmission providers.⁸⁷ The Commission also seeks comment on whether to standardize the process for coordinating an Affected System analysis and whether to standardize the process for coordinating an Affected System analysis and whether to develop a standard Affected System study agreement.⁸⁸ Lastly, the Commission seeks comment on proposals or additional steps that the Commission should take (*e.g.*, conducting a workshop or technical conference focused on improving issues that arise when affected systems are impacted by a proposed interconnection).⁸⁹

⁸⁶ See 2016 Improvements at 23-24.

⁸⁷ See NOPR at 159.

⁸⁸ See *id.*

⁸⁹ See *id.*

ISO-NE does not believe that it is necessary for the Commission to prescribe *pro forma* guidelines for Affected System analysis and coordination, or *pro forma* study requirements and associated timelines on Affected Systems. As the NOPR recognizes, Transmission Providers are already required in Section 3.5 of the *pro forma* LGIP, which is reflected in the ISO-NE LGIP, to coordinate with Affected Systems.⁹⁰ Consistent with the existing requirement, ISO-NE already has been consistently coordinating with Affected Systems⁹¹ to assess the impacts of an Interconnection Request on their systems.

More specifically, ISO-NE includes identified Affected Systems throughout the interconnection process, and their participation is documented and supported through bilateral agreements between ISO-NE and the Affected Systems. For example, ISO-NE coordinates with the NYISO under the Northeastern ISO/RTO Planning Coordination Protocol (“Protocol”),⁹² and has established participation and/or technical services agreements and procedures to govern the work flow between ISO-NE and NYISO and their respective transmission owners. Through these arrangements, ISO-NE and NYISO coordinate the sharing of data and study results necessary to facilitate the review of impacts on the respective systems and set expectations regarding the completion of assessments. In New England, information about Affected Systems’ scope of work, costs and timing for assessing impacts of Interconnection Requests on Affected Systems is provided to Interconnection Customers through Interconnection Study agreements.

⁹⁰ *See id.* at P 152.

⁹¹ In ISO-NE, Affected Systems can include Commission-jurisdictional and non-Commission jurisdictional neighboring Control Areas, as well as, transmission, subtransmission, and generator-owned systems within the New England Control Area.

⁹² ISO-NE and NYISO, through the Joint Interregional Planning Committee, are continuously working together to review the Protocol and determine whether additional procedures are needed to support the coordination processes established therein.

Impacts on Affected Systems identified through the Interconnection Studies are ultimately documented in the associated study reports and Interconnection Agreements.

While ISO-NE does not believe that prescribed *pro forma* guidelines or standardized processes are necessary given the coordination processes that are already in place, based on its experience, ISO-NE believes it would be helpful to Interconnection Customers for Transmission Providers to further describe in existing protocols, planning procedures or business practice manuals the processes used to effect the required coordination with Affected Systems and provide more details that are particular to the interconnection procedures (*e.g.*, when a region respects the other's projects for impact and cost responsibility purposes).⁹³ Providing more definition to the existing provisions in the *pro forma* LGIP would further the Commission's objective to improve the availability of information to Interconnection Customers and overall promote more informed interconnections. ISO-NE does not believe additional steps from the Commission are necessary to achieve this. However, should the Commission determine that prescribed *pro forma* guidelines or standardized processes are warranted, ISO-NE urges the Commission to conduct a workshop or technical conference to further discuss such requirements.

⁹³ For example, consistent with the *pro forma* LGIP, Sections 2.3 and 7.3 of the ISO-NE LGIP, specify the methodology for determining which Affected System projects should be included in a Study Case and therefore respected by the respective Interconnection Request. Providing more detail as to what constitutes an "approv[al] by the applicable authority" for determining whether an Affected System project should be respected by the Interconnection Request would be helpful for customer to assess potential upgrades and costs.

C. Specific Comments on Proposals to Enhance the Interconnection Process

1. ISO-NE already accommodates requests for Interconnection Service below a Generating Facility's capacity, and supports the Commission's proposal to formalize this construct.

The Commission proposes to modify Section 3.1 of the *pro forma* LGIP to establish a process for Transmission Providers to consider Interconnection Customer's request for Interconnection Service below its Generating Facility capacity.⁹⁴ The Commission also proposes to modify the definitions of Large Generating Facility and Small Generating Facility in the *pro forma* LGIP and LGIA, so that they are based on the level of Interconnection Service for the Generating Facility rather than the Generating Facility's nameplate capacity.⁹⁵ As proposed, an Interconnection Customer requesting service below its Generating Facility capacity would be required to install appropriate monitoring and control technologies and subject to reasonable provisions to enforce a maximum export limit, a notification process to a facility that exceeds its limit, and a process for resolving disputes.

ISO-NE is already implementing the Commission's proposal to accommodate an Interconnection Customer's request for Interconnection Service at a level less than the proposed Generating Facility's nameplate rating under the existing Interconnection Procedures, and supports the Commission's proposal to formalize it consistent with the comments provided herein. ISO-NE has been able to accommodate this construct under the existing Interconnection Procedures in terms of Interconnection Service. More

⁹⁴ See NOPR at P 166.

⁹⁵ See *id.* at PP 172, 179. The definition of Small Generating Facility is not currently included in the *pro forma* LGIP and LGIA; it is in the *pro forma* SGIP and SGIA. To the extent the Commission adopts its proposal to revise the Small Generating Facility definition in a final rule, the *pro forma* SGIP and SGIA should be revised correspondingly.

specifically, at the time of the Interconnection Request or prior to the start of the SIS,⁹⁶ an Interconnection Customer may request Interconnection Service below the proposed Generating Facility's nameplate capacity together with the protection or control equipment to restrict the Generating Facility's output. When such a request is made, in the Interconnection Studies, ISO-NE evaluates Interconnection Customer's Generating Facility at the lower amount requested and the physical mechanism (device) to be used to restrict the Generating Facility's output, as proposed in the Interconnection Request (or as requested prior to the start of the SIS), to ensure that the mechanism is sufficiently dependable and the consequences are manageable should the mechanism fail. As noted in the ISO-NE Post-Technical Conference Comments and acknowledged in the NOPR, ISO-NE also evaluates the full Generating Facility capacity to determine the network impacts of a failure of the proposed output-limiting device.⁹⁷ If the impact of a failure were significant, the Interconnection Study may determine that a more robust or redundant output-limiting device is required. The resulting Interconnection Agreement describes the Generating Facility at its nameplate capability, with the limitation reflected in the Interconnection Service levels provided.

While ISO-NE supports the Commission's proposal to formalize this construct, the final rule should be clear that any protection or control equipment that is proposed to be used to restrict the Generating Facility's output consistent with the requested Interconnection Service levels must be identified and described in the project description provided at the beginning of the study process. Identification of such equipment should

⁹⁶ Consistent with Section 4.4.2 of the Order No. 2003 *pro forma* LGIP, proposals to reduce the output of a Generating Facility to avoid upgrades after the commencement of the SIS are subject to Material Modification review. *See* Order No. 2003-A at P 133.

⁹⁷ *See* ISO-NE Post-Technical Conference Comments at 28. *See also* NOPR at PP 170-171.

be part of the Generating Facility’s design, and not be left to be identified as part of the Interconnection Studies to avoid the introduction of additional Interconnection Study delays. Such an outcome would run counter to ISO-NE’s recent interconnection process improvements, requiring Interconnection Customers to engage in design work in preparation for the Interconnection Studies so to reduce the time to complete the studies, which, before the improvements, were being used as a vehicle for project design and modifications on the Interconnection Customer’s side of the Point of Interconnection.⁹⁸

2. Allocating Interconnection Service on a provisional basis, as described in the Interconnection Reforms NOPR, would unnecessarily introduce complexities and uncertainties in the interconnection process.

The Interconnection Reforms NOPR proposes to revise the *pro forma* LGIP and LGIA to establish a new process that would allow Interconnection Customers to request a new form of Interconnection Service, called “Provisional Interconnection Service.”⁹⁹ Under the proposed construct, an Interconnection Customer requesting such service would enter into a Provisional Interconnection Service Agreement pursuant to which they would be able to interconnect and operate the proposed Generating Facility up to a limited megawatt level to be determined based on existing and regularly updated studies prior to the completion of the Interconnection Studies and Network Upgrades being built for the full amount of Interconnection Service requested.¹⁰⁰ If available studies do not demonstrate whether provisional service can be reliably accommodated, Transmission Providers would be required to perform additional studies, as necessary, and determine

⁹⁸ See 2016 Improvements at 19-20.

⁹⁹ See NOPR at 186.

¹⁰⁰ See *id.*

whether stability, short circuit, and/or voltage issues would arise if the Interconnection Customer seeking provisional service interconnects without modifications to the Generating Facility or the Transmission Provider's system.¹⁰¹ Transmission Providers would also be required to assess any safety or reliability concerns posed by provisional agreements, and establish a process for the Interconnection Customer to mitigate those risks.¹⁰²

As more fully described below, ISO-NE's Interconnection Procedures already require that all Interconnection Studies for new Interconnection Requests rely on existing Interconnection Studies. The procedures also provide the mechanisms to accommodate interconnection of Generating Facilities prior to the completion of all interconnection process requirements, including all Network Upgrades identified to accommodate a proposed facility under the existing limited operation rules already in the Interconnection Agreement. For example, new generators have been able to operate at reduced output levels before all of the required upgrades have been constructed. In these circumstances, the reduced output levels have been identified as reliable in system operating studies that are conducted as the generator is entering Commercial Operation. However, for the reasons discussed below, ISO-NE strongly opposes extending these existing constructs to incorporate in the *pro forma* LGIP and LGIA what essentially amounts to another interconnection process and agreement construct for allocating Interconnection Service on a provisional basis to a Generating Facility prior to the completion of required Interconnection Studies. Although this approach may be helpful in other regions, in New

¹⁰¹ See *id.* at P 188.

¹⁰² See *id.*

England, it would unnecessarily introduce another layer of queue management complexities and uncertainties. Further, the proposed provisional operating construct would actually harm the ability to provide the limited operation construct described above. Without the completed Interconnection Studies, system operators would have no basis to perform the incremental impact of waiting for an individual upgrade, but would only have the unachievable option of somehow completing the scope of study that should have been completed in the Interconnection Study itself.

Consistent with the *pro forma* LGIP, the Interconnection Procedures already rely on completed Interconnection Studies to inform the Interconnection Study work associated with lower-queued Interconnection Requests.¹⁰³ The Interconnection Study work completed for higher-queued Interconnection Requests, to the extent electrically relevant, can eliminate or reduce the amount of Interconnection Study work needed to evaluate a subsequent Interconnection Request, resulting in less interconnection processing time. In addition, the Interconnection Procedures accommodate interconnection of Generating Facilities prior to the completion of the applicable interconnection process requirement, but does so in a manner that respects the orderly processing of the interconnection queue. For example, under Section 3.2.2 of the ISO-NE LGIP, an Interconnection Customer seeking CNRIS, which can only be achieved upon completing FCM-related milestones, can proceed to interconnect for energy upon completing the requirements to meet the Network Capability Interconnection Service for NRIS. In other words, an Interconnection Customer can achieve Commercial Operation and receive NRIS once it completes the minimum interconnection requirements, while it

¹⁰³ See LGIP at § 7.4 (requiring System Operator and Interconnecting Transmission Owner to utilize existing studies to the extent practicable when it performs the SIS).

pursues the additional milestone requirements to achieve the requested higher level capacity status. Furthermore, under Article 5.9 of the ISO-NE LGIA, an Interconnection Customer can interconnect a Generating Facility under short-term limited operation prior to the completion of certain Interconnection Facilities and Network Upgrades to the extent safe and reliable.¹⁰⁴ Under that provision, an Interconnection Customer requests that ISO-NE perform an operational study to determine the extent to which the Generating Facility may operate prior to the completion of all upgrades required to support the requested service, and the Generating Facility is allowed to interconnect and operate based on the results of such studies.¹⁰⁵ Appropriately, the limited operation construct is available only after all Interconnection Studies have been completed and the impacts of the proposed interconnection and the upgrades required to accommodate it are known.

Implementation of the proposed Provisional Interconnection Service approach would introduce queue management complexities and uncertainties in the interconnection process that do not currently exist today in New England, contrary to the NOPR's objective to increase certainty in the interconnection process for Interconnection Customers. The proposed construct would essentially allow an Interconnection Customer requesting Provisional Interconnection Service to queue jump a higher-queued Interconnection Request, interconnect and operate on the basis of existing studies, which

¹⁰⁴ See LGIA at Art. 5.9 (permitting interconnection on a limited basis based on operational studies performed at the Interconnection Customer's request if Interconnection Facilities or Network Upgrades are not reasonably expected to be completed prior to the requested Commercial Operation Date).

¹⁰⁵ See, e.g., *ISO New England Inc.*, 140 FERC ¶ 61,175 (2012) (regarding filing of an unexecuted LGIA, which provided for Interconnection Customer to interconnect the Generating Facility under the limited operation provisions pending resolution of the challenges regarding the need for a dynamic device for a wind project).

might not account for that higher-queued project to the extent its studies are still ongoing.¹⁰⁶ In the absence of existing studies to support the requested provisional service, the proposed construct would require the Transmission Provider conduct studies consisting of a scope similar to the SIS to support a limited interconnection before it even completes the studies associated with the higher-queued project's request. This results in an inappropriate reallocation of resources to the benefit of the lower-queued Interconnection Customer seeking to interconnect on a provisional basis, and to the detriment of the higher-queued project who wants its Interconnection Studies completed so that it can interconnect to the system. Moreover, while the Interconnection Reforms NOPR recognizes certain risks are on the Interconnection Customers requesting the provisional service, it fails to account for the uncertainties that will trickle down to the rest of the interconnection queue. The proposed construct would introduce significant uncertainties as to the set of assumptions and upgrades on which to base the Interconnection Studies for lower-queued Interconnection Requests.

For these reasons, ISO-NE urges the Commission not to adopt the proposed Provisional Interconnection Service construct in the *pro forma* LGIP and LGIA. ISO-NE believes that interconnection queue process improvements should seek to eliminate uncertainties and not introduce new ones by letting Interconnection Customers interconnect to the system without the basic information (*i.e.*, the extent of network upgrades that would be required and their associated costs) that tends to inform Interconnection Customers' decisions regarding whether to proceed toward

¹⁰⁶ Completed interconnection studies are not subject to regular updates. A requirement to continuously update interconnection studies would run counter to the NOPR's objective to increase interconnection customer certainty in the interconnection process by limiting restudies.

interconnection. To the extent this proposal is adopted in the final rule, the Commission should provide regional flexibility for ISO-NE to deviate from it, as its implementation in New England would unnecessarily add another layer of complexity and administrative burden without addressing the interconnection challenges that are actually present in the region.

3. Implementation of the proposed “Surplus Interconnection Service” construct would significantly disrupt existing market constructs in New England.

Based on the premise that Interconnection Service is being underutilized, the Commission proposes to require Transmission Providers to revise the *pro forma* LGIP to incorporate an expedited process for Interconnection Customers to utilize or transfer a new form of Interconnection Service, called “Surplus Interconnection Service,” at existing Generating Facilities.¹⁰⁷ Under this process, existing Generating Facility owners or their affiliates would have priority to use Surplus Interconnection Service unless they elect to make the service available to third parties, in which case, the Surplus Interconnection Service would be available for sale through an open and transparent process to be provided by the Transmission Provider.¹⁰⁸ The Commission proposes to revise the definition provisions in the *pro forma* LGIP and LGIA to add a definition for “Surplus Interconnection Service,” and new provisions in a new section 3.3 of the *pro forma* LGIP to describe the processes for an existing Generating Facility owner or its affiliates to use Surplus Interconnection Service, and for unaffiliated entities’ solicitation of Surplus Interconnection Service.¹⁰⁹

¹⁰⁷ See NOPR at P 199.

¹⁰⁸ See *id.* at PP 200-203.

¹⁰⁹ See *id.* at P208-211.

In New England, Interconnection Customers can already achieve the NOPR's intended outcome through mechanisms provided for in the ISO-NE markets, and implementation of the design proposed in the NOPR would *significantly* disrupt or misalign those existing mechanisms. Therefore, to the extent this proposal is adopted in a final rule, the Commission should afford substantial regional flexibility for ISO-NE to maintain the existing mechanisms intact.

Before discussing the market mechanisms by which Interconnection Customers can achieve the NOPR's desired outcome, it is important to recognize that under ISO-NE's Interconnection Procedures, Interconnection Service is offered to a *specific* facility, as memorialized in an Interconnection Agreement. Any changes to that facility must undergo materiality review to determine whether the modifications require a new Interconnection Request. The proposed modifications may trigger the need for new Interconnection Studies to assess voltage, stability, performance, etc. The use of existing Interconnection Service does not avoid the need to study the modified facility for stability, voltage and short circuit performance, even if the thermal output of the facility is not increasing. Interconnection Service is not something that Interconnection Customers can simply transfer from one facility to another. To reduce or make use of Interconnection Service of an existing resource, an Interconnection Customer must go through the existing mechanisms provided for in the ISO-NE markets, with regulated price formation and reliability reviews build into it.

As discussed in Section II above, ISO-NE's CNRIS and NRIS correlate to an Interconnection Customer's desired level of market participation. As a result of the successful integration of the FCM and interconnection queue processes, interconnection capacity on the system is allocated and, correspondingly, reduced through the FCM,

under a first-cleared, first-served construct, with regulated price formation and reliability reviews built into it. CNRIS is allocated to resources that qualify to participate and clear in the FCA on a first-cleared, first-served basis. Under that same construct, a resource can seek to retire all or part of a resource by submitting what is known as a priced Retirement Delist Bid in the FCM, which removes the delisted capacity from all markets, or use a Permanent Delist Bid to exit the capacity market and continue to participate in the energy market.¹¹⁰ Under the existing FCM mechanisms, a resource's proposal for reduction is subject to review by the Internal Market Monitor to mitigate market power that could potentially exist and ensure that the reduction does not result in capacity prices above competitive levels. Proposed reductions are also reviewed for reliability impacts. With the achieved alignment of the FCM and Interconnection Service, the potential retired/reduced capacity, if realized, becomes available to new resources through the interconnection queue process. To facilitate this, resources seeking to retire/reduce existing capacity are required to submit retirements/reductions prior to the commencement of the FCM qualification process for new resources to enhance the opportunity of new resources to interconnect and meet the region's capacity needs. Once the delist bid clears, the resource may retire/reduce its size, and the resource's Interconnection Agreement is revised to reduce the Interconnection Service levels correspondingly.

Through the FCM and the interconnection process, an existing capacity resource can also seek to "repower" an existing Generating Facility while maintaining the unit's

¹¹⁰ See Tariff at §§ I.3.9.3 and III.13.1.2.3.1.5. See also, *ISO New England Inc.*, 155 FERC ¶ 61,029 (2016) (accepting, subject to condition, revisions to FCM rules regarding existing resource retirements). See also, *ISO New England Inc.*, 156 FERC ¶ 61,067 (2016) (accepting subsequent compliance filing).

Interconnection Service for its own use.¹¹¹ This is achieved through the FCM repowering rules. Under this construct, a resource submits a new Interconnection Request for the review of the proposed modification (*e.g.*, operating characteristic changes) to the existing Generating Facility, but as part of this review, the existing Interconnection Service of the facility are preserved, so the resource is only responsible for incremental impacts, resulting from the change. In the FCM, the resource is treated as if a new investment (if the applicable investment threshold/criteria are met) with the existing Interconnection Service accounted for. If the Generating Facility - as repowered - clears in the FCM, then the existing resource is retired. In other words, the repowered "new" resource steps into the space of the old unit. As with existing capacity reductions, the changes resulting from the repowering mechanisms are ultimately captured in the Interconnection Agreement that results from the interconnection process.

Given the existing ISO-NE processes for the use or reallocation of an existing resource's Interconnection Service, which already allow an Interconnection Customer to achieve the desired outcome in the NOPR, while meeting the requirements of consistency with the FCM, the proposed Surplus Interconnection Service is not needed in New England and its implementation would be extremely disruptive. If the Commission adopts the proposed Surplus Interconnection Service, the final rule should provide significant regional flexibility for ISO-NE to maintain the existing mechanisms in meeting the requirements.

¹¹¹ See Tariff at §§ III.13.1.1.1.2, III.13.1.1.2.2.5, and III.13.2.3.2.

4. ISO-NE agrees procedures for evaluating technological changes should be established; however, a single approach should not be mandated.

The Interconnection Reforms NOPR proposes to require Transmission Providers to revise Section 4.4.2 of the *pro forma* LGIP to establish procedures for evaluating proposed technological changes and, if necessary, study whether the changes can be accommodated without being considered a Material Modification warranting a new Interconnection Request.¹¹² The NOPR proposes a specific approach for structuring the technological changes procedures,¹¹³ which Transmission Providers would be required to use when developing their own procedures.

ISO-NE supports the Commission's proposed requirement for Transmission Providers to establish procedures for accommodating technological changes. Indeed, ISO-NE's recently implemented 2016 Improvements include a set of rule changes specifically designed to deal as productively as possible with Material Modification reviews in the context of changing technology. While ISO-NE supports the Commission's proposal, a single approach should not be mandated.

As the Commission explained in Order No. 2003, a Material Modification is a change that has a material impact on the cost or timing of a lower-queued Interconnection Request, and that "impact depends in large part on the size, location, type of project and the configuration of the Transmission Provider's system."¹¹⁴ Where not readily

¹¹² See NOPR at P 217.

¹¹³ See *id.* at PP 218-219 (proposing an approach by which Interconnection Customer seeking to make technological changes formally notifies Transmission Provider of the request and provides analyses demonstrating that proposed change would result in electrical performance that is equal to or better than the electrical performance expected based on the original proposal reflected in the pending Interconnection Request, and if the Transmission Provider determines that studies are warranted, it would have 30 days to complete those studies).

¹¹⁴ See Order No. 2003 at P 168.

ascertainable from the data provided with a Material Modification request, an assessment to confirm materiality is required, which can be time consuming. Thus, consistent with Order No. 2003, flexibility is necessary to establish procedures based on an approach that appropriately balances the competing interests of Interconnection Customers continuously seeking to make technological changes with those of lower-queued projects delayed each time a technological change is requested or accommodated.

The Material Modification provisions in the ISO-NE Interconnection Procedures appropriately balance the above-noted competing interests. Briefly, since the initial Order No. 2003 compliance, the Interconnection Procedures have explicitly defined what constitutes a Material Modification.¹¹⁵ They have also specified the process for review and assessment of Material Modification requests, including the types of modifications that automatically trigger a new Interconnection Request, and the key points at which Interconnection Customers can make changes to/update technical data for the proposed project without triggering materiality review.¹¹⁶ As a result of the 2016 Improvements, the Interconnection Procedures now establish clear rules to consistently and expeditiously determine whether a proposed modification is material. These rules were specifically developed in response to the continuous requests for technical changes, which had been identified as one of the contributing factors to the Maine queue backlog. Under the improved rules, Interconnection Customers are able to update or “true-up” their technical data, as non-Material Modifications, up to commencement of the SIS,¹¹⁷ and at any time

¹¹⁵ See LGIP at § 1.

¹¹⁶ See *id.* at § 4.4.

¹¹⁷ See *id.* at §§ 4.4 and 7.4. To facilitate this, ISO-NE notifies Interconnection Customers when the SIS is expected to commence and provides a period for the customer to true-up its project’s technical data, so that

thereafter *if* the materiality assessment of the proposed modification can be completed within ten Business Days of study review time.¹¹⁸ With the limited review period, the burden is placed on the Interconnection Customer to work with its equipment manufacturer to assess the potential impacts of the technology change and, consistent with the NOPR approach, submit that analysis (*e.g.*, benchmark analysis) along with the request for the proposed change demonstrating non-materiality for ISO-NE's consideration in its review.¹¹⁹ After the SIS commences, any materiality assessment of a proposed modification that cannot be completed within ten Business Days is automatically deemed a material impact given its delay on a lower-queued project. In furtherance of transparency, ISO-NE also updated the Planning Procedures to establish clear guidelines specifying when proposed modifications would be considered material relative to the various stages in the interconnection process.¹²⁰

Flexibility with respect to the approach used for establishing technological changes procedures is also warranted to account for other efforts achieved in the region to improve interconnection processing. In ISO-NE's experience, among the key contributing factors to Interconnection Study complexities and delays were insufficient initial consideration of project design, poorly functioning or documented models, and poor consistency of model performance, among others.¹²¹ Devoting insufficient up-front consideration to design of a proposed wind or inverter-based generator led to reliance on

the study is performed using the most up to date, complete and accurate data, minimizing the likelihood of Material Modification requests during and after the study.

¹¹⁸ *See id.* at § 1 (reflecting materiality analysis review period in Material Modification definition).

¹¹⁹ As clarified in the 2016 Improvements, under ISO-NE LGIP, Interconnection Customers have direct access to Base Cases, which they can use to assess potential for materiality.

¹²⁰ *See* PP5-6 at Appendix E.

¹²¹ *See* 2016 Improvements Filing at 19-20.

Interconnection Studies as the vehicle for plant design modifications on the Interconnection Customer side of the Point of Interconnection, which further lengthened study time.¹²² The 2016 Improvements address these complexities by incorporating new technical data requirements for wind and inverter-based technologies that call for up-front complete, detailed project design, including comprehensive documentation demonstrating conformance with performance standards.¹²³ Establishing a process that allows for technological changes to be accommodated at any time can potentially create an incentive for Interconnection Customers to submit incomplete/inaccurate project design or model data with the assumption that they could just make changes throughout the process, which would run counter to the improvements achieved in New England.

Therefore, the Commission's final rule should not mandate a single approach for procedures to accommodate technology changes. Instead, it should extend the flexibility necessary for each region to develop the procedures that account for specific circumstances in the region so long as it meets the NOPR's stated objective.

5. ISO-NE is successfully processing electric storage resources under the existing procedures.

In the NOPR, the Commission requests that Transmission Providers evaluate their existing methods for modeling electric storage resources for Interconnection Studies, including whether the current modeling and study practices adequately and efficiently account for the operational characteristics of electric storage, and provide their responses in comments to the NOPR.¹²⁴ The Commission also seeks comment on whether

¹²² *See id.*

¹²³ *See id.*

¹²⁴ *See* NOPR at P 229.

establishing a unified model for studying electric storage resources would expedite the study process and therefore reduce the time and costs expanded by the Transmission Provider for studying these types of resources.¹²⁵ The Commission also requests commenters to describe what information electric storage resources should provide that is not already consistently provided with Interconnection Requests.¹²⁶

ISO-NE has successfully processed Interconnection Requests for electric storage resources using the existing interconnection procedures and agreements. ISO-NE uses the same Interconnection Request, processing and study approach that is used for all generation. The study of the storage device when generating is no different than the study of any other generator of the same output. However, the storage study also includes an analysis of the resource operating as a load. The results of the study, including any upgrades, are used to populate the *pro forma* Interconnection Agreement.

Most new electric storage resource proposals make use of inverter-based technologies. The efficient processing of Interconnection Requests for inverter-based technologies is dependent on the provision of appropriately robust equipment design. As noted above, the 2016 Improvements incorporated specific data modeling requirements for inverter-based technologies. These requirements are set forth in the Interconnection Request forms contained in the ISO-NE LGIP and SGIP, and Interconnection Customers are required to meet them. Consistent with those requirements, the power system models need to perform well in the network study analysis. In addition, the equipment needs to

¹²⁵ *See id.*

¹²⁶ *See id.* at P 230.

meet established performance requirements, such as power factor, ride through and frequency requirements.

D. ISO-NE believes the pro forma interconnection processes should be aligned.

The Commission seeks comment on whether any of the proposed reforms should be applied to small generating facilities and implemented in the *pro forma* SGIP and SGIA.¹²⁷ ISO-NE's Interconnection Procedures consist of the LGIP, the SGIP, and the ETU IP in Schedules 22, 23 and 25 of the ISO-NE OATT, respectively. ISO-NE manages a single interconnection queue, and all of these requests are reflected in that interconnection upon receiving a valid status. All three schedules are administered consistently unless the schedules provide otherwise. Given the single interconnection queue construct, applying different rules introduces unnecessary administrative complexities. The processes should be aligned as much as possible. Accordingly, the Commission should extend any reforms adopted in a final rule issued in this proceeding to small generating facilities and implement them, consistently, in the *pro forma* SGIP and SGIA. For consistency, ISO-NE would also propose to make the appropriate changes to Schedule 25 – the ETU IP.

¹²⁷ See *id.* at P 11.

IV. CONCLUSION

In conclusion, for the foregoing reasons, ISO-NE respectfully requests that the Commission consider its comments on the Interconnection Reforms NOPR.

Respectfully submitted,

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April 13, 2017

CERTIFICATE OF SERVICE

I hereby certify that I have this day served the foregoing document upon each person designated on the official service list compiled by the Secretary in this proceeding.

Dated at Holyoke, Massachusetts this 13th day of April, 2017.

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