DEPARTMENT OF ENERGY

Federal Energy Regulatory Commission

18 CFR Part 37

[Docket No. RM17–8–000; Order No. 845]

Reform of Generator Interconnection Procedures and Agreements

AGENCY: Federal Energy Regulatory Commission, DOE.

ACTION: Final action.

SUMMARY: In this final action, the Federal Energy Regulatory Commission (Commission) is amending the *pro forma* Large Generator Interconnection Procedures and the *pro forma* Large Generator Interconnection Agreement to improve certainty, promote more informed interconnection, and enhance interconnection processes. The reforms are intended to ensure that the generator interconnection process is just and reasonable and not unduly discriminatory or preferential.

DATES: This action is effective July 23, 2018.

FOR FURTHER INFORMATION CONTACT:

Tony Dobbins (Technical Information), Office of Energy Policy and Innovation, Federal Energy Regulatory Commission, 888 First Street NE, Washington, DC 20426, (202) 502–6630, *Tony.Dobbins@ferc.gov*.

Kathleen Ratcliff (Technical Information), Office of Energy Market Regulation, Federal Energy Regulatory Commission, 888 First Street NE, Washington, DC 20426, (202) 502–8018, *Kathleen.Ratcliff@ferc.gov*.

Adam Pan (Legal Information), Office of the General Counsel, Federal Energy Regulatory Commission, 888 First Street NE, Washington, DC 20426, (202) 502–6023, *Adam.Pan@ferc.gov*.

SUPPLEMENTARY INFORMATION:

Before Commissioners: Kevin J. McIntyre, Chairman; Cheryl A. LaFleur, Neil Chatterjee, Robert F. Powelson, and Richard Glick.

Table of Contents

	Paragraph Nos.
I. Introduction	1
II. Background	9
A. Order No. 2003	9
B. 2008 Order on Interconnection Queuing Practices	12
C. 2015 American Wind Energy Association Petition and 2016 Technical Conference	15
D. Notice of Proposed Rulemaking	18
III. Overview and Need for Reform	23
A. Comments on Overall Approach	26
B. Commission Determination	36
IV. Proposed Reforms	45
A. Improving Certainty for Interconnection Customers	45
1. Scheduled Periodic Restudies	46
2. The Interconnection Customer's Option To Build	73
3. Self-Funding by the Transmission Owner	114
4. Dispute Resolution	123
5. Capping Costs for Network Upgrades	172
B. Promoting More Informed Interconnection	191
1. Identification and Definition of Contingent Facilities	192
2. Transparency Regarding Study Models and Assumptions	221
3. Congestion and Curtailment Information	247
4. Definition of Generating Facility in the Pro Forma LGIP and Pro Forma LGIA	273
5. Interconnection Study Deadlines	290
6. Improving Coordination With Affected Systems	335
C. Enhancing Interconnection Processes	342
1. Requesting Interconnection Service Below Generating Facility Capacity	343
2. Provisional Interconnection Service	424
3. Utilization of Surplus Interconnection Service	453
4. Material Modification and Incorporation of Advanced Technologies	510
5. Modeling of Electric Storage Resources for Interconnection Studies	537
D. Other Issues	545
1. Whether Proposed Reforms Should Be Applied to Small Generation	545
2. Issues Not Raised in the NOPR	550
3. Process Considerations	552
4. Compliance and Implementation	554
V. Information Collection Statement	557
VI. Environmental Analysis	563
VII. Regulatory Flexibility Act	564
VIII. Document Availability	566
IX. Effective Date and Congressional Notification	569

I. Introduction

1. In this final action, the Commission revises its *pro forma* Large Generator Interconnection Procedures (LGIP) and the *pro forma* Large Generator Interconnection Agreement (LGIA) to implement ten specific reforms.

2. This final action adopts reforms that are designed to improve certainty for interconnection customers, promote more informed interconnection decisions, and enhance the interconnection process. We believe the reforms adopted in this final action will benefit both interconnection customers and transmission providers.[1] Specifically, we expect these reforms to provide interconnection customers with better information and more options for obtaining interconnection service such that there are fewer interconnection requests overall and fewer interconnection requests that are unlikely to reach commercial operation. As a result, we expect transmission providers will be able to focus on those requests that are most likely to reach commercial operation.

3. First, in order to improve certainty for interconnection customers, this final action: (1) Removes the limitation that interconnection customers may only exercise the option to build a transmission provider's interconnection facilities and stand alone network upgrades in instances when the transmission provider cannot meet the dates proposed by the interconnection customer; and (2) requires that transmission providers establish interconnection dispute resolution procedures that allow a disputing party to unilaterally seek non-binding dispute resolution.

4. Second, to promote more informed interconnection decisions, this final action: (1) Requires transmission providers to outline and make public a method for determining contingent facilities; (2) requires transmission providers to list the specific study processes and assumptions for forming the network models used for interconnection studies; (3) revises the definition of ''Generating Facility'' to explicitly include electric storage resources; and (4) establishes reporting requirements for aggregate interconnection study performance.

5. The third area of reforms aims to enhance the interconnection process. To effectuate this goal, this final action: (1) Allows interconnection customers to request a level of interconnection service that is lower than their generating facility capacity; (2) requires transmission providers to allow for provisional interconnection agreements that provide for limited operation of a generating facility prior to completion of the full interconnection process; (3) requires transmission providers to create a process for interconnection customers to use surplus interconnection service at existing points of interconnection; and (4) requires transmission providers to set forth a procedure to allow transmission providers to assess and, if necessary, study an interconnection customer's technology changes without affecting the interconnection customer's queued position.

6. The *pro forma* LGIP and *pro forma* LGIA establish the terms and conditions under which public utilities that own, control, or operate facilities for transmitting electric energy in interstate commerce [2] must provide interconnection service to large generating facilities.[3] Based on the record in this proceeding, we find it necessary under section 206 of the Federal Power Act (FPA) [4] to revise the *pro forma* LGIP and the *pro forma* LGIA to ensure that the rates, terms, and conditions pursuant to which public utilities provide interconnection service to large generating facilities are just and reasonable and not unduly discriminatory or preferential.

7. Although the implementation of Order No. 2003 reduced undue discrimination in the generator interconnection process, some interconnection customers argue that they have continued to observe systemic inefficiencies and discriminatory practices.[5] In addition, there have been a number of developments that affect generator interconnection, including a changing resource mix driven by market forces and state and federal policies, and by the emergence of new technologies. At the same time, transmission providers have expressed concern that the interconnection study process can be difficult to manage because some interconnection customers submit requests for interconnection service associated with new generating facilities that the transmission providers maintain have little chance of reaching commercial operation. Consequently, we conclude that it is appropriate to adopt the revisions to the *pro forma* LGIP and the *pro forma* LGIA described in this final action to mitigate existing concerns and to ensure that the *pro forma* LGIP and *pro forma* LGIA are just and reasonable and not unduly discriminatory or preferential.

8. The reforms we adopt track many of the proposals set forth in the Notice of Proposed Rulemaking (NOPR) issued in this proceeding on December 15, 2016,[6] with certain modifications. Among other things, we have revised aspects of the reforms pertaining to dispute resolution, contingent facilities, model and assumption transparency, study deadline metrics, provisional interconnection service, utilization of surplus interconnection service, and material modification.[7] Additionally, in this final action, as discussed more fully below, we withdraw or decline to move forward with the NOPR proposals pertaining to scheduled periodic restudies, self-funding by the transmission owner, congestion and curtailment information, and modeling electric storage resources. The Commission also held a technical conference on April 3 and 4, 2018 to gather additional information regarding transmission providers' and interconnection customers' coordination with affected systems.[8] We conclude

[1] Transmission provider:

Shall mean the public utility (or its designated agent) that owns, controls, or operates transmission or distribution facilities used for the transmission of electricity in interstate commerce and provides transmission service under the Tariff. The term Transmission Provider should be read to include the Transmission Owner when the Transmission Owner is separate from the Transmission Provider.

Pro forma LGIP Section 1 (Definitions); *pro forma* LGIA Art. 1 (Definitions).

[2] A public utility is a utility that owns, controls, or operates facilities used for transmitting electric energy in interstate commerce, as defined by the Federal Power Act (FPA). *See* 16 U.S.C. 824(e) (2012). A non-public utility that seeks voluntary compliance with the reciprocity condition of an Open Access Transmission Tariff (OATT) may satisfy that condition by filing an OATT, which includes the *pro forma* LGIP and the *pro forma* LGIA. *See* 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, at P 774 (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 (DC Cir. 2007), *cert. denied,* 552 U.S. 1230 (2008).

[3] A large generating facility is ''a Generating Facility having a Generating Facility Capacity of more than 20 [megawatts].'' *Pro forma* LGIA Art. 1.

[4] 16 U.S.C. 824e (2012).

[5] *See, e.g.,* AWEA June 19, 2015 Petition at 2 (Petition).

[6] *Reform of Generator Interconnection Procedures and Agreements,* 82 FR 4464 (Jan. 13, 2017), FERC Stats. & Regs. ¶ 32,719 (2017) (NOPR).

[7] The *pro forma* LGIP defines Material Modification as ''those modifications that have a material impact on the cost or timing of any Interconnection Request with a later queue priority date.'' *See pro forma* LGIP Section 1.

[8] *Reform of Affected System Coordination in the Generator Interconnection Process,* Docket No. AD18–8–000 and *EDF Renewable Energy, Inc.* v.

Continued

that the reforms adopted in this final action will help improve the efficiency of processing interconnection requests for both transmission providers and interconnection customers, maintain reliability, balance the needs of interconnection customers and transmission owners, and remove barriers to resource development.

II. Background

A. Order No. 2003

9. In Order No. 2003, the Commission recognized a ''pressing need for a single set of procedures for jurisdictional Transmission Providers and a single, uniformly applicable interconnection agreement for Large Generators.'' [9] Prior to the issuance of Order No. 2003, the Commission addressed interconnection issues on a case-by-case basis through, for example, filings under section 205 of the FPA.[10]

10. In Order No. 2003, the Commission noted that it had previously found that interconnection is a ''critical component of open access transmission service and thus is subject to the requirement that utilities offer comparable service under the OATT.'' [11] The Commission found that a standard set of procedures ''will minimize opportunities for undue discrimination and expedite the development of new generation, while protecting reliability and ensuring that rates are just and reasonable.'' [12]

11. Consequently, in Order No. 2003, the Commission required public utilities that own, control, or operate transmission facilities to file standard generator interconnection procedures and a standard agreement to provide interconnection service to generating facilities with a capacity greater than 20 megawatts (MW). To this end, the Commission adopted the *pro forma* LGIP and *pro forma* LGIA and required all public utilities subject to Order No. 2003 to modify their OATTs to incorporate the *pro forma* LGIP and *pro forma* LGIA.

B. 2008 Order on Interconnection Queuing Practices

12. Although the issuance of Order No. 2003 was a significant step in minimizing undue discrimination in the generator interconnection process, some concerns with the process persisted, while some new concerns came to light. In response to concerns voiced to the Commission about interconnection queue management by regional transmission organizations and independent system operators (RTOs/ISOs) as well as other entities, the Commission held a technical conference on December 17, 2007, and issued a notice inviting further comments in response to such concerns.[13]

13. The Commission issued an order on March 20, 2008 addressing interconnection queue issues based on the December 2007 technical conference and subsequent comments.[14] The Commission acknowledged that delays in processing interconnection queues were more pronounced in RTOs/ISOs that were attracting significant new entry.

14. The Commission declined to impose generally applicable solutions, given the regional nature of some interconnection queue issues. However, the Commission provided guidance to assist RTOs/ISOs and their stakeholders in their efforts to improve the processing of interconnection queues.[15] The Commission further stated that, although it ''may need to [impose solutions] if the RTOs and ISOs do not act themselves,'' each region would have an opportunity to work with stakeholders to develop its own solutions through ''consensus proposals.'' [16] Following the 2008 Order, RTOs/ISOs submitted multiple queue reform proposals to the Commission, some of which were intended to move away from a ''first-come, first-served'' approach to a ''first-ready, first-served'' approach.

C. 2015 American Wind Energy Association Petition and 2016 Technical Conference

15. On June 19, 2015, AWEA filed a petition in Docket No. RM15–21–000 requesting that the Commission revise the *pro forma* LGIP and *pro forma* LGIA. On July 7, 2015, the Commission issued a Notice of Petition for Rulemaking in that docket to seek public comment on the petition. The Commission received thirty-five comments and three answers and reply comments.

16. On May 13, 2016, Commission staff convened a technical conference (2016 Technical Conference). The 2016 Technical Conference featured five panels on ''The Current State of Generator Interconnection Queues,'' ''Transparency and Timing in the Interconnection Study Process,'' ''Certainty in Cost Estimates and Construction Time,'' ''Other Queue Coordination and Management Issues,'' and ''Interconnection of Electric Storage Resources.'' The panels featured representatives from RTOs/ISOs, transmission owners from both RTO/ISO and non-RTO/ISO regions, renewable generation developers, electric storage resource developers, and other stakeholders.

17. On June 3, 2016, the Commission issued a Notice Inviting Post-Technical Conference Comments. The Commission received twenty-four post-technical conference comments.

D. Notice of Proposed Rulemaking

18. On December 15, 2016, the Commission issued the NOPR, proposing fourteen reforms focused on improving aspects of the *pro forma* LGIP and *pro forma* LGIA, the *pro forma* OATT, and the Commission's regulations. The Commission also sought comment on, but did not propose, tariff or regulatory revisions on other issues.

19. First, the Commission proposed four reforms to improve certainty by affording interconnection customers more predictability in the interconnection process. To accomplish this goal, the Commission proposed to: (1) Revise the *pro forma* LGIP to require transmission providers that conduct cluster studies to move toward a scheduled, periodic restudy process; (2) remove from the *pro forma* LGIA the limitation that interconnection customers may only exercise the option to build transmission provider's interconnection facilities and stand alone network upgrades if the transmission provider cannot meet the dates proposed by the interconnection customer; (3) modify the *pro forma* LGIA to require mutual agreement between the transmission owner and interconnection customer for the transmission owner to opt to initially self-fund the costs of the construction of network upgrades; and (4) require that RTOs/ISOs establish dispute resolution procedures for interconnection disputes. The Commission also sought comment on the extent to which a cap on the network upgrade costs for which interconnection customers are responsible can mitigate the potential for serial restudies without inappropriately shifting cost responsibility.

20. Second, the Commission proposed five reforms to improve transparency by

Midcontinent Independent System Operator, Inc., Southwest Power Pool, Inc., and *PJM Interconnection, L.L.C.,* Docket No. EL18–26–000, Notice of Technical Conference (Feb. 2, 2018).

[9] Order No. 2003, FERC Stats. & Regs. ¶ 31,146 at P 11.

[10] *See Id.* P 10.

[11] *Id.* P 9 (citing *Tennessee Power Co.,* 90 FERC ¶ 61,238 (2000)).

[12] *Id.* P 11.

[13] *Interconnection Queuing Practices,* Docket No. AD08–2–000, Notice of Technical Conference (Nov. 2, 2007).

[14] *Interconnection Queuing Practices,* 122 FERC ¶ 61,252, at PP 16–18 (2008) (2008 Order).

[15] 2008 Order, 122 FERC ¶ 61,252 at PP 16–18.

[16] *Id.* P 8.

providing more detailed information for the benefit of all participants in the interconnection process. The Commission proposed to: (1) Require transmission providers to outline and make public a method for determining contingent facilities in their LGIPs and LGIAs based upon guiding principles in the NOPR; (2) require transmission providers to list in their LGIPs and on their Open Access Same-Time Information System (OASIS) sites the specific study processes and assumptions for forming the networking models used for interconnection studies; (3) require congestion and curtailment information to be posted in one location on each transmission provider's OASIS site; (4) revise the definition of ''Generating Facility'' in the *pro forma* LGIP and *pro forma* LGIA to explicitly include electric storage resources; and (5) create a system of reporting requirements for aggregate interconnection study performance. The Commission also sought comment on proposals or additional steps that the Commission could take to improve the resolution of issues that arise when a proposed interconnection impacts affected systems.[17]

21. Third, the Commission proposed five reforms to enhance interconnection processes by making use of underutilized existing interconnections, providing interconnection service earlier, or accommodating changes in the development process. In this area, the Commission proposed to: (1) Allow interconnection customers to limit their requested level of interconnection service below their generating facility capacity; (2) require transmission providers to allow for provisional agreements so that interconnection customers can operate on a limited basis prior to completion of the full interconnection process; (3) require transmission providers to create a process for interconnection customers to utilize surplus interconnection service at existing interconnection points; (4) require transmission providers to set forth a separate procedure to allow transmission providers to assess and, if necessary, study an interconnection customer's technology changes (*e.g.,* incorporation of a newer turbine model) without a change to the interconnection customer's queue position; and (5) require transmission providers to evaluate their methods for modeling electric storage resources for interconnection studies and report to the Commission why and how their existing practices are or are not sufficient.

22. In response to the NOPR, sixty-three comments were filed.[18] These comments have informed our determinations in this final action.

III. Overview and Need for Reform

23. In the NOPR, the Commission noted that the electric power industry has undergone numerous changes since Order No. 2003's issuance. These changes are due to a variety of factors, such as the economics of new power generation being driven by sustained low natural gas prices, technological advances, and federal and state policies. In the NOPR, the Commission found that such changes have implications for the interconnection process, for both interconnection customers and transmission providers.[19]

24. As a result of such changes and despite Commission efforts to improve the interconnection process, aspects of the generator interconnection process still provide cause for concern.[20] For example, the Commission noted that many interconnection customers experience delays, and some interconnection queues have significant backlogs and long timelines.[21] The Commission also recognized the recurring problem of late-stage interconnection request withdrawals that lead to interconnection restudies and consequent delays for lower-queued interconnection customers.[22] The Commission further recognized that interconnection request withdrawals can lead to increased network upgrade cost responsibility for lower-queued interconnection customers, which, in turn, could result in cascading withdrawals. Moreover, the Commission stated that the lack of cost and timing certainty can hinder interconnection customers from obtaining financing, and that cost uncertainty is a significant obstacle, as some interconnection customers are less able to absorb unexpected and potentially higher costs.

25. In light of the changing industry and the aforementioned concerns, the Commission preliminarily found that the current interconnection process may hinder the timely development of new generation and, thereby, stifle competition in the wholesale markets, resulting in rates, terms, and conditions that are not just and reasonable or are unduly discriminatory or preferential. Additionally, the Commission preliminarily found that the interconnection study process may result in uncertainty and inaccurate information. Finally, the Commission preliminarily found that the potential for discriminatory interconnection processes exists as new technologies enter the power generation sphere.

A. Comments on Overall Approach

26. A number of parties express support for the proposals in the NOPR.[23] For example, TAPS ''generally support[s] the proposed reforms'' and states that the NOPR proposals ''reasonably balance the needs of interconnection customers with the needs of load and transmission providers.'' [24] Generation Developers agree with the Commission's preliminary findings and argue that the NOPR ''addresses critical items that *directly impact:* (i) The development of new generation; (ii) the rates; terms and conditions of interconnection service; and (iii) the rates to customers for wholesale electric products.'' [25] Joint Renewable Parties and ESA ask the Commission to quickly proceed with a final rulemaking.[26] ESA states that Order No. 2003's issuances predate the deployment of electric storage resources on the transmission system and that existing interconnection agreements and processes do not consider electric storage resources' attributes.[27] ESA also states that the resulting undue uncertainty limits grid access for electric storage resources and prevents them from providing low cost reliability services.[28] ESA asserts, however, that the Commission's NOPR proposals strike an effective balance between transmission provider flexibility and interconnection customer certainty.[29]

[17] Affected system ''shall mean an electric system other than the Transmission Provider's Transmission System that may be affected by the proposed interconnect.'' *Pro forma* LGIP Section 1 (Definitions); *pro forma* LGIA Art. 1 (Definitions).

[18] Appendix A to Order No. 845 lists the entities that submitted comments on the NOPR and the shortened names used through this final action to describe those entities. Order No. 845 is available on the Commission's eLibrary and website.

[19] NOPR, FERC Stats. & Regs. ¶ 32,719 at PP 24–25.

[20] *Id.* P 26.

[21] *Id.* (citing, *e.g.,* 2016 Technical Conference Tr. 210: 1–10 (discussion of delays up to a year)).

[22] *Id.* (citing, *e.g.,* 2016 Technical Conference Tr. 20:15–23 (discussion regarding MISO experiencing 50 percent withdrawal rates in many parts of the queue)).

[23] *See e.g.,* Community Renewable Energy Association 2017 Comments at 1–2; Joint Renewable Commenters 2017 Comments at 1; Generation Developers 2017 Comments at 2; Renewable Energy Coalition 2017 Comments at 2; Renewable and Storage Associations 2017 Comments at 1–2; TAPS 2017 Comments at 1; TDU Systems 2017 Comments at 3–13, 16–30.

[24] TAPS 2017 Comments at 1.

[25] Generation Developers 2017 Comments at 2.

[26] Joint Renewable Commenters 2017 Comments at 1; ESA 2017 Comments at 19.

[27] *Id.* at 5–6.

[28] *Id.* at 6.

[29] *Id.* at 19.

27. IECA supports the majority of the Commission's proposed reforms.[30] Invenergy supports many of the Commission's proposed reforms but states that the NOPR ''leaves fundamental causes of these [interconnection] delays unaddressed.'' [31] NEPOOL states that the proposed reforms could: (1) Address the time ISO–NE takes to evaluate, study, and approve new interconnections; and (2) facilitate market entry through more transparent and useful information regarding capacity and energy deliverability of potential new ISO–NE resources.[32] Joint Renewable Parties contend that, despite existing rules, abusive interconnection practices impede the development of competitively supplied generation from renewable resources—particularly where the transmission provider is a vertically integrated utility.[33] CAISO recognizes the need to nationalize many of the practices proposed in the NOPR.[34]

28. Other parties express some support for the NOPR proposals but object to specific reforms. For example, the Non-Public Utility Trade Associations ''believe that certain of the NOPR's proposed changes . . . hold the potential for improving transparency and process in a manner that may enhance cost certainty and predictability.'' [35] They object, however, to any changes that would impose cost caps for network upgrades and certain of the NOPR's proposed reforms.[36] Additionally, California Energy Storage Alliance commends CAISO for the reforms already implemented in that region and suggests that other RTOs/ISOs should adopt these reforms.[37] However, California Energy Storage Alliance also suggests that each RTO/ISO should decide upon the proposed solutions for themselves rather than through the establishment of new national policy.[38]

29. Other parties oppose some or all aspects of the NOPR. EEI argues that improving certainty is a responsibility shared by interconnection customers and transmission providers.[39] It states that the volume of interconnection requests and the inherently speculative nature of generation development lead to queue delays, suspensions, and withdrawals.[40] Imperial states that the NOPR could alter transmission owners' rights and raises concerns regarding the feasibility of processing interconnection requests.[41] ISO–NE states that several of the proposed reforms may be overly prescriptive and may have unintended negative consequences.[42] Southern argues that the NOPR fails to address problems or delays caused or exacerbated by interconnection customers.[43]

30. A number of parties object to proposals that they contend could compromise system reliability or shift risk and costs to transmission providers for factors beyond the transmission providers' control.[44] EEI requests that the Commission not deviate from its longstanding policy ''that risks and costs associated with an interconnection request be borne by the interconnection customer.'' [45] Similarly, Salt River states that the NOPR could undermine the Commission's non-discrimination policy as well as the cost causation principle.[46] Southern asks the Commission to reconsider those proposals that ''lack balance and would shift risks and add bureaucratic responsibilities to'' transmission providers.[47]

31. APS states that it reviewed the NOPR against its current LGIP and LGIA and identified various revisions, in addition to those proposed in the NOPR, that would need to be made to comply with the proposals in the NOPR.[48] APS suggests that the Commission re-evaluate its revisions and additions to ensure that there are not potentially conflicting or otherwise limiting provisions elsewhere in the *pro forma* LGIP and *pro forma* LGIA.[49]

32. Duke, ISO–NE, and Southern support the NOPR to the extent that it allows procedures to vary according to differing regional needs.[50] Similarly, MISO TOs state that each RTO/ISO's LGIP or LGIA is not simply a set of procedures tied to a *pro forma* agreement that is amenable to generic modifications but is instead a complex series of arrangements, accepted by the Commission, developed in consultation with stakeholders, and designed to meet the RTO/ISO's particular needs and circumstances.[51]

33. NEPOOL states that a final action should allow for significant regional flexibility, especially for regions such as ISO–NE that have continued to improve their interconnection processes and incorporated region-specific features into interconnection rules, such as ISO–NE's Forward Capacity Market (FCM) and Elective Transmission Upgrade provisions. NEPOOL notes that, especially where interconnection provisions intersect with the FCM qualification process, the Commission should allow maximum flexibility to deviate from *pro forma* rules to avoid unintended disruptions to market participants. NEPOOL states that, to the extent that the proposals would disrupt the integrated interconnection and FCM process in New England, they would not support the adoption of the NOPR in New England.[52] Similarly, because of the unique interconnection issues in each region and significant regional variations, NYISO asks the Commission to allow parties to tailor appropriate tariff revisions and demonstrate how they are addressing, or plan to address, the Commission's concerns in a manner consistent with or superior to the NOPR's proposed revisions.[53]

34. Southern recommends that the Commission issue a revised notice of proposed rulemaking to allow for another round of notice and comment.[54] EEI asks the Commission to convene technical conferences to seek feedback on the portions of the LGIA and LGIP that require review and revision to ensure consistency, completeness, and applicability.[55]

35. Duke states that, to fulfill their obligations to ensure reliability service, ''transmission providers must be afforded the time needed to: (i) Carefully evaluate the potential reliability impact on [their] system[s] of

[30] IECA 2017 Comments at 2.

[31] Invenergy 2017 Comments at 1.

[32] NEPOOL 2017 Comments at 5.

[33] Joint Renewable Parties 2017 Comments at 1–2.

[34] CAISO 2017 Comments at 37.

[35] Non-Profit Utility Trade Associations 2017 Comments at 4.

[36] Non-Profit Utility Trade Associations 2017 Comments at 4. These include the proposal for transparency regarding study models and assumptions, the proposal to allow interconnection customers to request interconnection service below generating facility capacity, and the proposal regarding the utilization of surplus interconnection service.

[37] California Energy Storage Alliance 2017 Comments at 1–2.

[38] *Id.* at 13.

[39] EEI 2017 Comments at 9. AEP and Duke support the comments being filed by EEI in this proceeding. AEP 2017 Comments at 1; Duke 2017 Comments at 2.

[40] EEI 2017 Comments at 9.

[41] Imperial 2017 Comments at 1.

[42] ISO–NE 2017 Comments at 2.

[43] Southern 2017 Comments at 4–5.

[44] Non-Profit Utility Trade Associations 2017 Comments at 3; EEI 2017 Comments at 9–10; Salt River 2017 Comments at 1–2; Southern 2017 Comments at 4; Xcel 2017 Comments at 3–4; APS 2017 Comments at 5.

[45] EEI 2017 Comments at 9.

[46] Salt River 2017 Comments at 1–2.

[47] Southern 2017 Comments at 4.

[48] APS 2017 Comments at 5–6.

[49] *Id.* at 7.

[50] Duke 2017 Comments at 29; ISO–NE 2017 Comments at 3; Southern 2017 Comments at 3.

[51] MISO TOs 2017 Comments at 4.

[52] NEPOOL 2017 Comments at 6.

[53] NYISO 2017 Comments at 1.

[54] Southern 2017 Comments a 6.

[55] EEI 2017 Comments at 76.

proposed interconnections; and (ii) provide generators with reasonable estimates within the time needed to effectuate interconnection and necessary supporting upgrades.'' [56]

B. Commission Determination

36. After consideration of the NOPR comments, we conclude that certain revisions to interconnection processes are necessary and that the record supports the need for reform. Therefore, with the exception of the withdrawal of some reforms proposed in the NOPR and the modification of others, which are discussed in further detail below, we adopt the majority of the proposed revisions to the *pro forma* LGIP and the *pro forma* LGIA.[57]

37. Based on our analysis of the record, we adopt the NOPR's preliminary findings.[58] We find that the record in this proceeding provides support for our findings that, without the reforms adopted here, the current interconnection process may hinder timely development of new generation,[59] stifle competition,[60] result in uncertainty [61] and inaccurate information,[62] or potentially unduly discriminate against new technologies.[63] Further, we find that, absent the reforms adopted in this final action, the existing defects and inefficiencies in generator interconnection processes that we have described could become exacerbated, resulting in longer delays in generation development, higher costs to customers, more uncertainty in the process, and less competition in the market. For these reasons, we conclude that these reforms are necessary to ensure that rates, terms, and conditions of service are just and reasonable and are not unduly discriminatory or preferential.

38. We disagree with commenters that take issue with the proposals to impose new requirements and responsibilities on transmission providers. For example, although EEI is correct that interconnection customers and transmission providers share responsibility to improve certainty and that generator interconnection, by its nature, involves some uncertainty, we find that current interconnection processes and agreements can create unnecessary levels of uncertainty as discussed in more detail below.

39. Additionally, in response to Imperial's concerns that the NOPR could alter transmission owners' rights, we note that, although the final action creates new obligations and responsibilities for transmission providers and transmission owners, these changes are likely to improve the generator interconnection process for all involved parties. Also, we emphasize that the final action does not relieve interconnection customers of their existing responsibilities. Nor does it alter the ownership structure established in Order No. 2003 for interconnection facilities or network upgrades. Although some commenters argue that the NOPR's proposed reforms do not increase the responsibilities of, or directly address delays created by, interconnection customers, we believe that the reforms adopted in this final action should help improve the efficiency of processing interconnection requests for *both* transmission providers and interconnection customers.

40. We also disagree with arguments that the NOPR will compromise system reliability. We find that, for those reforms for which commenters have expressed reliability concerns, the Commission has either maintained existing safeguards or provided transmission providers with sufficient discretion to ensure that the reforms will not interfere with system reliability. For example, as discussed more fully below, the option to build, as modified by this final action, does not relax any of the safeguards that the Commission first established in Order No. 2003. Additionally with regard to the reforms that allow interconnection customers to request interconnection service below generating facility capacity and to utilize surplus interconnection service, transmission providers have the ability to require control technologies or to establish conditions necessary for interconnection customers to exercise these options without compromising reliability.

41. In response to comments by EEI and Salt River, among others, that the NOPR will shift costs traditionally borne by the interconnection customer, we note that this final action makes no changes with regard to interconnection customers' cost responsibilities for network upgrades and that the Commission is taking no further action on the issue of cost caps. Additionally, in response to Southern's concerns that the NOPR proposals lack balance, it is our belief that improved generator interconnection processes will benefit both transmission providers and interconnection customers.

42. Although APS argues that the NOPR necessitates additional *pro forma* LGIP and *pro forma* LGIA revisions, it neglects to further describe or explain the particulars of such revisions. The revisions to the *pro forma* LGIP and the *pro forma* LGIA adopted here are intended to effectuate the reforms discussed in this final action and to integrate the adopted reforms so that they do not unintentionally conflict with other portions of the *pro forma* LGIP and the *pro forma* LGIA. Nonetheless, to the extent that a particular transmission provider believes that additional revisions to its LGIP or LGIA are necessary, it may propose such revisions in a filing pursuant to section 205 of the FPA.

43. Finally, we note that a number of commenters seek regional flexibility in complying with the rule to accommodate regional needs. In Order No. 2003, the Commission stated that if, on compliance, a non-RTO/ISO transmission provider ''offers a variation from the Final Rule LGIP and Final Rule LGIA and the variation is in response to established . . . reliability requirements, then it may seek to justify its variation using the regional

[56] Duke 2017 Comments at 3.

[57] The final action revises the *pro forma* LGIP and *pro forma* LGIA in accordance with § 35.28(f)(1) of the Commission's regulations, which provides that every public utility that is required to have on file a non-discriminatory open access transmission tariff under the section must amend such tariff by adding the standard interconnection procedures and agreement and the standard small generator interconnection procedures and agreement required by Commission rulemaking proceedings promulgating and amending such interconnection procedures and agreements, or such other interconnection procedures and agreements as may be required by Commission rulemaking proceedings promulgating and amending the standard interconnection procedures and agreement and the standard small generator interconnection procedures and agreement. 18 CFR 35.28(f)(1) (2017). *See Reactive Power Requirements for Non-Synchronous Generation,* Order No. 827, FERC Stats. & Regs. ¶ 31,385 (cross-referenced at 155 FERC ¶ 61,277), *order on clarification and reh'g,* 157 FERC ¶ 61,003 (2016) (Order No. 827).

[58] *See supra* P 26.

[59] *See, e.g.,* Invenergy 2017 Comments at 1 (stating that ''many of the Commission's proposed reforms. . . . are small steps in the right direction toward reducing the current chronic queue delays); FTC 2017 Comments at 2 (stating that it supports the Commission's proposals ''to facilitate generation interconnections to the grid).

[60] *See, e.g.,* FTC 2017 Comments at 2, 5 (stating that the NOPR ''is a logical next step in [a] procompetitive process'' and citing existing concerns about ''anticompetitive behavior'' in the interconnection process);

[61] *See, e.g.,* AFPA 2017 Comments at 6 (stating that the option to build proposal ''should increase cost certainty'').

[62] *See, e.g., id.* at 4 (stating that the provisional interconnection service, utilization of surplus interconnection service, and material modification reforms ''have the potential to . . . improve the accuracy and reliability of interconnection studies'').

[63] *See, e.g.* AWEA 2017 Comments at 4 (stating that ''the current process . . . creates the potential for discriminatory interconnection processes as new technologies enter the generation sphere''); Public Interest Organizations 2017 Comments at 17 (stating that they agree that ''[i]nterconnection customers involving 'new technologies may be affected more by process and information uncertainty than incumbents' '').

difference rationale.'' [64] However, if a non-RTO/ISO seeks a variation ''for any other reason,'' it must present its justification for the variation as ''consistent with or superior to'' the *pro forma* LGIA or *pro forma* LGIP.[65] The Commission went on to say that, for RTOs/ISOs, it would allow independent entity variations for pricing and non-pricing provisions, and that RTOs/ISOs ''shall have greater flexibility to customize [their] interconnection procedures and agreements to fit regional needs.'' [66] In this final action, we make no changes to the variations allowed by Order No. 2003. Therefore, on compliance, transmission providers may argue that they qualify for the above-mentioned variations from the requirements of this final action.

44. We decline to adopt Southern's recommendation that we issue a revised notice of proposed rulemaking, as well as EEI's proposal to convene general generator interconnection technical conferences, apart from the technical conference concerning affected systems discussed further below. We note that the process used in this proceeding has included a number of opportunities to narrow the issues for discussion and to provide comments. As stated, the Commission noticed AWEA's original 2015 petition for comment, held a technical conference in May 2016, and issued subsequent questions for which it requested comment, and sought comments on the NOPR. Therefore, we do not think additional steps are necessary in this proceeding at this time. In response to Duke's requests that transmission providers need to have adequate time to evaluate reliability impacts and to provide generators ''with reasonable estimates within the time needed to effectuate interconnection and necessary supporting upgrades,'' we point out that this final action neither changes the deadlines for interconnection studies nor eliminates the reasonable efforts standard or the deadlines for construction of facilities necessary to interconnect a particular large generating facility.[67]

IV. Proposed Reforms

A. Improving Certainty for Interconnection Customers

45. The Commission proposed reforms intended to improve certainty by providing interconnection customers more predictability in the interconnection process, including more predictability regarding the costs and the timing of interconnecting to the transmission system. In addition to the proposed reforms, the Commission sought comment on the extent to which capping interconnection customer cost responsibility for actual network upgrade costs to some margin above estimated network upgrade costs could mitigate the potential for serial restudies without inappropriately shifting cost responsibility.

1. Scheduled Periodic Restudies

a. NOPR Proposal

46. The Commission proposed to revise the *pro forma* LGIP to require transmission providers that conduct cluster studies [68] to conduct restudies on a scheduled, periodic basis (*e.g.,* annually, semi-annually, quarterly, or a set number of days after the completion of the cluster study).[69] Specifically, the Commission proposed to require each transmission provider that conducts cluster studies to revise Sections 6.4, 7.6, and 8.5 of the *pro forma* LGIP with time frames for periodic restudies.[70] The Commission also sought comment on: (1) If the Commission's proposal were adopted, whether transmission providers that conduct cluster studies should be allowed to retain some discretion to conduct a restudy outside of the established schedule at the request of interconnection customers or under specific circumstances that make such schedule deviations necessary; and (2) when this discretion should be restricted and the circumstances under which such schedule deviations should be allowed.[71] The Commission also sought comment on whether there are improvements to the *pro forma* LGIP necessary to clarify events that would trigger a restudy (restudy triggers).[72]

b. Comments

47. Several commenters argue that, although restudies are often necessary, repeated restudies conducted at irregular intervals create cost and timing uncertainty for interconnection customers, impose delays on the process, and put development of new generation at risk, despite reductions in some RTOs/ISOs' interconnection requests and the use of cluster studies.[73] Some of these commenters assert that, because the withdrawal of higher-queued interconnection requests can create cascading restudies of lower-queued interconnection requests, regularly scheduled restudies would help alleviate the need for multiple *ad hoc* restudies, thereby helping to reduce uncertainty and delays.[74]

48. Some commenters note that the unpredictable start and stop of the generation interconnection study process has caused project cancellations because delays in obtaining an LGIA or small generator interconnection agreement (SGIA) can affect project financing.[75] NextEra explains that, in some cases, restudies have taken years to complete due to projects withdrawing from the queue, transmission project changes, inadequate transmission provider resources, and other factors.[76] NextEra further notes that transmission providers then have to restart the study with the remaining members of the interconnection customer study group. NextEra contends that this occurrence can delay the interconnection customer's receipt of its study results and finalized GIA, which could prevent it from accurately evaluating the timing and costs of necessary network upgrades.[77] NextEra suggests that a regularly scheduled restudy process will allow transmission providers to consider relevant changes on a set timetable and reduce the need for *ad hoc* restudies. NextEra also argues that, by ensuring that studies are completed, an interconnection customer will receive some network upgrade information that it would not receive if studies are restarted or delayed.[78]

49. AWEA states that requiring transmission providers to identify the frequency of restudies of a cluster study and post the dates of these scheduled restudies on OASIS will increase certainty and give transmission providers flexibility.[79] NextEra suggests that periodic restudies should be conducted every six months, noting that, with that frequency, there should be little need for intervening studies, and yearly studies would be frequent enough.[80]

---

[64] Order No. 2003, FERC Stats. & Regs. ¶ 31,146 at P 826.

[65] *Id.*

[66] *Id.*

[67] Duke 2017 Comments at 3.

[68] Clustering allows transmission providers to simultaneously study all interconnection requests received during a specified period. *See* Order No. 2003, FERC Stats. & Regs. ¶ 31,146 at PP 149–156.

[69] NOPR, FERC Stats. & Regs. ¶ 32,719 at P 46.

[70] *Id.* PP 48–49.

[71] *Id.* P 50.

[72] *Id.* P 51.

[73] AFPA 2017 Comments at 5; AVANGRID 2017 Comments at 5–6; AWEA 2017 Comments at 8–9; Generation Developers 2017 Comments at 6; NextEra 2017 Comments at 6; IECA 2017 Comments at 2.

[74] AFPA 2017 Comments at 5; AVANGRID 2017 Comments at 5–6; AWEA 2017 Comments at 8–9; Generation Developers 2017 Comments at 6; NextEra 2017 Comments at 6.

[75] Generation Developers 2017 Comments at 6; NextEra 2017 Comments at 6.

[76] NextEra 2017 Comments at 6.

[77] *Id.*

[78] *Id.* at 6–7.

[79] AWEA 2017 Comments at 9–10.

[80] NextEra 2017 Comments at 7.

50. Xcel supports the Commission's proposal but requests that the Commission clarify that restudies will commence within a specified time period (*e.g.,* ninety days) of a triggering event, instead of after the completion of the cluster study. Xcel suggests that explicitly defining triggering events is not necessary and notes that determination of triggering events tends to vary between regions.[81]

51. AVANGRID recommends that transmission providers provide cost estimates for the proposed scheduled periodic restudies for interconnection customers with interconnection requests included in a group or cluster, instead of providing interconnection customers estimates for the initial study only.[82] AFPA supports regular cluster studies but believes that RTOs/ISOs should have the ability to avoid restudies and the associated costs where they can demonstrate no material change in relevant assumptions or inputs.[83]

52. APPA/LPPC states that a schedule detailing periodic restudies may provide added predictability that could be valuable to project developers.[84] However, it argues that, where interconnection queues are short, there may be no need to await specified dates to perform restudies, and in those circumstances, a fixed schedule may hamper the interconnection process.[85]

53. Duke states that it does not regularly conduct cluster studies, but it supports the proposal and the flexibility provided for transmission providers that do conduct cluster studies.[86] Southern agrees with the Commission that transmission providers that do not conduct interconnection studies in clusters should not have to perform periodic restudies.[87]

54. CAISO cautions that periodic restudies are effective in CAISO because it uses a cluster study approach with firm cost caps, and transmission owners finance network upgrade costs beyond these cost caps.[88] CAISO asserts that only with both of these mechanisms is it reasonable for interconnection customers to wait for an annual restudy to find out how their projects may have been affected by project withdrawals over the course of the prior year.[89] CAISO states that, with the transmission owners picking up any costs above the cost cap, withdrawals can decrease or increase interconnection customers' network upgrade costs depending upon whether the upgrade is still necessary for other interconnection customers.[90] CAISO states that costs decrease when sufficient interconnection customers withdraw and obviate the need for a network upgrade. However, CAISO states that costs may increase if the network upgrade is still necessary but fewer interconnection customers remain to finance it.[91]

55. CAISO asserts that imposing scheduled periodic restudies in other RTOs/ISOs that do not share CAISO's market features may be problematic.[92] CAISO states that, as ISO–NE and others pointed out in response to the AWEA petition, an interconnection customer must wait for a periodic restudy to find out that its project costs have increased dramatically.[93]

56. CAISO cautions that the Commission should consider the various proposed reforms in concert with each other, including changes to schedules in periodic studies, because cost caps and the definition of contingent facilities also have a significant impact on the efficacy of periodic restudies.[94]

57. SoCal Edison and PG&E state that scheduled periodic annual restudies are the standard practice for CAISO and that they appreciate the predictability of CAISO's restudy process.[95]

58. Generation Developers support the Commission's proposal, but they assert that semi-annual or quarterly restudies could be problematic and unpredictable, especially if the RTO/ISO has missed the study completion deadline listed in its tariff.[96] Similarly, EDP indicates that, although each transmission provider should be able to establish its own unique schedule, a *pro forma* restudy schedule should be developed that serves as the default schedule unless a transmission provider demonstrates the need for an alternative schedule.[97]

59. Invenergy states that restudies can be useful but should not add unnecessary time and expense, citing the substantial time differences for restudies within several RTOs/ISOs.[98] According to Invenergy, an important missing element in the restudy process is transparency for the interconnection customer. Invenergy suggests a requirement that RTOs/ISOs inform the customer of the restudy prior to its initiation. Invenergy suggests that the transmission provider should provide information in sufficient detail so that the customer can understand the need for restudy, including whether there is an addition or change to the necessary network upgrades.[99]

60. Several commenters oppose the Commission's proposed revisions to require transmission providers that conduct cluster studies to conduct restudies on a scheduled, periodic basis. As discussed further below, commenters state that the Commission's proposal may cause unnecessary delays, may not be appropriate in each region, and may unduly burden smaller transmission providers.

61. PJM contends that the NOPR may have the opposite effect from what is intended by causing unnecessary delays.[100] PJM argues that, in a situation where a project withdraws during the system impact study, or prior to the completion of the facilities study, and restudy is necessary, the NOPR proposal would harm all subsequently queued projects. PJM explains that these projects would remain in a ''holding pattern'' until the scheduled, periodic restudy is complete.[101] PJM states that improvements in transparency can achieve the intended goals of the NOPR proposal without the drawbacks.[102]

62. PJM explains that although it performs cluster studies at the feasibility and system impact study stages, it does not conduct restudies at the feasibility study stage because of the broad scope of the feasibility study and because the system impact study can account for withdrawals.[103] However, PJM states that it does not oppose conducting periodic restudies within a cluster after the issuance of a system impact study report and receipt of an executed facilities study agreement from the projects that need to be restudied.[104] PJM states that it could commit to post such restudy dates on its website.[105]

63. PJM asserts that the *pro forma* LGIP appropriately requires restudied interconnection customers to bear the cost of restudy.[106] PJM also states that, at the facilities study stage, interconnection customers should bear all costs, including any impacts caused

[81] Xcel 2017 Comments at 7.

[82] AVANGRID 2017 comments at 5–6.

[83] AFPA 2017 Comments at 3.

[84] APPA/LPPC 2017 Comments at 5.

[85] *Id.*

[86] Duke 2017 Comments at 4.

[87] Southern 2017 Comments at 9.

[88] CAISO 2017 Comments at 7.

[89] *Id.*

[90] *Id.* at 7–8.

[91] *Id.* at 8.

[92] *Id.*

[93] *Id.*

[94] *Id.*

[95] PG&E 2017 Comments at 3 (citing CAISO, eTariff, FERC Electric Tariff, OATT, app. DD Section 7.4 (6.0.0)).

[96] Generation Developers 2017 Comments at 6–7.

[97] EDP 2017 Comments at 3.

[98] Invenergy 2017 Comments at 5.

[99] *Id.*

[100] PJM 2017 Comments at 5.

[101] *Id.* at 4–5.

[102] *Id.* at 5.

[103] *Id.* at 3–4.

[104] *Id.* at 4.

[105] *Id.*

[106] *Id.* at 6 (citing *pro forma* LGIP Sections 6.4, 7.6, and 8.5).

to lower-queued projects by changes made to a higher-queued project.[107]

64. PJM opposes the NOPR's 45/60 day restudy timeframe because restudies ''come in all sizes and complexities.'' [108] PJM states that committing to a strict timeframe would then necessitate granting the transmission provider the flexibility to extend the timeframe beyond the study period found in the tariff, regardless of whether a transmission provider is serially processing a restudy or restudying a cluster.[109] PJM maintains that reporting and sharing of status information with the affected parties is more effective than inflexible restudy deadlines.[110]

65. NYISO and Indicated NYTOs state that NYISO does not perform restudies in its Standard Large Facility Interconnection Procedures to modify the upgrades required for projects or their cost estimates based on changes to higher-queued projects or system conditions.[111]

66. ISO–NE and NEPOOL state that the Commission should not adopt the NOPR proposal because it may not be appropriate in each region.[112] As an example, ISO–NE states that the recent revisions to its interconnection procedures incorporate a clustering approach that does not include scheduled restudies.[113] ISO–NE argues that a scheduled restudy would result in less certainty for interconnection customers because it would delay the study outcome. On the other hand, ISO–NE states that its clustering approach would still meet the objectives of the NOPR by establishing milestones that can serve as decision points for interconnection customers.[114]

67. Specifically, ISO–NE states that its proposed two-phased cluster study structure is designed to provide interconnection customers with information regarding the likely outcome of the cluster study in the first phase. ISO–NE states that interconnection customers could then determine whether they would like to proceed to the second-phase, move to the end of the interconnection queue, or withdraw from the interconnection queue.[115] ISO–NE states that its cluster study approach minimizes the need for restudy through provisions that allow for the participation of lower-queued requests in the event of withdrawals.[116]

68. MISO, MISO TOs, ITC, and MidAmerican state that MISO's 2016 queue reform proposal addressed unstructured and repeated restudies. MISO asserts that, consistent with the independent entity variation standard, its revised procedures are now in effect and should be implemented.[117] MISO states that the Commission should not deviate from its current requirement that allows transmission providers to use reasonable efforts. It also contends that the Commission should not impose inflexible timeframes on restudies, and asserts that a one-size-fits-all approach would not be appropriate here. MISO notes that in RTOs/ISOs, the interconnection process involves many parties, and imposing inflexible restudy deadlines would be counter-productive, particularly where delays are caused by third parties or by factors outside of the RTO/ISO's control.[118] ITC urges the Commission to accept MISO's Definitive Planning Phase [119] process, which addresses restudies, as consistent with or superior to the revisions made to the *pro forma* LGIP in this proceeding.[120]

69. Imperial states that the Commission's proposal to require scheduled, periodic restudies for cluster studies would unduly burden smaller transmission providers.[121] Imperial states that transmission providers may not be willing to memorialize an aggressive restudy commitment if they expect to experience variations in the number of interconnection requests that would be appropriate for cluster studies or restudies over a period of time.[122] Additionally, for smaller transmission providers that conduct few restudies, such a proposal may be less efficient than studying each project individually as the need to restudy arises.[123] Therefore, Imperial requests that the Commission allow transmission providers, particularly smaller transmission providers, the discretion to conduct periodic cluster restudies within their selected timeframes.[124]

c. Commission Determination

70. We decline to adopt the proposal in the NOPR to require transmission providers that conduct cluster studies to conduct scheduled periodic restudies. We find that the record does not support a finding that cascading restudies are an issue that the final action should address by adopting the proposal on scheduled periodic restudies. We recognize that scheduled periodic restudies may provide timing certainty for interconnection queues that experience cascading restudies, but the record does not suggest that this is a significant problem in all or many regions' interconnection queues where cluster studies are used. We agree with the commenters' concern that requiring scheduled periodic restudies would unnecessarily constrain the restudy process for transmission providers that are not experiencing cascading restudies. As explained in the RTO/ISO comments on this issue, existing variations in interconnection processes suggest that a one-size-fits-all approach is not appropriate at this time. For example, CAISO's firm cost caps allow customers to know in advance that network upgrade costs will not exceed the cost cap, even if a restudy occurs. In other RTOs/ISOs, however, adopting CAISO's annual restudy approach would require interconnection customers to wait for a scheduled periodic restudy to learn of cost changes.

71. We note that restudies are sometimes necessary due to a number of factors, including project withdrawals, modifications of higher-queued projects subject to section 4.4 of the LGIP, and/or a change to a project's point of interconnection.[125] We agree with the comments that, regardless of the restudy schedule, restudies that result from such actions by a higher-queued interconnection customer may not be foreseeable or preventable. Implementing a scheduled periodic restudy process may reduce timing uncertainty by creating decision points, but it would not eliminate the cost uncertainty created by the withdrawal or modification of a higher-queued project. In that case, restudy would be necessary to recalculate network upgrade cost distribution among the remaining customers, and restricting the timing of these restudies may cause, rather than prevent, unnecessary delays.

72. Accordingly, we decline to adopt revisions to the *pro forma* LGIP that would require transmission providers that conduct cluster studies to establish a schedule for conducting periodic restudies. We also decline to adopt revisions to the *pro forma* LGIP to address the transmission provider's

[107] *Id.*

[108] *Id.* at 5.

[109] *Id.*

[110] *Id.* at 5–6.

[111] NYISO 2017 Comments at 13; Indicated NYTOs 2017 Comments at 4–5.

[112] ISO–NE 2017 Comments at 15–16.

[113] *Id.* at 16.

[114] *Id.* at 16–17.

[115] *Id.*

[116] *Id.* at 17.

[117] MISO 2017 Comments at 12–13.

[118] *Id.* at 13–14.

[119] Under MISO's Definitive Planning Phase process, MISO performs three sequential system impact studies after successive milestone payments to account for queue withdrawals.

[120] ITC 2017 Comments at 6.

[121] Imperial 2017 Comments at 15.

[122] *Id.* at 16.

[123] *Id.*

[124] *Id.*

[125] *Pro forma* LGIP Sections 6.4, 7.6, and 8.5.

discretion to conduct restudies outside of an established schedule, and decline to propose revisions to the restudy triggers in the *pro forma* LGIP.

2. The Interconnection Customer's Option To Build

a. NOPR Proposal

73. In the NOPR, the Commission proposed modifications to the *pro forma* LGIA to allow interconnection customers to exercise the option to build regardless of whether the transmission provider can meet the interconnection customer's proposed dates.[126]

74. Generally, in the interconnection process, the transmission provider is responsible for the construction of all network upgrades and the transmission provider's interconnection facilities. Under article 5.1.3 of the current *pro forma* LGIA, however, the interconnection customer has the option to build the transmission provider's interconnection facilities [127] and stand alone network upgrades,[128] but only if the transmission provider notifies the interconnection customer that the transmission provider cannot complete construction of such facilities by the interconnection customer's proposed in-service date, initial synchronization date, or commercial operation date; this is termed the ''option to build.'' To expand the opportunity for interconnection customers to exercise the option to build to reduce costs or complete construction more quickly, the Commission proposed in the NOPR to allow the interconnection customer to exercise the option to build regardless of whether the transmission provider finds the interconnection customer's selected in-service date, initial synchronization date, and commercial operation date acceptable.

75. Under the current *pro forma* LGIA, unless otherwise mutually agreed to by the parties, the interconnection customer selects the ''In-Service Date, Initial Synchronization Date, and Commercial Date'' [129] and ''either the Standard Option or Alternative Option.'' [130] Under both of these options, the transmission provider is responsible for construction of the transmission provider's interconnection facilities and all network upgrades.

76. Under the ''standard option,'' the transmission provider ''shall construct the Transmission Provider's Interconnection Facilities and Network Upgrades using Reasonable Efforts to complete the construction by the dates designated by the Interconnection Customer.'' [131] Under the ''alternate option,'' the transmission provider may be liable for liquidated damages if it does not construct the transmission provider's interconnection facilities and ''Network Upgrades according to the construction completion dates established by the Interconnection Customer.'' [132]

77. Under the current *pro forma* LGIA, there are two additional options for assuming responsibility for constructing certain facilities, which are available if the transmission provider informs the interconnection customer that it cannot meet proposed construction completion dates: The option to build, described above, and the ''negotiated option.'' [133] The negotiated option, described in article 5.1.4 of the *pro forma* LGIA, applies if the transmission provider cannot meet the interconnection customer's proposed dates but the interconnection customer does not want to assume responsibility for construction of the transmission provider's interconnection facilities and stand alone network upgrades. In this case, the transmission provider would construct the transmission provider's interconnection facilities and all network upgrades.

78. In the NOPR, the Commission proposed modifications to articles 5.1, 5.1.3, and 5.1.4 of the *pro forma* LGIA to allow interconnection customers to exercise the option to build with respect to the transmission provider's interconnection facilities and stand alone network upgrades regardless of whether the transmission provider can meet the interconnection customer's proposed dates. Specifically, the Commission proposed to modify the language in article 5.1 of the *pro forma* LGIA as follows (with proposed deletions in brackets and proposed additions in italics):

Options. Unless otherwise mutually agreed to between the Parties, Interconnection Customer shall select the In-Service Date, Initial Synchronization Date, and Commercial Operation Date; and either *the* Standard Option or Alternate Option set forth below [for completion of Transmission Provider's Interconnection Facilities and Network Upgrades, as set forth in Appendix A, Interconnection Facilities and Network Upgrades,] and such dates and selected option shall be set forth in Appendix B, Milestones. *At the same time, Interconnection Customer shall indicate whether it elects to exercise the Option to Build set forth in article 5.1.3 below. If the dates designated by Interconnection Customer are not acceptable to Transmission Provider, Transmission Provider shall so notify Interconnection Customer within thirty (30) Calendar Days. Upon receipt of the notification that Interconnection Customer's designated dates are not acceptable to Transmission Provider, the Interconnection Customer shall notify the Transmission Provider within thirty (30) Calendar Days whether it elects to exercise the Option to Build if it has not already elected to exercise the Option to Build.*[134]

79. The Commission also proposed to modify the language in article 5.1.3 of the *pro forma* LGIA as follows (with proposed deletions in brackets):

Option to Build. [If the dates designated by Interconnection Customer are not acceptable to Transmission Provider, Transmission Provider shall so notify Interconnection Customer within thirty (30) Calendar Days and unless the Parties agree otherwise,] Interconnection Customer shall have the option to assume responsibility for the design, procurement and construction of Transmission Provider's Interconnection Facilities and Stand Alone Network

[126] NOPR, FERC Stats. & Regs. ¶ 32,719 at P 52.

[127] According to the *pro forma* LGIA:

Transmission Provider's Interconnection Facilities shall mean all facilities and equipment owned, controlled or operated by the Transmission Provider from the Point of Change of Ownership to the Point of Interconnection as identified in Appendix A to the Standard Large Generator Interconnection Agreement, including any modifications, additions or upgrades to such facilities and equipment. Transmission Provider's Interconnection Facilities are sole use facilities and shall not include Distribution Upgrades, Stand Alone Network Upgrades or Network Upgrades.

Pro forma LGIA Art. 1.

[128] Stand alone network upgrades:

Shall mean Network Upgrades that an Interconnection Customer may construct without affecting day-to-day operations of the Transmission System during their construction. Both the Transmission Provider and the Interconnection Customer must agree as to what constitutes Stand Alone Network Upgrades and identify them in Appendix A to the Standard Large Generator Interconnection Agreement.

Id.

[129] The In-Service Date is ''the date upon which the Interconnection Customer reasonably expects it will be ready to begin use of the Transmission Provider's Interconnection Facilities to obtain back feed power.'' *Id.* The Initial Synchronization Date is ''the date upon which the Generating Facility is initially synchronized and upon which Trial Operation begins.'' *Id.* The Commercial Operation Date is ''the date on which the Generating Facility commences Commercial Operation as agreed to by the Parties pursuant to Appendix E to the Standard Large Generator Interconnection Agreement.'' *Id.*

[130] *Pro forma* LGIA Art. 5.1.

[131] *Pro forma* LGIA Art. 5.1.1.

[132] The transmission provider has the ability to decline this option within 30 days of the LGIA's execution.

[133] *Pro forma* LGIA Art. 5.1.4.

[134] In this final action, the adopted language differs slightly from the NOPR language because we remove the word ''the'' before ''Transmission Provider'' in the final sentence of this article.

Upgrades on the dates specified in article 5.1.2. Transmission Provider and Interconnection Customer must agree as to what constitutes Stand Alone Network Upgrades and identify such Stand Alone Network Upgrades in Appendix A. Except for Stand Alone Network Upgrades, Interconnection Customer shall have no right to construct Network Upgrades under this option.

80. The Commission stated that, given the changes proposed above, revisions to the negotiated option were necessary because the negotiated option references the current limitations on the option to build.[135] For this reason, it proposed to revise the negotiated option to remove references to limitations on the option to build, to address scenarios in which an interconnection customer exercises the option to build and still wishes to negotiate completion times for network upgrades that are not stand alone network upgrades, and to address circumstances in which the interconnection customer does not wish to exercise the option to build. The Commission asserted that such revisions are necessary because the ability to exercise the option to build would no longer be contingent upon a transmission provider's inability to meet the interconnection customer's proposed dates. However, the Commission noted that the negotiated option must also contemplate the possibility that the transmission provider does not agree to the interconnection customer's proposed dates as to network upgrades that are not stand alone. That is, even if the interconnection customer elects to exercise the option to build, the transmission provider would still be responsible for the design, procurement, and construction of network upgrades that are not stand alone network upgrades.

81. Therefore, the Commission also proposed to modify the language in article 5.1.4 of the *pro forma* LGIA as follows (with proposed deletions in brackets and proposed additions in italics):

Negotiated Option. [If Interconnection Customer elects not to exercise its option under Article 5.1.3, Option to Build, Interconnection Customer shall so notify Transmission Provider within thirty (30) Calendar Days, and] *If the dates designated by Interconnection Customer are not acceptable to Transmission Provider,* the Parties shall in good faith attempt to negotiate terms and conditions (including revision of the specified dates and liquidated damages, the provision of incentives, or the procurement and construction of [a portion of Transmission Provider's Interconnection Facilities and Stand Alone Network Upgrades by Interconnection Customer] *all facilities other than Transmission Provider's Interconnection Facilities and Stand Alone Network Upgrades if the Interconnection Customer elects to exercise the Option to Build under article 5.1.3)* [pursuant to which Transmission Provider is responsible for the design, procurement and construction of Transmission Provider's Interconnection Facilities and Network Upgrades]. If the Parties are unable to reach agreement on such terms and conditions, *then, pursuant to article 5.1.1 (Standard Option),* Transmission Provider shall assume responsibility for the design, procurement and construction of [Transmission Provider's Interconnection Facilities and Network Upgrades] *all facilities other than Transmission Provider's Interconnection Facilities and Stand Alone Network Upgrades if the Interconnection Customer elects to exercise the Option to Build* [pursuant to article 5.1.1, Standard Option].

82. Consistent with article 5.2 of the current *pro forma* LGIA, the interconnection customer and transmission provider (and transmission owner, if applicable) would continue to reach agreement on the design and construction of the transmission provider's interconnection facilities and stand alone network upgrades; the Commission proposed no changes to article 5.2 in the NOPR.

b. General

i. Comments

83. Many commenters support this proposal.[136] AWEA states that the current restriction on when the option to build can be exercised is unnecessary, unjust, and unreasonable because it restricts an interconnection customer's ability to build interconnection facilities and stand alone network upgrades cost-effectively.[137] Several commenters contend that the proposal will reduce costs and improve construction timelines.[138] NextEra states that, in late 2016, one of its subsidiaries in SPP exercised the option to build and completed construction of facilities for a cost of approximately $12 million, even though the relevant transmission owner asserted that it could not complete such facilities until late 2017 for an estimated cost of $18 million. NextEra argues that if the Commission expanded interconnection customers' ability to exercise the option to build, there would be more instances where an interconnection customer constructs more efficiently than the transmission owner.[139] AFPA asserts that the proposal will provide competitive and commercial discipline to utility cost estimates, construction timelines, and negotiating strategies.[140] Competitive Suppliers and NEPOOL state that the proposal provides more flexibility to market participants and has the potential to increase efficiency.[141] AFPA argues that the market for engineering and construction contractors is sufficiently robust that interconnection customers can often find cheaper and more efficient alternatives to utility construction.[142] CAISO and PJM comment that they each currently allow this option to some degree.[143] MISO and NYISO take no position on the proposal.[144]

84. A number of commenters also oppose the proposal.[145] EEI, and MISO TOs argue that there has been no demonstration that the options under the existing *pro forma* LGIA result in unjust and unreasonable rates, undue discrimination, or preferential treatment.[146] Both Imperial and MISO TOs question whether exercising the option to build would result in significant decreases in cost or construction time.[147] AEP, Xcel, and National Grid argue that only transmission owners have the required knowledge, processes, and access to suppliers and contractors to properly construct network upgrades.[148] Several commenters state that the additional coordination needed between transmission owners and interconnection customers may undercut the interconnection customer's ability to achieve lower costs or quicker construction.[149] AEP contends that the

[135] NOPR, FERC Stats. & Regs. ¶ 32,719 at P 62.

[136] AFPA; AVANGRID; AWEA; Bonneville; CAISO; Joint Renewable Parties; Duke; Generation Developers; EDP; ELCON; Competitive Suppliers; FTC; IECA; NEPOOL; NextEra; PJM; Public Interest Organizations; SEIA; TDU Systems; TVA.

[137] AWEA 2017 Comments at 12–13.

[138] *Id.* at 13; EDP 2017 Comments at 3–4; ELCON 2017 Comments at 3; Public Interest Organizations 2017 Comments at 5–8; Competitive Suppliers 2017 Comments at 4.

[139] NextEra 2017 Comments at 9.

[140] AFPA 2017 Comments at 4.

[141] Competitive Suppliers 2017 Comments at 4; NEPOOL 2017 Comments at 7.

[142] AFPA 2017 Comments at 6.

[143] CAISO 2017 Comments at 9; PJM 2017 Comments at 7 (citing PJM, Intra-PJM Tariffs, OATT, Attachment P, app. 2, Section 3.2.3 (3.0.0)).

[144] MISO 2017 Comments at 15; NYISO 2017 Comments at 14.

[145] AEP; AES; APPA/LPPC; EEI; Eversource; Imperial; Indicated NYTOs; ITC; MidAmerican; MISO TOs; National Grid; PG&E; NorthWestern; SoCal Edison; Southern; Xcel; Sunflower.

[146] EEI 2017 Comments at 17; MISO TOs 2017 Comments at 13.

[147] Imperial 2017 Comments at 17; MISO TOs 2017 Comments at 13.

[148] AEP 2017 Comments at 6; Xcel 2017 Comments at 8–10; National Grid 2017 Comments at 6–7.

[149] Duke 2017 Comments at 6; TVA 2017 Comments at 4; ITC 2017 Comments at 7; MidAmerican 2017 Comments at 9–10;

Commission has ''appropriately recognized [that] the expansion of an existing station should be treated differently than a green field construction project, and this is precisely why the Commission should not broaden the Option-to-Build.'' [150]

ii. Commission Determination

85. In this final action, we adopt the NOPR proposal to modify articles 5.1, 5.1.3, and 5.1.4 of the *pro forma* LGIA to allow interconnection customers to exercise the option to build with respect to the transmission provider's interconnection facilities and stand alone network upgrades regardless of whether the transmission provider can meet the interconnection customer's proposed dates. We conclude that this reform will benefit the interconnection process by providing interconnection customers more control and certainty during the design and construction phases of the interconnection process.[151] Further, we find that limiting exercise of the option to build to circumstances where the transmission provider cannot meet the interconnection customer's requested dates is not just and reasonable. The limitation restricts an interconnection customer's ability to efficiently build the transmission provider's interconnection facilities and stand alone network upgrades in a cost-effective manner, which could result in higher costs for interconnection customers.

86. In response to EEI's and MISO TOs' contention that there has been no demonstration that the options under the existing *pro forma* LGIA result in unjust and unreasonable rates, undue discrimination, or preferential treatment, we find that in circumstances where an interconnection customer cannot exercise the option to build, it may pay more and/or wait longer for the construction of the transmission provider's interconnection facilities and stand alone network upgrades. With regard to Imperial and MISO TOs' skepticism regarding the potential cost and construction efficiencies gained by exercising the option to build, the record suggests that such savings can occur and have already occurred. For example, NextEra states that its subsidiary exercised the option to build in SPP in 2016 and was able to complete the project one year sooner and for $6 million less than estimated by the transmission provider. NextEra also notes that its subsidiary used approved subcontractors, built to the transmission owner's specifications, and purchased components from vendors approved by the transmission owner.[152]

87. Although AEP, Xcel, and National Grid question interconnection customers' abilities to properly construct stand alone network upgrades, we note that the NOPR proposal makes no changes to the transmission provider's right to approve the engineering design, the equipment tests, and the construction of its interconnection facilities and stand alone network upgrades. In response to AEP, we note that the final action does not change the type of facilities for which the option to build is available, and neither the final action nor the NOPR discuss the applicability of the option to build to an ''existing station'' versus a ''green field construction project.''

c. Reliability Concerns

i. Comments

88. APPA/LPPC, MidAmerican, EEI, ITC, National Grid, and Southern contend that this proposal could compromise grid reliability.[153] EEI, ITC, MidAmerican, National Grid, and Southern argue that the proposal favors granting interconnection customers the potential for quicker or less costly construction over potential degradation of safety and reliability.[154] APPA/LPPC state that the existing option to build provision sufficiently balances the needs of interconnection customers with best utility practice and reliability concerns.[155] They argue that the NOPR proposal, however, will ''alter dramatically'' the risk to long-term reliability of transmission providers' systems and that the safeguards in article 5.2 of the *pro forma* LGIA lack a grasp of the ''short- and long-term reliability implications associated with construction, interconnection and operation of interconnection facilities and network upgrades.'' [156]

89. Three commenters state that article 5.2 of the *pro forma* LGIA does not fully cover the ongoing system operations, planning, and reliability requirements that are inherent in interconnection and network upgrades.[157] CAISO asserts that interconnection customers must follow the transmission owners' existing standards as well as meet grid engineering and reliability standards.[158] EEI requests that the Commission ensure that any facilities constructed by the interconnection customer that are transferred to the transmission provider comply with any applicable North American Electric Reliability Corporation (NERC) reliability standards.[159]

90. Other commenters disagree and argue that the expanded option to build would not affect system reliability.[160] NextEra, for example, states that there is little evidence that the NOPR proposal would compromise grid reliability, and any contrary arguments ignore the fact that this proposal only loosens the conditions for exercising this right with regard to the option to build.[161] AWEA asserts that expanding the option to build should not increase reliability concerns because it does not change existing approval requirements.[162]

ii. Commission Determination

91. Concerns that the option to build, as revised by the final action, will compromise system reliability are misplaced because they ignore the safeguards for reliability already in place for the existing option to build. We note that a number of commenters expressed similar concerns in the Order No. 2003 proceeding.[163] There, in response to such concerns, the Commission established several safeguards.[164] These safeguards, embodied in article 5.2 of the *pro forma* LGIA, require, among other things, that the interconnection customer exercise good utility practice and adhere to the standards and specifications provided in advance by the transmission providers. Further, these safeguards give the transmission provider the right to approve the engineering design, equipment acceptance tests, and the construction itself. In Order No. 2003–A, the Commission stated that vague reliability concerns about the option to build are misplaced, and that articles 5.2.1, 5.2.3, 5.2.5, and 5.2.6 of the *pro*

NorthWestern 2017 Comments at 3; Southern 2017 Comments at 10–11; Xcel 2017 Comments at 8–9.

[150] AEP 2017 Comments at 6.

[151] NOPR, FERC Stats. & Regs. ¶ 32,719 at P 58.

[152] *See, e.g.,* NextEra 2017 Comments at 9.

[153] APPA/LPPC 2017 Comments at 4; MidAmerican 2017 Comments at 9–10; EEI 2017 Comments at 17; ITC 2017 Comments at 7; National Grid 2017 Comments at 6–7; Southern 2017 Comments at 10.

[154] EEI 2017 Comments at 17; ITC 2017 Comments at 7; MidAmerican 2017 Comments at 9–10; National Grid 2017 Comments at 6–7; Southern 2017 Comments at 10.

[155] APPA/LPPC 2017 Comments at 2.

[156] *Id.* at 3.

[157] *Id.* at 4; MISO TOs 2017 Comments at 15; National Grid 2017 Comments at 6–7.

[158] CAISO 2017 Comments at 10.

[159] EEI 2017 Comments at 20.

[160] AWEA 2017 Comments at 14; Generation Developers 2017 Comments at 12; NextEra 2017 Comments at 10.

[161] *Id.*

[162] AWEA 2017 Comments at 14.

[163] Order No. 2003, FERC Stats. & Regs. ¶ 31,146 at P 341.

[164] *Id.* PP 356–357.

forma LGIA are sufficient to guarantee the reliability of the facilities in question.[165] In this final action, we make no changes to the requirements in article 5.2. Furthermore, we note that because article 5.2 already gives the transmission provider a significant role with regard to the option to build and provides sufficient safeguards to ensure reliable operations, we see no reason why the expanded option to build should cause a new reliability concern.

92. In response to EEI's and CAISO's concerns about whether any facilities constructed pursuant to the option to build comply with applicable NERC reliability standards, we note that article 5.2 already addresses this concern. For example, article 5.2(2) states that the interconnection customer ''shall comply with all requirements of law to which Transmission Provider would be subject.''

d. Liability and Cost Responsibility Concerns

i. Comments

93. EEI, Xcel, and National Grid ask the Commission to ensure that interconnection customers indemnify the transmission owner or provider from any damages that result from facilities built pursuant to the option to build, including damages to adjacent facilities.[166] Six commenters maintain that interconnection customers should assume all additional costs that may result from this proposal without cash, transmission credit, or congestion revenue right reimbursement.[167] CAISO, NextEra, PG&E, and SoCal Edison also argue that the Commission should require that interconnection customers not receive such reimbursements to the extent that stand alone network upgrade costs exceed a specified cap.[168]

ii. Commission Determination

94. In response to EEI's, Xcel's, and National Grid's comments, we note that article 5.2(7) of the *pro forma* LGIA requires the interconnection customer to ''indemnify the Transmission Provider for claims arising from Interconnection Customer's construction of Transmission Provider's Interconnection Facilities and Stand Alone Upgrades.'' We consider this provision sufficiently broad to address EEI's, Xcel's, and National Grid's concerns.[169]

95. In response to arguments that interconnection customers should assume all additional costs that result from exercise of the option to build, we note that the final action makes no changes with regard to cost assignment for transmission provider's interconnection facilities and stand alone network upgrades. Additionally, apart from the modifications to articles 5.1, 5.1.3, and 5.1.4 of the *pro forma* LGIA to allow interconnection customers to exercise the option to build regardless of whether the transmission provider can meet the interconnection customer's proposed dates, this final action makes no changes to the option to build process. In response to CAISO, NextEra, PG&E, and SoCal Edison, we note that the issue of cost caps is currently unique to CAISO; therefore, issues regarding the interaction of the option to build and the CAISO network upgrade cost cap would be better addressed when CAISO submits its compliance filing to this final action.

e. Other

i. Comments

96. AES claims that the proposal increases the transmission provider's risk regarding security compliance and project management.[170] APPA/LPPC, MISO TOs, and National Grid express concern that transmission owners will have to expend significant resources to perform the oversight functions in article 5.2 of the *pro forma* LGIA.[171]

97. Multiple commenters also identify barriers that will continue to exist under the current proposal. AWEA worries that requirements to adhere to jurisdictional transmission owner guidelines may remain a barrier to exercising the option to build under existing tariffs.[172] APPA/LPPC note that interconnection customers may be constrained by state laws affecting the ability of non-utilities to exercise eminent domain to construct facilities and upgrades.[173] CAISO states that later-queued projects may rely on network upgrades being built by interconnection customers and could be adversely affected if the customer withdraws from the queue or delays construction.[174]

98. Some commenters recommend that additional, specific options and regulatory language be added to the proposal. AVANGRID and AWEA recommend that the Commission ensure the expanded option to build would apply to identified transmission provider interconnection facilities and stand alone network upgrades identified through cluster studies.[175] To ensure that transmission providers cannot refuse to build facilities and force interconnection customers to do so, EDP recommends that the Commission clarify that a transmission provider retains the obligation to build unless and until an interconnection customer exercises its option to build.[176]

99. AVANGRID also recommends that the Commission provide two additional options for interconnection customers. Under the first, the transmission provider would construct, and the interconnection customer would pay the costs of, the transmission provider's interconnection facilities and stand alone network upgrades upfront, including an opportunity cost capped at 10 percent. Second, for all other network upgrades, the transmission provider, with the agreement of the interconnection customer, would construct and fund network upgrades, with charges to the interconnection customer made over time or the interconnection customer paying the costs up front, which would not include any margin.[177] Bonneville recommends the option to build only be available if the customer can demonstrate it can build the facilities more cost-effectively than the transmission provider or improve the timeline for construction.[178]

100. Duke and EEI recommend that the Commission revise article 9.7.1 of the LGIA to require that parties coordinate actions regarding stand alone network upgrades that may impact other parties' facilities during outages needed for maintenance, testing, or installation.[179] Duke recommends revising article 11.5 of the *pro forma* LGIA (Provision of Security) to include stand alone network upgrades, as well as article 26.1 of the *pro forma* LGIA to clarify that the transmission provider is

[165] Order No. 2003–A, FERC Stats. & Regs. ¶ 31,160 at P 232.

[166] EEI 2017 Comments at 23; Xcel 2017 Comments at 10; National Grid 2017 Comments at 8–11.

[167] CAISO 2017 Comments at 10; Bonneville 2017 Comments at 2–3; EEI 2017 Comments at 23–24; MISO TOs 2017 Comments at 16; Southern 2017 Comments at 12; SoCal Edison 2017 Comments at 5.

[168] CAISO 2017 Comments at 10; NextEra 2017 Comments at 11; PG&E 2017 Comments at 4; SoCal Edison 2017 Comments at 5.

[169] We note that the *pro forma* LGIA states that the term transmission provider ''should be read to include the Transmission Owner when the Transmission Owner is separate from the Transmission Provider.'' *Pro forma* LGIA Art.1 (Definitions).

[170] AES 2017 Comments at 7.

[171] ITC 2017 Comments at 7; MISO TOs 2017 Comments at 14; AES 2017 Comments at 7.

[172] AWEA 2017 Comments at 15.

[173] APPA/LPPC 2017 Comments at 4.

[174] CAISO 2017 Comments at 9.

[175] AVANGRID 2017 Comments at 14–15; AWEA 2017 Comments at 14.

[176] EDP 2017 Comments at 4.

[177] AVANGRID 2017 Comments at 14–15.

[178] Bonneville 2017 Comments at 2–3.

[179] Duke 2017 Comments at 5; EEI 2017 Comments at 22.

not prevented from using subcontractors to perform its obligations under the LGIA. Duke also recommends adding language to require the transmission provider's approval of subcontractors.[180] EEI requests that articles 5.1, 5.1.3, and 5.1.4 of the *pro forma* LGIA be revised to note that, if during the study process it is determined that upgrades and facilities need to be expedited, the option to build will be superseded.

101. National Grid recommends that the Commission revise article 5.2 of the *pro forma* LGIA to require: (1) Transmission owner's prior written approval of all contractors and any information requested to evaluate the creditworthiness and technical capabilities of proposed contractors; (2) prior written transmission owner approval of agreements between interconnection customers and contractors and provisions that allow transmission owners to directly enforce the agreement against the contractor; and (3) that the interconnection customer and transmission owner enter into a written transfer agreement regarding the transfer of ownership of facilities built by the interconnection customer.[181] Similarly, Eversource suggests that the Commission grant blanket authorization for the transfer of these facilities.[182]

102. TVA and EEI suggest that interconnection customers should meet standards similar to those required under Order No. 1000 for transmission construction qualification.[183] Generation Developers, NextEra, and EEI support transmission owners maintaining a list of pre-approved contractors.[184] Some commenters suggest that the Commission require the transmission provider to post the standards and specifications used for the transmission provider's interconnection facilities and stand alone network upgrades on the transmission provider's website.[185] Generation Developers state that there is a need for the transmission provider or interconnecting transmission owner to agree as to what constitutes a stand alone network upgrade.[186] Generation Developers also request that transmission providers be required to provide written documentation and post on their website the reasons why they disagree that a facility is considered a stand alone network upgrade, in order to prevent undue discrimination.[187] Eversource asks the Commission to require the interconnection customer to obtain transmission owner approval before ordering electrical material and equipment.[188] Eversource and MISO recommend requiring that interconnection customers provide sufficient land rights for the transmission owners to access, operate, and maintain the transmission facilities and that the Commission terminate the interconnection customer's authority to construct during emergency situations.[189]

ii. Commission Determination

103. In response to AES's concern that the proposal increases transmission providers' risk regarding security compliance and project management, we again note that the final action does not relax the established safeguards in article 5.2 of the *pro forma* LGIA. In response to concerns raised by APPA/LPPC, MISO TOs, and National Grid that transmission owners will have to expend significant resources to perform oversight functions, we note that the final action does not alter the role that the transmission provider would play in overseeing the option to build process. However, it may result in more interconnection customers exercising the expanded option to build.

104. In response to AWEA's and APPA/LPPC's assertions about jurisdictional barriers, states laws, and eminent domain, we note that the specific purpose of this proposal is only to eliminate the *pro forma* LGIP's existing limitation on the option to build. It is not to ensure that there are no jurisdictional or other legal barriers to construction by interconnection customers. Although more interconnection customers are likely to exercise the option to build as a result of the final action, there are still situations where an interconnection customer may not be able to do so due to jurisdictional or legal constraints. In those situations, we would not expect the interconnection customer to exercise its option to build if it could not do so effectively due to jurisdictional or legal constraints, such as limitations imposed by state law. Additionally, an interconnection customer might find that that there may be interconnection requests for which the option to build is unlikely to result in cost or time savings. Consequently, we believe that interconnection customers are in the best position to determine whether they will realize any cost or time savings from exercising the option to build for a particular interconnection request. Finally, the fact that this reform will not necessarily be useful to all interconnection requests does not mean that this reform will not afford an opportunity to some interconnection customers.

105. In response to CAISO's comment that later-queued projects may be adversely affected if a higher-queued customer withdraws from the queue or delays construction, we see no reason to believe that an interconnection customer that exercises the option to build is more likely to adversely affect a later-queued project than would a delay caused by a transmission provider. In fact, it is our expectation that customers that exercise the option to build are likely only to do so if they believe they can construct the facilities faster than the transmission provider. Additionally, we agree with AVANGRID and AWEA that the expanded option to build would apply to identified transmission provider interconnection facilities and stand alone network upgrades regardless of whether those facilities were identified through clustering, serial, or another study method. This is consistent with the current option to build, which does not restrict the study method.

106. In response to EDP, we note that the *pro forma* LGIA, as modified by the final action, makes clear that the interconnection customer may exercise the option to build *at its discretion* with regard to transmission provider's interconnection facilities and stand alone network upgrades. If the interconnection customer does not exercise this discretion, pursuant to articles 5.1.1, 5.1.2, and 5.1.4, the transmission provider would be responsible for the construction of transmission provider's interconnection facilities and stand alone network upgrades.

107. We choose not to adopt AVANGRID's two additional proposals and find that the revisions adopted by the final action strike the appropriate balance. Additionally, we disagree with Bonneville's recommendation that we allow the interconnection customer to exercise the option to build only if it can demonstrate its ability to construct the subject facilities cost-effectively. It is unnecessary to impose such a requirement for interconnection customers because they will ultimately

[180] Duke 2017 Comments at 6.

[181] National Grid 2017 Comments at 8–11.

[182] Eversource 2017 Comments at 17.

[183] TVA 2017 Comments at 4; EEI 2017 Comments at 18.

[184] Generation Developers 2017 Comments at 11; NextEra 2017 Comments at 11; EEI 2017 Comments at 21.

[185] Generation Developers 2017 Comments at 11; EDP 2017 Comments at 4; SEIA 2017 Comments at 14.

[186] Generation Developers 2017 Comments at 9–10.

[187] *Id.* at 10.

[188] Eversource 2017 Comments at 9–11.

[189] *Id.* at 1; MISO TOs 2017 Comments at 15–16.

bear the costs of the transmission provider's interconnection facilities and the stand alone network upgrades; thus, they have more incentive than transmission providers to select the most cost effective option.

108. We disagree with Duke and EEI regarding the need to revise article 9.7.1 of the *pro forma* LGIA to require parties to coordinate maintenance, testing, or installation actions for stand alone upgrades. Article 5.2 provides sufficient safeguards to ensure coordination of maintenance, testing, and installation by providing for transmission provider access and requiring the ultimate transfer of ownership. We also disagree with National Grid's and Eversource's proposals regarding the transfer of ownership because articles 5.2(8) and (9) already require the transfer of control and ownership to the transmission provider.

109. Furthermore, we disagree with Duke's proposal to revise article 11.5 of the *pro forma* LGIA to include stand alone upgrades. Duke provides no reason why such revision is necessary. Additionally, we read the phrase ''applicable portion'' in article 11.5 to exclude facilities that an interconnection customer would construct pursuant to the option to build. Since the purpose of article 11.5 is for the interconnection customer to provide funds to the transmission provider for construction costs, there would be no need for the interconnection customer to provide security to the transmission provider for facilities the transmission provider will not construct (because the interconnection customer is exercising the option to build).

110. We also see no need to revise article 26.1 of the *pro forma* LGIA, as Duke proposed, to limit the interconnection customer's ability to use subcontractors. Similarly, while we agree with Generation Developers, NextEra, and EEI that it could be helpful for transmission owners to maintain a list of contractors available to interconnection customers for the option to build, given the adequacy of the safeguards in article 5.2, we find that it is not necessary to require transmission owners to do so. We find the safeguards in article 5.2 to be sufficient because they give the transmission provider significant oversight authority to review and approve the design, equipment testing, and construction, ''unrestricted access'' to inspect the construction, and the ability to require the interconnection customer to remedy deficiencies that may arise at ''any time during construction.'' [190] Similarly, we do not agree with Duke's and National Grid's suggestion that the transmission provider should have the right to approve subcontractors because of the multiple preexisting protections in article 5.2. Further, we are not persuaded by EEI's contention that revisions are necessary to supersede the option to build if facilities need to be expedited. First, article 5.2 already obligates the interconnection customer to ''remedy deficiencies'' should ''any phase of the engineering, equipment procurement, or construction . . . not meet the standards and specifications provided by Transmission Provider.'' [191] Second, the option to build is limited to the construction of transmission provider's interconnection facilities and stand alone network upgrades, the latter of which the *pro forma* LGIA defines as those network upgrades that the interconnection customer ''may construct without affecting day-to-day operations of the Transmission System during their construction.'' [192] Together, these provisions minimize the likelihood that any delays in construction will adversely affect reliability.

111. In response to TVA and EEI, we find that article 5.2 already provides sufficient safeguards regarding transmission construction qualifications because it requires, for example, that interconnection customers use good utility practice and follow the standards and specifications outlined by the transmission provider. Additionally, while Generation Developers, EDP, and SEIA advocate that transmission providers post the standards and specifications for interconnection facilities and stand alone network upgrades on their websites, we will not require them to do so. Although posting such standards and specifications on a website could be useful, we do not think it appropriate to impose this requirement on transmission providers in this final action given the questionable usefulness of this information.

112. In response to Generation Developers' request that transmission providers be required to provide an explanation when they disagree that a facility is a stand alone network upgrade, we find that it would be difficult for a transmission provider to determine whether or not a facility would be considered a stand alone network upgrade until it is presented with the results of a system impact study. While we recognize that questions regarding what constitutes a stand alone network upgrade could lead to disputes, interconnection customers are free to seek dispute resolution on such questions and/or pursue a complaint under section 206 of the FPA.

113. We disagree with Eversource's request to require that interconnection customers receive transmission owner approval before ordering electrical materials and equipment. Article 5.2 already provides sufficient responsibilities to interconnection customers to mitigate the concerns Eversource raised through, for example, the requirements that the interconnection customer use good utility practice and abide by the transmission provider's standards and specifications, and the requirement that the transmission provider approve the design, equipment acceptance tests, and construction. We also disagree with Eversource's and MISO's recommendations to require that interconnection customers provide sufficient land rights to allow transmission provider access to transmission facilities and to terminate interconnection customers' authority to construct during emergency situations. We do not see the need to impose a further requirement on the interconnection customer, especially because the revisions adopted in this final action do not relax the existing requirements.

3. Self-Funding by the Transmission Owner

a. NOPR Proposal

114. In the NOPR, the Commission proposed to require agreement between a transmission owner or provider and interconnection customer before the transmission owner or provider may elect to initially fund network upgrades.[193]

115. Prior to the revisions proposed in the NOPR, article 11.3 in the *pro forma* LGIA stated that ''[u]nless Transmission Provider or Transmission Owner elects to fund the capital for the Network Upgrades, they shall be solely funded by Interconnection Customer.'' This provision allowed the transmission provider or owner to unilaterally elect to ''self-fund'' network upgrades.

116. In 2013, MISO proposed allowing a transmission owner to elect to directly assign costs associated with self-funded network upgrades to the interconnection customer.[194] In that proceeding, the Commission accepted

[190] *Pro forma* LGIA Articles 5.2 (3), (5), & (6).

[191] *Pro forma* LGIA Art. 5.2(6).

[192] *Pro forma* LGIA Art. 1 (Definitions).

[193] NOPR, FERC Stats. & Regs. ¶ 32,719 at P 64.

[194] *Midcontinent Indep. Sys. Operator, Inc.,* 145 FERC ¶ 61,111 (2013) (*Hoopeston*).

MISO's proposal for a transmission owner that elects to initially fund network upgrades under MISO's *pro forma* GIA to recover the capital costs for network upgrades through a network upgrade charge assessed to the interconnection customer.[195]

117. The Commission revisited that approach in the *Otter Tail* proceedings.[196] In those proceedings, the Commission found that article 11.3 in MISO's *pro forma* GIA, which allows a transmission owner to self-fund network upgrades, to be unjust, unreasonable, and unduly discriminatory or preferential. Consequently, the Commission directed MISO to revise article 11.3 to require mutual agreement with the interconnection customer for the transmission owner to elect to initially fund network upgrades. Ameren Services Company, a transmission owner in MISO, challenged this order in the United States Court of Appeals for the District of Columbia Circuit (D.C. Circuit).

118. In the NOPR in this proceeding, the Commission proposed to revise article 11.3 of the *pro forma* LGIA to require mutual agreement between the interconnection customer and the transmission owner for the transmission owner to initially fund the cost of network upgrades. Specifically, the Commission proposed in the NOPR to modify the language in article 11.3 of the *pro forma* LGIA as follows (with proposed additions in italics):

> Transmission Provider or Transmission Owner shall design, procure, construct, install, and own the Network Upgrades and Distribution Upgrades described in Appendix A, Interconnection Facilities, Network Upgrades and Distribution Upgrades. The Interconnection Customer shall be responsible for all costs related to Distribution Upgrades. Unless Transmission Provider or Transmission Owner elects to fund the capital for the Network Upgrades, *which election shall only be available upon mutual agreement of Interconnection Customer and Transmission Owner or Transmission Provider,* they shall be solely funded by Interconnection Customer.

119. The Commission also sought comment on whether to limit the proposal to RTOs/ISOs or to apply it to all transmission providers.

b. Comments

120. A number of commenters support the proposal.[197] A group of five commenters, predominantly from MISO, oppose the proposal and state that any action would be premature, given that, at the time that they filed their comments, the D.C. Circuit had not issued a decision in the *Otter Tail* proceedings. They ask the Commission to refrain from implementing this reform until the appellate decision is issued.[198]

121. Regarding whether the Commission should extend the requirement for mutual agreement beyond RTOs/ISOs, AWEA, Joint Renewable Parties, TDU Systems, and AFPA all argue that the proposal should apply generically.[199] On the other hand, Southern, TVA, Generation Developers, and Xcel state that self-funding by the transmission owner is not applicable to the *pro forma* OATT.[200]

c. Commission Determination

122. We withdraw the NOPR's proposal to extend the approach to self-funding that the Commission approved in MISO to all regions. On January 26, 2018, the D.C. Circuit issued a decision vacating the Commission's orders in the *Otter Tail* proceedings.[201] In this decision, the court noted, among other things, that the Commission did not adequately respond to the argument that ''involuntary generator funding compels [transmission owners] to . . . accept additional risk without corresponding return.'' [202] The court further stated that the Commission's approved changes to the MISO tariff ''open[ ] the floodgates to involuntary generator-funded interconnection projects.'' [203] The court also referenced this proceeding, stating that the fact that the Commission ''plans a rulemaking to consider interconnection problems and costs . . . suggests that it should approach those issues on a clean slate.'' [204] In light of the D.C. Circuit's decision, we will not move forward with the proposal pertaining to self-funding at this time. We will, however, continue to evaluate the issue.

4. Dispute Resolution

a. NOPR Proposal

123. In the NOPR, the Commission proposed that RTOs/ISOs establish interconnection dispute resolution procedures that allow a disputing party to unilaterally seek dispute resolution in RTO/ISO regions.[205]

124. Order No. 2003 created an arbitration process through the adoption of section 13.5 of the *pro forma* LGIP, which allows disputing parties to agree to arbitration ''upon mutual agreement of the Parties'' to the dispute.[206] Pursuant to this process, arbitrators may interpret and apply the provisions of the LGIA and LGIP but have no power to modify those provisions.[207] At the completion of this process, the arbitrator's decision is ''final and binding upon the Parties, and judgment on the award may be entered in any court having jurisdiction.'' Additionally, the decision may only ''be appealed . . . on the grounds that the conduct of the arbitrator(s), or the decision itself, violated the standards set forth in the Federal Arbitration Act or the Administrative Dispute Resolution Act.'' [208] While the arbitrator's decision is binding, ''the final decision must still be filed with [the Commission] if it affects jurisdictional rates, terms and conditions of service, Interconnection Facilities, or Network Upgrades,'' [209] and the Commission ''retains the authority to review the arbitrator's decision.'' [210] Participation in the section 13.5 arbitration process does not limit the ability of either party to bring a complaint about the same issues.[211]

125. In the NOPR, the Commission proposed to revise the Code of Federal Regulations to require RTOs/ISOs to establish interconnection dispute resolution procedures that would allow a disputing party to unilaterally seek dispute resolution. In particular, the Commission proposed to revise § 35.28 of the Commission's regulations to add

[195] *Hoopeston,* 145 FERC ¶ 61,111 at P 41.

[196] *Midcontinent Indep. Sys. Operator, Inc.,* 151 FERC ¶ 61,220 (2015); *Otter Tail Power Co.* v. *Midcontinent Indep. Sys. Operator, Inc.,* 153 FERC ¶ 61,352, at P 14 (2015); *Otter Tail Power Co.* v. *Midcontinent Indep. Sys. Operator, Inc.,* 156 FERC ¶ 61,099 (2016) (collectively, the *Otter Tail* proceedings).

[197] Non-Profit Utility Trade Associations; AFPA; AWEA; CAISO; Joint Renewable parties; Generation Developers; EDP; ELCON; FTC; IECA; NEPOOL; NextEra; PG&E; SEIA; TDU Systems.

[198] Duke 2017 Comments at 6–7; EEI 2017 Comments at n.20; ITC 2017 Comments at 8; MidAmerican 2017 Comments at 11; MISO TOs 2017 Comments at 17.

[199] AWEA 2017 Comments at 19; Joint Renewable Parties 2017 Comments at 9–10; TDU Systems 2017 Comments at 7; AFPA Comments at 7.

[200] Southern 2017 Comments at 13–14; TVA 2017 Comments at 5; Generation Developers 2017 Comments at 15; Xcel 2017 Comments at 10–11.

[201] *Ameren Servs. Co.* v. *FERC,* 880 F.3d 571 (D.C. Cir. 2018).

[202] *Id.* at 573–74.

[203] *Id.* at 584.

[204] *Id.* at 585.

[205] NOPR, FERC Stats. & Regs. ¶ 32,719 at P 78.

[206] *Pro forma* LGIP Section 13.5.1.

[207] *Pro forma* LGIP Section 13.5.

[208] *Pro forma* LGIP Section 13.5.3.

[209] *Id.*

[210] Order No. 2003, FERC Stats. & Regs. ¶ 31,146 at P 290.

[211] Specifically, it states that section 13.5 arbitration does not ''circumscribe[ ] the Parties' right to avail themselves of the Commission's complaint process because under section 13.5.1, a party that does not agree to arbitration may exercise its rights, including its right to bring a complaint to the Commission.'' Order No. 2003, FERC Stats. & Regs. ¶ 31,146 at P 290.

a new paragraph (g)(9), providing that every Commission-approved independent system operator or regional transmission organization tariff must contain provisions governing generator interconnection dispute resolution procedures to allow a disputing party to unilaterally initiate dispute resolution procedures under the respective tariff. Such provisions must provide for independent system operator or regional transmission organization staff member(s) or utilize subcontractor(s) to serve as the neutral decision-maker(s) or presiding staff member(s) or subcontractor(s) to the dispute resolution procedures. Such staff participating in dispute resolution procedures shall not have any current or past substantial business or financial relationships with any party. Additionally, such dispute resolution procedures must account for the time sensitivity of the generator interconnection process.

126. The Commission limited the proposed requirements in this draft text to RTOs/ISOs because the Commission had only received comments regarding the need for dispute resolution reform in RTOs/ISOs. However, given the lack of a record on this issue, the Commission also sought comment on the need for reform outside the RTOs/ISOs.[212] The Commission also sought comment on the appropriateness of adopting procedures similar to section 4.2 of the *pro forma* SGIP, which allows parties to contact the Commission's Dispute Resolution Service (DRS) for assistance in resolving an interconnection dispute.[213]

127. The NOPR proposal represented a potential alternative to, and not a replacement of, section 13.5 of the *pro forma* LGIP.[214] The Commission crafted its proposal in response to its observation that the arbitration process embodied in section 13.5 is effectively unavailable to an interconnection customer if a transmission owner opposes this arbitration process.[215]

b. General

i. Comments

128. Multiple commenters support the proposal.[216] The Non-Profit Utility Trade Associations state that they do not object to this proposal.[217] Salt River states that the proposal is reasonable with regard to disputes between interconnection customers and RTOs/ISOs, RTO/ISO transmission owners, or affected system operators that are also RTO/ISO transmission owners.[218] However, Salt River argues that if the dispute is with an autonomous neighboring affected system operator that is a non-RTO/ISO member, then the dispute resolution procedures in the affected system operator's OATT should apply.[219]

129. AES asserts that RTOs/ISOs, not the Commission, should reexamine their existing dispute resolution procedures.[220] Indicated NYTOs oppose the dispute resolution proposal, arguing that NYISO's existing dispute resolution provisions are adequate.[221] NYISO also opposes the proposed revisions, stating that they would duplicate existing dispute resolution opportunities.[222] ISO–NE and CAISO similarly argue that their current dispute resolution procedures are adequate.[223] CAISO also notes that its tariff includes a dedicated dispute committee for generator interconnection issues.[224] MidAmerican argues that the existing MISO tariff addresses the Commission's concerns about the ability of a party to unilaterally request dispute resolution.[225]

130. MISO requests a clarification that RTOs/ISOs do not need to create separate dispute resolution procedures for generator interconnection disputes and may continue to rely on their general dispute resolution procedures as long as they permit parties to unilaterally initiate the resolution process.[226] MISO TOs ask the Commission to clarify that the dispute resolution procedures are for genuine disputes only and should not be used to gain additional time to meet LGIP or LGIA obligations.[227] PJM agrees with the dispute resolution proposal and believes that its dispute resolution procedures generally conform to it.[228]

131. Generation Developers request that the final action state that the dispute resolution mechanism that an RTO/ISO adopts should trump the existing provisions in section 13.5 of the LGIP. Generation Developers state that, unless this is made clear, the parties will argue about which dispute resolution provision applies.[229]

ii. Commission Determination

132. In this final action, we revise the *pro forma* LGIP to add new section 13.5.5, as discussed further below. We are taking this step because the record in this proceeding indicates that existing dispute resolution procedures may not be just and reasonable and may be unduly discriminatory or preferential because one disputing party may effectively prevent the other disputing party from pursuing dispute resolution.[230] We thus disagree with those commenters that argue that transmission providers should simply reexamine their dispute resolution procedures. The reason is that, if the status quo provides little recourse for interconnection customers when a transmission provider does not agree to dispute resolution, then it would not be sufficient for transmission providers to merely reexamine their dispute resolution procedures with no guarantee that they would address this concern. Additionally, as discussed further below, we find that the record developed here demonstrates the need for generic dispute resolution reform, both inside and outside RTOs/ISOs. To avoid having dispute resolution requirements in multiple places, we are effectuating this reform through revisions to the *pro forma* LGIP as part of the existing dispute resolution provisions, rather than through changes to the Code of Federal Regulations.

133. Therefore, this final action revises the *pro forma* LGIP by adding new section 13.5.5, which will read as follows:

Non-binding dispute resolution procedures. If a Party has submitted a Notice of Dispute pursuant to section 13.5.1, and the

[212] NOPR, FERC Stats. & Regs. ¶ 32,719 at P 86.

[213] Section 4.2.4 of the *pro forma* SGIP states that DRS will assist in resolving a dispute or in selecting an appropriate dispute resolution venue. Additionally, section 4.2.6 states that if neither party elects to contact DRS or if the attempted dispute resolution fails, ''either Party may exercise whatever rights and remedies it may have in equity or law consistent with the terms of these procedures.''

[214] *Id.*

[215] *Id.* P 85.

[216] AWEA 2017 Comments at 21; Joint Renewable Parties 2017 Comments at 2–3; IECA 2017 Comments at 3; Invenergy 2017 Comments at 15–16; AFPA 2017 Comments at 8; CAISO 2017 Comments at 11–12; SEIA 2017 Comments at 14–15; TDU Systems 2017 Comments at 11; AVANGRID 2017 Comments at 18.

[217] Non-Profit Utility Trade Associations 2017 Comments at 6.

[218] Salt River 2017 Comments at 8.

[219] *Id.*

[220] AES 2017 Comments at 7–8.

[221] Indicated NYTOs 2017 Comments at 12–14.

[222] NYISO 2017 Comments at 17.

[223] ISO–NE 2017 Comments at 18; CAISO 2017 Comments at 12.

[224] *Id.* (citing CAISO, eTariff, FERC Electric Tariff, OATT, Section 13 (0.0.0) & app. DD, Section 15.5 (1.0.0)).

[225] MidAmerican 2017 Comments at 7; *see also* MISO TOs 2017 Comments at 24.

[226] MISO 2017 Comments at 17–18.

[227] MISO TOs 2017 Comments at 24.

[228] PJM 2017 Comments at 8.

[229] General Developers 2017 Comments at 19.

[230] NOPR, FERC Stats. & Regs. ¶ 32,719 at P 84.

Parties are unable to resolve the claim or dispute through unassisted or assisted negotiations within the thirty (30) Calendar Days provided in that section, and the Parties cannot reach mutual agreement to pursue the section 13.5 arbitration process, a Party may request that Transmission Provider engage in Non-binding Dispute Resolution pursuant to this section by providing written notice to Transmission Provider (''Request for Non-binding Dispute Resolution''). Conversely, either Party may file a Request for Non-binding Dispute Resolution pursuant to this section without first seeking mutual agreement to pursue the section 13.5 arbitration process. The process in section 13.5.5 shall serve as an alternative to, and not a replacement of, the section 13.5 arbitration process. Pursuant to this process, a transmission provider must within 30 days of receipt of the Request for Non-binding Dispute Resolution appoint a neutral decision-maker that is an independent subcontractor that shall not have any current or past substantial business or financial relationships with either Party. Unless otherwise agreed by the Parties, the decision-maker shall render a decision within sixty (60) Calendar Days of appointment and shall notify the Parties in writing of such decision and reasons therefore. This decision-maker shall be authorized only to interpret and apply the provisions of the LGIP and LGIA and shall have no power to modify or change any provision of the LGIP and LGIA in any manner. The result reached in this process is not binding, but, unless otherwise agreed, the Parties may cite the record and decision in the non-binding dispute resolution process in future dispute resolution processes, including in a section 13.5 arbitration, or in a Federal Power Act section 206 complaint. Each Party shall be responsible for its own costs incurred during the process and the cost of the decision-maker shall be divided equally among each Party to the dispute.

134. The provision retains the central principles of the NOPR proposal but extends its application to all transmission providers, including non-RTOs/ISOs. We have revised the provision to also provide necessary clarification in response to the comments received in this proceeding, as discussed further below.

135. We note that numerous parties have expressed a need for dispute resolution reform and support for the principles embodied in the NOPR proposal. While this final action establishes the core requirement that transmission providers adopt a new non-binding dispute resolution process, each transmission provider must develop and establish the additional specifics of a just and reasonable process that allows disputing parties to unilaterally seek non-binding dispute resolution.

136. In response to Salt River's argument regarding the applicability of the proposed revisions to an autonomous neighboring affected system operator, as explained more fully below, on April 3–4, 2018, the Commission convened a technical conference in Docket No. AD18–8–000 for industry representatives and others to discuss issues related to affected systems. Given that the discussion here pertains to disputes within a transmission provider's region (such as a dispute between an interconnection customer and a transmission provider) and not to disputes with a party external to the region of the interconnection request, we find that Salt River's concerns are better addressed in a proceeding dedicated to issues involving affected systems, such as the aforementioned technical conference.[231]

137. In response to Indicated NYTOs', ISO–NE's, NYISO's, PJM's, MISO's, MidAmerican's, and CAISO's contentions about the existing dispute resolution procedures in their specific regions, we remind these parties that we will not evaluate a particular transmission provider's tariff provisions until it submits its compliance filing. We note, however, that a transmission provider that has only adopted the generator interconnection dispute resolution procedures imposed by Order No. 2003, namely the section 13.5 arbitration process, would not comply with the non-binding dispute resolution requirements of this final action, as set forth in the new section 13.5.5 above.

138. In response to MISO's request for clarifications, we find that a transmission provider does not need to create dispute resolution procedures that only apply to generator interconnection disputes, so long as the transmission provider provides a dispute resolution process that a party, including the interconnection customer, may seek unilaterally. In response to the MISO TOs' request for clarification, we find that their concern that a party will use the dispute resolution process to gain additional time to meet LGIP or LGIA obligations to be speculative, and, to the extent that this is a valid concern, it would apply equally to disputing interconnection customers and transmission providers or owners. In addition, both the dispute resolution process created here and the section 13.5 arbitration process impose costs on the disputing parties, which should mitigate concerns about potential misuse of the process.

139. We find that the new dispute resolution provisions in section 13.5.5 of the *pro forma* LGIP adopted by this final action do not trump the existing language in section 13.5 of the *pro forma* LGIP. We establish the new non-binding dispute resolution process here primarily to address the concern that dispute resolution is unavailable where there is no mutual agreement to pursue a section 13.5 arbitration. This final action thus provides a dispute resolution avenue that one party may seek unilaterally. Disputing parties are free to determine which process they prefer, and disputing parties may pursue the non-binding process even if they have not previously sought a section 13.5 arbitration. Additionally, participation in the new section 13.5.5 process does not preclude the parties from pursuing arbitration after the conclusion of another process if they seek a binding result. Also, pursuing either process does not prevent either party from availing itself of the complaint process pursuant to section 206 of the FPA. Furthermore, we note that we do not restrict a party's ability to cite the record developed in the arbitration process described in section 13.5 of the *pro forma* LGIP in a complaint proceeding pursuant to section 206 of the FPA, and we see no reason to impose such a restriction for the non-binding dispute resolution provisions adopted in this final action. We note, however, that parties may mutually agree to restrict the use of the record created in a non-binding dispute resolution process.

c. Extending the Dispute Resolution Proposal beyond RTOs/ISOs

i. Comments

140. Generation Developers, IECA, Competitive Suppliers, and TDU Systems argue that the Commission should also reform dispute resolution procedures outside of RTOs/ISOs.[232] For example, Generation Developers state that problems that interconnection customers encounter pertaining to dispute resolution ''are also encountered with a Transmission Provider outside of [an RTO/ISO].'' [233] TDU Systems state that they have ''found the current dispute resolution processes [outside of RTOs/ISOs] to be inadequate,'' because, for example, in regions that lack an RTO/ISO-like entity ''to assist in resolving disputes, the waiting period to access dispute

[231] Initial and reply comments on the technical conference in Docket No. AD18–8–000 are due within 30 days and 45 days, respectively, from the date of the issuance of the Notice Inviting Post-Technical Conference Comments in that proceeding, which issued concurrently with this final action.

[232] Generation Developers 2017 Comments at 18–20; IECA 2017 Comments at 3; Competitive Suppliers 2017 Comments at 6; TDU Systems 2017 Comments at 11.

[233] Generation Developers 2017 Comment at 20.

resolutions is too long, and parties to disputes should have options beyond mutually-agreed upon arbitration.'' [234] In non-RTO/ISO regions, AFPA recommends the establishment of a separate Commission dispute resolution service with expertise on these matters.[235] Competitive Suppliers believe that the rules and protocols in organized markets are superior to those outside organized markets and encourage the Commission to uphold consistency and comparability unless there is an adequate reason to allow regional variation.[236] MISO asserts that there is no basis to conclude that the procedures currently used in RTOs/ISOs are inferior to the procedures used by other transmission providers.[237]

141. TVA believes that the current dispute resolution process for non-RTOs/ISOs is sufficient, under both the *pro forma* LGIP and the *pro forma* SGIP.[238] If the Commission decides that any final action should align more closely to the parameters of the NOPR, Competitive Suppliers argue that the proposed revisions to the dispute resolution changes should apply to all transmission owners and providers offering interconnection service.[239]

ii. Commission Determination

142. In this final action, we adopt the aforementioned *pro forma* LGIP language, which imposes the revised dispute resolution requirements on both RTOs/ISOs and non-RTOs/ISOs. As noted above, the Commission sought comment on the need for dispute resolution reform outside of RTOs/ISOs. We agree with commenters that there is a need for dispute resolution reform outside of RTO/ISOs.[240] Outside of the RTOs/ISOs, the transmission provider and transmission owner are the same entity. Consequently, outside of RTOs/ISOs and without the presence of an independent RTO/ISO as a third party, it may be more difficult for the transmission provider and the interconnection customer to reach mutual agreement to seek dispute resolution. Under such circumstances, when a dispute arises, the process would benefit from a neutral decision-maker that can evaluate the dispute without an interest in the outcome. For this reason, the procedures adopted here apply generically, in both RTO/ISO regions and non-RTO/ISO regions. Finally, we have opted to include new *pro forma* LGIP section 13.5.5 in the *pro forma* LGIP instead of the Code of Federal Regulations, so that all generically applicable generator interconnection dispute resolution requirements are in the same place.

d. RTO/ISO Neutrality

i. Comments

143. Multiple commenters question the neutrality of RTO/ISO staff or oppose allowing RTO/ISO staff as dispute resolution neutral decision-makers.[241] AWEA, for instance, notes that RTOs/ISOs rely upon transmission owner assistance (for modeling and design information) and transmission owner membership (for financial support) and that, on occasion, RTOs/ISOs have refused to participate in dispute resolution.[242] Another option that AWEA and NextEra suggest is for RTOs/ISOs to contract for staff from a disinterested RTO/ISO to oversee their dispute resolution.[243] NextEra suggests adding a draft tariff provision that would allow for this arrangement.[244]

144. AWEA also states that market monitors have the necessary independence to oversee dispute resolution, but they already have significant responsibilities and may lack relevant interconnection process experience.[245] EEI argues that having an RTO/ISO serve as a decision-maker in a dispute could potentially challenge its independence and neutrality.[246] Similarly, Indicated NYTOs argue that entities like NYISO would be reluctant to resolve such disputes by making judgments in favor of either the developer or the transmission owner.[247] ISO–NE and NEPOOL explain that ISO–NE fulfills the role of transmission provider for many functions but that participating transmission owners serve in this role when providing cost estimates for network upgrades.[248] ISO–NE and NEPOOL also state that, given ISO–NE's transmission provider role, disputes can arise between ISO–NE and the interconnection customer or the transmission owner, and it would therefore be inappropriate to require ISO–NE to decide these disputes.[249] NEPOOL also argues that having RTO/ISO staff resolve disputes could impair the RTO's/ISO's performance of its core duties.[250] NextEra suggests that RTO/ISO staff serving in this role would need comparable status to the RTO's/ISO's independent market monitoring staff.[251] TDU Systems state that RTO/ISO staff are likely adequately independent from all market participants and able to serve as a useful resource for resolving disputes.[252] AVANGRID states that, while RTO/ISO staff are often ''very good'' at preventing and resolving disputes as they arise, they should not ''be put in the position of determining the outcome of formal dispute resolution processes.'' [253]

145. Generation Developers and NextEra argue that subcontractors could serve as neutral parties.[254] AWEA also argues that the NOPR's neutrality standard may be too vague and that subcontractor vetting may resolve this concern.[255] Generation Developers state that the RTO/ISO should maintain a long-term contract for dispute services to ensure that the subcontractor is neutral and not beholden to the RTO/ISO. Generation Developers propose that the RTO/ISO should have a list of subcontractors with substantial experience in interconnection and modeling matters that are available to serve as neutral third-parties, and that all RTO/ISO members should be allowed to propose to use the listed subcontractors. Generation Developers propose that subcontractor fees should be borne by interconnection customers to ensure that there is no tendency for a subcontractor to be beholden to the RTO/ISO.

146. Conversely, MISO contends that there is no need for independent staff or subcontractors and that the proposed requirements could increase RTO/ISO bureaucratization and impose additional costs.[256] MISO states that the proposed independence requirements are unnecessary, as RTOs/ISOs are already subject to stringent independence requirements. MISO asserts that there has been no showing that the existing conflict of interest requirements are inadequate for purposes of dispute resolution. MISO proposes that the Commission permit RTOs/ISOs to rely

[234] TDU Systems 2017 Comments at 12.

[235] AFPA 2017 Comments at 8.

[236] Competitive Suppliers 2017 Comments at 5.

[237] MISO 2017 Comments at 17.

[238] TVA 2017 Comments at 6.

[239] Competitive Suppliers 2017 Comments at 6.

[240] Competitive Suppliers 2017 Comments at 5; MISO 2017 Comments at 17.

[241] FTC 2017 Comments at 11; AWEA 2017 Comments at 23–24; Generation Developers 2017 Comments at 18; EDP 2017 Comments at 5; NextEra 2017 Comments at 15; AVANGRID 2017 Comments at 18.

[242] AWEA 2017 Comments at 22–23.

[243] *Id.* at 23; NextEra 2017 Comments at 20.

[244] *Id.* at 17.

[245] AWEA 2017 Comments at 24.

[246] EEI 2017 Comments at 28.

[247] Indicated NYTOs 2017 Comments at 14.

[248] ISO–NE 2017 Comments at 18–19; NEPOOL 2017 Comments at 8.

[249] ISO–NE 2017 Comments at 19.

[250] NEPOOL 2017 Comments at 8.

[251] NextEra 2017 Comments at 15.

[252] TDU Systems 2017 Comments at 11.

[253] AVANGRID 2017 Comments at 18.

[254] Generation Developers 2017 Comments at 18; NextEra 2017 Comments at 15–16; *see also* AVANGRID 2017 Comments at 18.

[255] AWEA 2017 Comments at 23.

[256] MISO 2017 Comments at 19.

on their existing standards of conduct and similar requirements for their dispute resolution staff.[257]

147. MISO states that the requirement that RTO/ISO dispute resolution staff not have current or past substantial business or financial relationships with any disputing party is too broad and burdensome and that the pool of suitable candidates to perform these tasks is limited. If the Commission adopts this requirement, MISO asks the Commission to limit the prohibition to a reasonable time period (*e.g.,* three years).[258]

148. NYISO is concerned about instituting a framework that would outsource responsibility to subcontractors.[259] It states that section 30.13.2 of its LGIP provides that, even when NYISO uses subcontractors, it must comply with the tariff's requirements. Therefore, NYISO objects to any process that would allow a subcontractor's determination—for example, regarding appropriate network upgrades—to override NYISO's judgment concerning tariff requirements and applicable reliability standards.[260]

ii. Commission Determination

149. With few exceptions, the commenters voice strong opposition to having RTO/ISO staff serve as decision-makers in dispute resolution proceedings. Some commenters argue that RTO/ISO staff may be unable to demonstrate independence in such a process. Conversely, Indicated NYTOs argue that requiring RTO/ISO staff to act as decision-makers would compromise their independence. In response to these concerns, and to address the issue where the transmission owner is the transmission provider outside of RTOs/ISOs, the LGIP provision adopted in this final action requires transmission providers to appoint an independent third party to preside over dispute resolution proceedings.

150. In response to Generation Developers' contention that interconnection customers should bear the fees for the decision-maker, we find that it makes little sense to have one disputing party bear all costs when there are multiple parties involved in the dispute. For this reason, the newly adopted provision in section 13.5.5 of the *pro forma* LGIP requires the same cost division as that established for the arbitration process described in section 13.5 of the *pro forma* LGIP. Thus, the cost of the decision-maker shall be divided equally among each party to the dispute. Each individual party to a dispute will be responsible for its own costs incurred during the process.

151. The final action requires that the assigned decision-maker have no ''current or past substantial business or financial relationships with either party.'' We note that this standard is identical to the neutrality standard proposed in the NOPR and to the one established for arbitrators in section 13.5 of the *pro forma* LGIP. While MISO argues that this standard would limit the pool of eligible participants, we read MISO's comments to pertain to the NOPR proposal, which required RTOs/ISOs to have RTO/ISO staff serve as decision-makers. For this reason, the neutrality standard adopted in this final action will not be too burdensome, in light of the changes from the NOPR.

152. With regard to NYISO's concern about ''outsourcing'' responsibility to subcontractors, we note that the newly created process, like the arbitration process described in section 13.5 of the *pro forma* LGIP, limits a decision-maker's authority so that it may only ''interpret and apply the provisions of the LGIA and LGIP.'' The subcontractor would therefore have no ability to alter NYISO's existing responsibilities.

e. Binding Nature of the Proposal

i. Comments

153. AWEA indicates that, due to neutrality issues that are likely to remain, dispute resolution should be non-binding.[261] Similarly, NextEra argues that it would not be appropriate for this ''expeditious input'' to be binding on the parties and cause them to lose rights under sections 205 or 206 of the FPA.[262] NextEra also asserts that if the expedited dispute resolution were binding, there would be too much risk involved.[263] NextEra views the process as similar to ''input from a subject matter expert'' rather than any form of litigation.[264]

ii. Commission Determination

154. In this final action, we adopt a non-binding dispute resolution process. The *pro forma* LGIP provisions adopted in this final action will be an alternative to, and not a replacement of, the existing arbitration process described in section 13.5 of the *pro forma* LGIP, which is a binding process. Specifically, section 13.5.3 of the *pro forma* LGIP states that ''the decision of the arbitrator(s) shall be final and *binding* upon the Parties, and judgment on the award may be entered in any court having jurisdiction.'' [265] Because the new process adopted in this final action does not require mutual agreement, we agree with AWEA and NextEra that this new process should be non-binding.[266] Although the non-binding nature of the process could dampen its appeal, the process would still require disputing parties to participate in a process presided over by a neutral party. To this point, we agree with NextEra that the process would be beneficial because it would offer an opportunity for ''input from a subject matter expert.'' Additionally, we find that it would be inappropriate for the new, non-binding dispute resolution process to limit a party's ability to pursue a complaint pursuant to section 206 of the FPA.

f. Timing

i. Comments

155. AWEA strongly supports the Commission's proposal to require the RTO/ISO-devised dispute resolution procedures to account for the interconnection process's time sensitivity.[267] Generation Developers argue that the proposed regulation fails to meaningfully address time sensitivity and contends that the process could be resolved within 30 days of initiation.[268] FTC argues that the proposed requirement that RTOs/ISOs account for the time sensitivity of the generator interconnection process is likely to reduce a transmission provider's ability to delay interconnection dispute resolution.[269] AVANGRID comments that any dispute resolution procedures must not result in ''significant delay'' of the generator interconnection process.[270]

156. TDU Systems state that, for non-RTO/ISO regions, it would be appropriate to reduce to two weeks the thirty-day period for parties to resolve disputes once a formal notice of the dispute has been provided. TDU Systems argue that nothing prevents the parties from continuing to attempt to

[257] *Id.* at 18–19.

[258] *Id.* at 19.

[259] NYISO 2017 Comments at 18.

[260] *Id.*

[261] AWEA 2017 Comments at 24.

[262] NextEra 2017 Comments at 16.

[263] *Id.*

[264] *Id.*

[265] *Pro forma* LGIP Section 13.5.3 (emphasis added).

[266] No other commenters discussed this issue. Although we are adopting a non-binding process in the *pro forma* LGIP, transmission providers that have binding dispute resolution processes that, on compliance, are able to demonstrate that their processes otherwise satisfactorily adhere to the tenets of this final action (*i.e.,* that they do not require mutual agreement) may qualify for a variation from the *pro forma* LGIP provision adopted in this final action.

[267] AWEA 2017 Comments at 24–25.

[268] General Developers 2017 Comments at 19.

[269] FTC 2017 Comments at 10. *See* NOPR, FERC Stats. & Regs. ¶ 32,719 at P 87.

[270] AVANGRID 2017 Comments at 18.

resolve the dispute informally once other procedures are initiated, and given the time sensitivity of these issues, a shorter timeframe would be less prejudicial to the interconnection customer.[271]

157. TDU Systems state that the rules in section 13.5 of the *pro forma* LGIP and article 27 of the *pro forma* LGIA provide for a thirty-day period in which the parties will attempt to resolve a dispute, followed by the right for the parties to mutually agree to submit the dispute to arbitration; however, TDU Systems contend that the selection of the arbitrator can take up to thirty days, with the arbitration decision to be rendered within ninety days of appointment. TDU Systems note that, in contrast, article 10 of the SGIA and section 4.2 of the SGIP provide that if a dispute has not been resolved within two business days after receipt of a notice of the dispute, either party may contact FERC's Dispute Resolution Service for assistance in resolving the dispute.

158. TDU Systems ask the Commission to adopt fast-track complaint procedures for complaints that parties cannot resolve or do not mutually agree to arbitrate. It recommends a fixed period of time (for example, sixty days) from complaint filing to Commission order issuance. TDU Systems recognizes that even fast-track procedures, which it estimates could result in order issuance twenty days from the filing of an answer, might still be too long for interconnection disputes and that there is no guarantee of fast-track procedures. TDU Systems ask the Commission to specify that interconnection complaints are entitled to fast-track complaint procedures if the Commission does not adopt a separate streamlined interconnection process.[272]

ii. Commission Determination

159. The *pro forma* LGIP provision adopted in this final action requires the appointment of a decision-maker within thirty days of the receipt of a request for non-binding dispute resolution and requires a decision within sixty days of the decision-maker's appointment. We note that this process would require a decision thirty days sooner than the arbitration process described in section 13.5 of the *pro forma* LGIP would require. While the Commission did not propose such a timeline in the NOPR, the Commission did express the view that any new dispute resolution process should ''account for the time sensitivity of the generator interconnection process.'' [273] The timeline adopted here is consistent with this position.

160. We disagree with TDU Systems' position that we should adopt different timing requirements inside and outside RTOs/ISOs, and we instead apply this rule generically. Additionally, while TDU Systems point to the timing requirements in the *pro forma* SGIP dispute resolution process, we note that, as discussed more fully below, we decline to adopt the timing requirements in the *pro forma* SGIP dispute resolution process for the *pro forma* LGIP. Finally, we disagree with TDU Systems' request that we should require fast-track complaint procedures for generator interconnection disputes. Because of the fact-specific nature of every complaint, we do not support the request to have fast-track complaint procedure for one category of disputes.

g. Mutual Agreement

i. Comments

161. Multiple commenters support the elimination of the mutual agreement requirement.[274] MISO states that, while it does not oppose this requirement, in MISO, parties to a generator interconnection dispute can already commence dispute resolution unilaterally. MISO further notes that, while a disputing party may exit its procedures at certain designated points to pursue the Commission complaint process or other remedies, no party can veto another party's ability to pursue dispute resolution under the procedures.[275] Similarly, PG&E believes this reform is not applicable to CAISO because CAISO allows any disputing party to trigger dispute resolution and does not require agreement from a transmission owner or CAISO.[276]

162. EEI questions who should bear the costs for such unilateral activity or how such costs would be recovered.[277] EEI states that the Commission has not explained how unilateral dispute resolution would work because it implies a non-consensual process, which is more akin to an adjudication.[278] EEI is uncertain as to what authority an RTO/ISO would or should have in this process and whether this proposal is intended to limit a transmission provider's or interconnection customer's right to seek judicial relief.[279]

163. ISO–NE and EEI contend that, if the requirement for mutual agreement for alternative resolution methods is removed, unnecessary delays and uncertainties may result.[280] ISO–NE argues that its current dispute resolution process provides a disputing party with recourse and minimizes the potential for unnecessary delays and uncertainty by allowing for dispute resolution through a section 206 complaint filed with the Commission.[281] As a result, ISO–NE states that the current *pro forma* construct avoids disagreements being submitted to arbitration, which would consume significant ISO–NE resources.[282]

ii. Commission Determination

164. The provision adopted in this final action requires that transmission providers allow disputing parties to unilaterally seek dispute resolution procedures. In response to MISO and PG&E, we again note that, to the extent MISO and CAISO believe that they comply with the adopted *pro forma* LGIP provisions, they may explain their positions in their compliance filings.

165. We also clarify for EEI that, although each party will bear its own costs to participate in the dispute resolution process, the cost of the decision-maker will be split equally among the disputing parties. Furthermore, we clarify for EEI that the process adopted by this final action, unlike the arbitration process described in section 13.5 of the *pro forma* LGIP, is non-binding and thus does not limit a party's right to seek judicial relief.

166. In response to ISO–NE, we note that its concerns about delays and uncertainty would still be present if disputing participants choose to participate in the existing arbitration process described in section 13.5 of the *pro forma* LGIP. If transmission providers have agreed to participate in an arbitration process pursuant to section 13.5, other interconnection customers, including those in the same cluster as the disputing interconnection customer would experience a delay. Furthermore, as discussed above, multiple generation developers have alleged that the section 13.5 arbitration process is effectively unavailable to interconnection customers because

[271] TDU Systems 2017 Comments at 12.

[272] *Id.* at 13.

[273] NOPR, FERC Stats. & Regs. ¶ 32,719 at P 84.

[274] Generation Developers 2017 Comments at 16; EDP 2017 Comments at 5; Invenergy 2017 Comments at 15–16; FTC 2017 Comments at 10; NEPOOL 2017 Comments at 8; NextEra 2017 Comments at 15; TDU Systems 2017 Comments at 11; AVANGRID 2017 Comments at 18.

[275] MISO 2017 Comments at 17–18.

[276] PG&E 2017 Comments at 5 (citing CAISO Tariff, eTariff, FERC Electric Tariff, OATT, app. DD, Section 15.5 (1.0.0)).

[277] EEI 2017 Comments at 28.

[278] *Id.* at 27.

[279] *Id.*

[280] ISO–NE 2017 Comments at 19; EEI 2017 Comments at 27.

[281] ISO–NE 2017 Comments at 19–20.

[282] *Id.* at 20–21.

transmission providers are disinclined to participate. It will benefit the interconnection process for there to be an available avenue of dispute resolution to resolve a genuine matter of dispute.

167. Additionally, in response to ISO–NE's argument that it avoids delay by ''allowing for'' a section 206 complaint, we answer that the *pro forma* LGIP already allows parties to file a complaint pursuant to section 206 of the FPA, and this option is still available even if the disputing parties mutually agree to the arbitration process described in section 13.5 of the *pro forma* LGIP.[283] Thus, we disagree with ISO–NE that ''allowing for'' the process pursuant to section 206 is sufficient to address our concerns with the status quo. The dispute resolution provisions adopted in this final action serve as an alternative to both the section 13.5 arbitration process and the FPA section 206 process. With regard to ISO–NE's suggestion that the NOPR proposal would consume significant ISO–NE resources, we note that the final action distributes the costs of the decision-maker overseeing the dispute resolution process equally among the parties to the dispute. Thus, even though transmission providers must allow for a dispute resolution process that a party may seek unilaterally, a transmission provider would only be responsible for costs if it is a party to the dispute. In such a scenario, the transmission provider would be responsible ''for its own costs incurred'' during the process (*i.e.,* the cost to represent its position in the section 13.5.5 dispute resolution process) and the cost of the decision-maker ''divided equally among each Party to the dispute.'' Thus, if a transmission provider is not a party to a dispute, it would not be ultimately responsible for any costs related to the dispute resolution process. If the transmission provider is a party to a three party dispute, it would be responsible for ''its own costs incurred'' and one-third of the cost of the decision-maker.

h. SGIP DRS Process

i. Comments

168. Competitive Suppliers argue that the Commission should generically adopt the dispute resolution provisions of the *pro forma* SGIP, which allow disputing parties to contact DRS.[284] Similarly, ISO–NE contends that, if the Commission determines that there is a need to revise the existing *pro forma* LGIP and *pro forma* LGIA dispute resolution provisions, then the Commission should adopt the same approach provided for in the *pro forma* SGIP.[285] TDU Systems also contend that parties in non-RTO/ISO regions with disputes arising under the LGIP and LGIA, like parties to the *pro forma* SGIA and *pro forma* SGIP, should have the unilateral ability to seek DRS' assistance.[286] For non-RTO/ISO regions, SEIA requests that the Commission clarify that DRS is available to resolve interconnection disputes and will abide by the same general structures as those proposed in the NOPR.[287]

ii. Commission Determination

169. In the NOPR, the Commission sought comment on ''the appropriateness of adopting procedures similar to those outlined in the *pro forma* SGIP.'' [288] The process described in section 4.2 of the *pro forma* SGIP allows parties to contact DRS for assistance in resolving an interconnection dispute. Section 4.2.4 of the *pro forma* SGIP states that DRS will assist in resolving a dispute or in selecting an appropriate dispute resolution venue. Additionally, section 4.2.6 of the *pro forma* SGIP states that if neither party elects to contact DRS or if the attempted dispute resolution fails, ''either Party may exercise whatever rights and remedies it may have in equity or law consistent with the terms of these procedures.''

170. In response to the Commission's request for comments, only Competitive Suppliers and ISO–NE commented favorably in response to this suggestion. For this reason, we decline to take action to adopt dispute resolution procedures similar to those in the *pro forma* SGIP. Nonetheless, nothing in this final action precludes disputing parties from contacting DRS if they wish to participate in dispute resolution through that avenue.

171. In response to SEIA, we note that, consistent with Order No. 2003, DRS is always available to assist parties in resolving generator interconnection disputes. We note, however, that the new requirements imposed by this final action apply only to the non-binding dispute resolution process established through new section 13.5.5 in the *pro forma* LGIP, which is a non-DRS process.

5. Capping Costs for Network Upgrades

a. NOPR Request for Comments

172. As part of the interconnection feasibility study and system impact study, the *pro forma* LGIP requires that transmission providers provide a good faith estimate of the cost of interconnection facilities and network upgrades needed to accommodate an interconnection customer's requested level of interconnection service.[289] The transmission provider includes this cost estimate with the facilities study results, typically with a stated accuracy margin within 10 to 20 percent of the estimate.[290] After completion of the construction of the transmission provider's interconnection facilities and network upgrades needed to interconnect a generating facility, the transmission provider conducts a true-up to assess the final cost of construction to the interconnection customer. The transmission provider provides a final invoice to the interconnection customer that details variations between actual and estimated costs. Overpayment by the interconnection customer results in a refund to the interconnection customer, or a surcharge in case of an underpayment.[291]

173. The Commission sought comment on whether it should revise the *pro forma* LGIP and *pro forma* LGIA to provide for a cost cap that would limit an interconnection customer's network upgrade costs at the higher bound of a transmission provider's cost estimate plus a stated accuracy margin following a certain stage in the interconnection study process. Such a cap could permit the interconnection customer to assume costs that exceed the cap under limited circumstances, such as where there is demonstrable proof that the cause of a cost increase is beyond the transmission provider's control.[292] The cost cap could also specify which party or parties would assume network upgrade costs in excess of the cap. The Commission further sought comment on how to minimize potential cost shifts to other parties if such a cost cap is imposed. The Commission also sought comments on alternative proposals, or additional steps that the Commission could take, to provide more cost certainty to

[283] Order No. 2003, FERC Stats. & Regs. ¶ 31,146 at P 290 (stating that invocation of the arbitration process does not ''circumscribe[] the Parties' right to avail themselves of the Commission's complaint process'').

[284] Competitive Suppliers 2017 Comments at 6.

[285] ISO–NE 2017 Comments at 19.

[286] TDU Systems 2017 Comments at 11–13.

[287] SEIA 2017 Comments at 14–15. We assume SEIA is referring to DRS.

[288] NOPR, FERC Stats. & Regs. ¶ 32,719 at P 86.

[289] *See, e.g., pro forma* LGIP Sections 6.2 and 7.3.

[290] *Pro forma* LGIP Section 8.3.

[291] *Pro forma* LGIA Art. 12.

[292] NOPR, FERC Stats. & Regs. ¶ 32,719 at P 95.

interconnection customers during the interconnection study process.[293]

b. Comments

174. A minority of commenters,[294] primarily renewable generation developers and transmission owners in CAISO, support the idea of network upgrade cost caps. AWEA notes that interconnection customers often pay costs that exceed the upper bound of a transmission provider's estimates, and this can significantly disrupt an interconnection customer's business model.[295] AWEA argues that a cost cap would protect interconnection customers from cost overruns, allow them to accurately assess risk, and reduce the number of late-stage withdrawals due to increased cost certainty, which in turn would produce more accurate cost estimates.[296] AWEA, Generation Developers, and NextEra assert that the imposition of a cost cap should incentivize more accurate cost estimates, and AWEA contends that cost shifts should be minimal if the transmission provider estimates costs more accurately.[297]

175. Generation Developers argue that if there is an overage from the cost estimate, it is just and reasonable to socialize that overage. Generation Developers acknowledge that this is a variation from strict ''but for'' interconnection policy but assert that the variation is justified because all users of the transmission network receive benefits from the interconnection customer's network upgrades.

176. APS, AVANGRID, Bonneville, EDP, Generation Developers, Invenergy, MISO TOs, NextEra, NorthWestern, and Tri-State contend that cost caps could lead to inflated cost estimates for network upgrades.[298] On the other hand, commenters that support cost caps argue that increased cost estimates can either be addressed or are a reasonable trade-off for implementing a cost cap.[299]

177. CAISO states that, while cost caps come with some risk, they allow generators to have clear demarcations for their financial responsibilities going forward, which CAISO believes mitigates risk and financial uncertainty when generators submit proposals to provide capacity and later seek financing for construction.[300]

178. Most responsive commenters [301] oppose revising the *pro forma* LGIP and *pro forma* LGIA to impose network upgrade cost caps. Several opposing commenters argue that cost caps would unfairly shift network upgrade costs from interconnection customers to load, transmission customers, or other interconnection customers that neither benefit from the generation nor caused the need for the upgrades.[302] Several commenters also assert that cost caps would violate the Commission's ''but for'' and cost causation policies for the assignment of interconnection network upgrade costs.[303] Duke, EEI, and NorthWestern contend that if the Commission establishes a cost cap and requires that transmission providers assume any excess costs, transmission providers could face challenges of whether such costs are prudent transmission investments.[304] EEI, Non-Profit Utility Trade Associations, and TAPS argue that implementing cost caps will likely result in more frequent and contentious litigation.[305]

179. Modesto argues that because smaller entities do not frequently estimate interconnection facility and network upgrade costs, their cost estimates are likely susceptible to greater variability, which could lead to a greater inaccuracy. Modesto asserts that smaller entities essentially would be penalized through cost caps on network upgrades.[306]

180. Several commenters contend that cost caps are unwarranted because many of the variables that affect cost estimates are outside the transmission provider's control and are based on the best data available at the time.[307] AFPA argues that cost caps remove risk from interconnection customers and may remove the incentive for interconnection customers to mitigate cost overruns in network upgrades.[308] IECA expresses concern that industrial consumers will have to pay for cost overruns resulting from a cost cap and that cost caps would encourage developers and utilities to be equally complacent about cost overruns.[309]

181. ITC, MISO, Non-Profit Utility Trade Associations, and Xcel state that well-defined milestones and milestone payments are preferable to a cost cap.[310]

182. NYISO and Indicated NYTOs state that NYISO already has a process in place in its tariff to allocate actual costs that exceed cost estimates.[311] Indicated NYTOs contend that NYISO's provisions encourage interconnection

[293] *Id.*

[294] These commenters include: AWEA 2017 Comments at 26; CAISO 2017 Comments at 13; First Solar 2017 Comments at 4; Joint Renewable Parties 2017 Comments at 3; Generation Developers 2017 Comments at 22–23; EDP 2017 Comments at 5–6; NextEra 2017 Comments at 17' and PG&E 2017 Comments at 5.

[295] AWEA 2017 Comments at 25.

[296] *Id.* at 25–26.

[297] *Id.* at 27; Generation Developers 2017 Comments at 23–24; NextEra 2017 Comments at 17–19.

[298] APS 2017 Comments at 3; AVANGRID 2017 Comments at 20; Bonneville 2017 Comments at 3; EDP 2017 Comments at 5; Generation Developers 2017 Comments at 24; Invenergy 2017 Comments at 9; MISO TOs 2017 Comments at 10–11; NextEra 2017 Comments at 17; NorthWestern 2017 Comments at 4; Tri-State 2017 Comments at 5.

[299] Generation Developers 2017 Comments at 24, AWEA 2017 Comments at 27, and NextEra 2017 Comments at 18.

[300] CAISO 2017 Comments at 13.

[301] Alliant 2017 Comments at 5; AEP 2017 Comments at 3; AFPA 2017 Comments at 5; AVANGRID 2017 Comments at 19; Bonneville 2017 Comments at 3; Competitive Suppliers 2017 Comments at 7; Duke 2017 Comments at 7; EEI 2017 Comments at 28; ELCON 2017 Comments at 2; Eversource 2017 Comments at 12; Imperial 2017 Comments at 18; IECA2017 Comments at 2; ISO–NE 2017 Comments at 21; ITC 2017 Comments at 12–13; MidAmerican 2017 Comments at 11–12; MISO 2017 Comments at 21; MISO TOs 2017 Comments at 7; Modesto 2017 Comments at 18; NEPOOL 2017 Comments at 9; Non-Profit Utility Trade Associations 2017 Comments at 6; NorthWestern 2017 Comments at 4; NYISO 2017 Comments at 19; PJM 2017 Comments at 9; PSEG/PPL 2017 Comments at 3; Salt River 2017 Comments at 9; Southern 2017 Comments at 15–16; TAPS 2017 Comments at 3; TDU Systems 2017 Comments at 14–16; Tri-State 2017 Comments at 5; TVA 2017 Comments at 6–7; Xcel 2017 Comments at 11.

[302] Alliant 2017 Comments at 6; AEP 2017 Comments at 3; Duke 2017 Comments at 7; EEI 2017 Comments at 29; ELCON 2017 Comments at 2,5; Idaho Power 2017 Comments at 2–3; Imperial 2017 Comments at 19; IECA 2017 Comments at 2; ISO–NE 2017 Comments at 22; MidAmerican 2017 Comments at 11–12; MISO 2017 Comments at 21; MISO TOs 2017 Comments at 7; Modesto 2017 Comments at 19; Non-Profit Utility Trade Associations 2017 Comments at 6; NorthWestern 2017 Comments at 4; PJM 2017 Comments at 10; PSEG/PPL 2017 Comments at 5; Salt River 2017 Comments at 9; Southern 2017 Comments at 15–16; TAPS 2017 Comments at 5; TDU Systems 2017 Comments at 14–16; TVA 2017 Comments at 6–7.

[303] AEP 2017 Comments at 5; AVANGRID 2017 Comments at 20; EEI 2017 Comments at 28–29; ITC 2017 Comments at 12–13; MISO 2017 Comments at 21; MISO TOs 2017 Comments at 7; PJM 2017 Comments at 9–10; PSEG/PPL 2017 Comments at 5; Salt River 2017 Comments at 9; Southern 2017 Comments at 15–16; TAPS 2017 Comments at 6; TDU Systems 2017 Comments at 14–16; TVA 2017 Comments at 6–7.

[304] Duke 2017 Comments at 7–8; EEI 2017 Comments at 29–30; NorthWestern 2017 Comments at 4.

[305] EEI 2017 Comments at 33–34; Non-Profit Utility Trade Associations 2017 Comments at 11; TAPS 2017 Comments at 7.

[306] Modesto 2017 Comments at 19–20.

[307] AEP 2017 Comments at 3; Duke 2017 Comments at 7; EEI 2017 Comments at 30–32; ITC 2017 Comments at 14–15; MidAmerican 2017 Comments at 12; MISO 2017 Comments at 21; MISO TOs 2017 Comments at 10–11; PSEG/PPL 2017 Comments at 5; Salt River 2017 Comments at 9; Southern 2017 Comments at 16; Tri-State 2017 Comments at 5.

[308] AFPA 2017 Comments at 9.

[309] IECA 2017 Comments at 2.

[310] ITC 2017 Comments at 15; MISO 2017 Comments at 22–23; Non-Profit Utility Trade Associations 2017 Comments at 1–2, 4, 10–11; Xcel 2017 Comments at 12.

[311] NYISO 2017 Comments at 19; Indicated NYTOs 2017 Comments at 5.

customers to efficiently locate their generating facility and strike a reasonable balance between providing certainty to interconnection customers and minimizing the imposition of unnecessary costs to load.[312] NYISO asserts that adoption of bright line cost caps would likely require more detailed studies, cost estimates, and increased cost and time, contrary to the stated principles of the NOPR.[313] NEPOOL notes that New England resolved its disputes over cost allocation for interconnections and regional transmission upgrades well over a decade ago through the interconnection cost allocation method in the ISO–NE OATT.[314]

183. Salt River and TVA believe that it would be inappropriate for the Commission to attempt to impose a cap on the costs that can be collected by a not-for-profit governmental utility, via the reciprocity condition or otherwise.[315]

184. CAISO states that its system of cost caps may be more difficult to implement outside of regions where ratepayers ultimately pay for generator interconnection-driven network upgrades.[316] CAISO notes that, in CAISO, the interconnection customer only provides the initial financing for its network upgrades.[317] CAISO states that, upon reaching commercial operation, those costs are reimbursed by the transmission owner and included in that transmission owner's transmission revenue requirement paid by ratepayers.[318]

185. AFPA, ELCON, ITC, SEIA, and Invenergy assert that policies other than cost caps will provide greater downward pressure on network upgrade costs including improving cost transparency, transmission planning that anticipates future generation needs, and aligning interconnection procedures with resource procurement processes.[319]

186. Eversource suggests that the Commission instead explore the transmission provider's cost estimation process.[320] Eversource suggests that, to improve cost estimates, the Commission should require interconnection customers to use the currently optional facilities study in the LGIP.[321]

187. Xcel recommends that, instead of imposing cost caps, the Commission should reevaluate its policy discussed in Order No. 2003 and implement regional variations that allow transmission costs to be assigned to the interconnection customer after the execution of an LGIA.[322] Xcel further recommends limiting the interconnection customer's cost responsibility to the specific facilities identified in the signed LGIA, rather than allowing the RTO/ISO, as transmission provider, to later modify the list of required facilities. Xcel asserts that if facilities are identified after the interconnection customer and transmission provider sign an LGIA, the costs of those facilities should be recovered from transmission customers through the transmission expansion cost allocation processes in the RTO/ISO tariff. Xcel believes that the Commission should allow regions to determine if or when such costs are allocated either locally or regionally to transmission customers.[323]

188. TAPS opposes a generic rule establishing a cost cap and also opposes a generic rule that bars all cost caps.[324] Duke states that transmission providers should be able to voluntarily adopt cost caps if done so through stakeholder processes.[325]

c. Commission Determination

189. In this final action, we decline to take any action related to capping costs for network upgrades. We find that there is insufficient evidence in the record to support cost caps as a preferred solution to reducing variances from cost estimates and providing greater cost certainty to interconnection customers. Therefore, we decline to propose revisions to the *pro forma* LGIP and *pro forma* LGIA to institute a cap on the cost of network upgrades required for interconnection. However, as suggested by Duke, we will not bar a transmission provider from proposing to establish cost caps for network upgrade costs within its footprint by submitting a separate filing pursuant to section 205 of the FPA.

190. We recognize the value of providing more accurate cost estimates to interconnection customers of the network upgrades needed to interconnect their generating facilities. Smaller deviations between the cost estimate and the final costs of the network upgrades would reduce risk and uncertainty faced by the interconnection customer. We note that other actions in this final action, including the reforms on transparency regarding study models and assumptions and identification and definition of contingent facilities, could contribute to improved accuracy of cost estimates for network upgrades. Additionally, we understand that greater cost certainty, where reasonably achievable without creating overly onerous requirements, could reduce queue withdrawals and their cascading effects on other projects within the queue. We encourage transmission providers and stakeholders to continue to work together to improve the cost estimation process.

B. Promoting More Informed Interconnection

191. In the NOPR, the Commission proposed reforms designed to improve interconnection process transparency and provide improved information to benefit all participants in the interconnection process. In addition to the proposed reforms, the Commission sought comment on proposals or additional steps that the Commission could take to improve the resolution of issues that arise when affected systems are impacted by a proposed interconnection.

1. Identification and Definition of Contingent Facilities

a. NOPR Proposal

192. The Commission currently requires transmission providers to identify for interconnection customers contingencies affecting interconnection studies [326] and list applicable contingent facilities in interconnection agreements.[327] In the NOPR, the Commission proposed to revise the *pro forma* LGIP to require transmission providers to detail the methods they use to determine which facilities are contingent facilities. The Commission proposed that a method be transparent and sufficiently detailed to allow interconnection customers to determine why a specific contingent facility is included and how it impacts the interconnection request. The Commission also proposed that

[312] Indicated NYTOs 2017 Comments at 6.

[313] NYISO 2017 Comments at 19.

[314] NEPOOL 2017 Comments at 9.

[315] Salt River 2017 Comments at 10; TVA 2017 Comments at 6–7.

[316] CAISO 2017 Comments at 14.

[317] *Id.*

[318] *Id.*

[319] AFPA 2017 Comments at 5; ELCON 2017 Comments at 5; ELCON 2017 Comments at 5; ITC 2017 Comments at 15; SEIA 2017 Comments at 15; Invenergy 2017 Comments at 9–10.

[320] Eversource 2017 Comments at 13–14.

[321] *Id.* at 15.

[322] Xcel 2017 Comment at 12.

[323] *Id.* at 12–13.

[324] TAPS 2017 Comments at 8.

[325] Duke 2017 Comments at 8.

[326] *Pro forma* LGIP Section 2.3.

[327] Order No. 2003, FERC Stats. & Regs. ¶ 31,146 at P 409 (''[i]f it is apparent to the Parties . . . that contingencies (such as other Interconnection Customers terminating their LGIAs) might affect the financial arrangements, the Parties should include such contingencies in their LGIA and address the effect of such contingencies on their financial obligations'').

transmission providers provide the contingent facility list at the conclusion of the system impact study. The Commission further proposed that the transmission provider should, upon request, provide the estimated network upgrade costs and in-service completion time associated with each identified contingent facility when this information is not commercially sensitive. In particular, the Commission proposed to add a new section 3.8 to the *pro forma* LGIP as follows (with proposed additions in italics):

3.8 Identification of Contingent Facilities

Transmission Provider shall post in this section a method for identifying the Contingent Facilities to be provided to Interconnection Customer at the conclusion of the System Impact Study and included in Interconnection Customer's GIA. The method shall be sufficiently transparent to determine why a specific Contingent Facility was identified and how it relates to the interconnection request. Transmission Provider shall also provide, upon request of the Interconnection Customer, the estimated interconnection facility and/or network upgrade costs and estimated in-service completion time of each identified Contingent Facility when this information is not commercially sensitive.

193. In addition, the Commission proposed to add the following new definition to section 1 of the *pro forma* LGIP (with proposed additions in italics):

Contingent Facilities *shall mean 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 interconnection restudies or reassessments of the network upgrades, costs, or timing.*

194. The Commission also sought further comment on how transmission providers currently identify contingent facilities, as well as additional recommendations to improve the existing approach. Finally, the Commission sought comment on whether the method for determining contingent facilities should be harmonized as much as possible. To this end, the Commission sought comment on the usefulness of requiring transmission providers to include a distribution factor analysis in their methodologies for identifying contingent facilities, and if so, whether a specific distribution factor should be implemented in the *pro forma* LGIP (*e.g.,* a five percent distribution factor).

b. General

i. Comments

195. Most responsive commenters support [328] or do not oppose [329] the proposal to require transmission providers to publish a method for identifying contingent facilities in the LGIP. Several commenters state that the proposal will better inform the interconnection process and may lead to lower costs and fewer withdrawals.[330] AWEA, Invenergy, and EDP cite inconsistent or non-transparent treatment of contingent facilities across regions.[331] Several commenters assert that the proposal will reduce opportunities for undue discrimination and disputes.[332]

196. AWEA and NextEra contend that the proposal will place a minimal burden on transmission providers.[333] ISO–NE comments that the proposal appropriately balances the need for regional flexibility to maintain the existing methods with the need to improve transparency regarding the interconnection process.[334] CAISO states that information on contingent facilities is important to inform an interconnection customer about potential delays that might necessitate renegotiation of the interconnection customer's power purchase agreement. NextEra supports the Commission's guidance that a transmission provider's method to determine contingent facilities be detailed and states that an unverified list of contingent facilities creates uncertainty regarding potential restudies and revised cost responsibility for the interconnection customer.[335]

197. AWEA comments that the interconnection customer should not be financially responsible for any facilities that are not listed among the contingent facilities and that even contingent facilities omitted in error should not be the financial responsibility of the interconnection customer.[336]

198. A minority of responsive commenters oppose the proposal.[337] MISO and Southern request that the Commission permit transmission providers to post the proposed information in their business practice manuals or OASIS-posted business practices rather than in the LGIP, as this information is technical and more suitable for a business practice manual and may need frequent changes to address characteristics of new technologies.[338] Several commenters state that no new procedures are necessary to identify and define contingent facilities.[339]

ii. Commission Determination

199. We adopt the NOPR proposal to add a new section 3.8 to the *pro forma* LGIP requiring transmission providers to publish a method for identifying contingent facilities in their LGIPs subject to clarification as outlined below. Specifically, the Commission adds section 3.8 to the *pro forma* LGIP as follows (with clarifying additions to the language originally proposed in the NOPR in italics):

3.8 Identification of Contingent Facilities

Transmission Provider shall post in this section a method for identifying the Contingent Facilities to be provided to Interconnection Customer at the conclusion of the System Impact Study and included in Interconnection Customer's GIA. The method shall be sufficiently transparent to determine why a specific Contingent Facility was identified and how it relates to the interconnection request. Transmission Provider shall also provide, upon request of the Interconnection Customer, the estimated interconnection facility and/or network upgrade costs and estimated in-service completion time of each identified Contingent Facility when this information is *readily available and* not commercially sensitive.

200. We note that commenters widely support the adoption of this requirement. We agree with commenters that this requirement will increase transparency in the interconnection process, better inform interconnection customers, and, consequently, result in fewer interconnection disputes and withdrawals. The Commission notes that, while some transmission providers may provide information on contingent

[328] Alevo 2017 Comments at 5–6; AFPA 2017 Comments at 10; Non-Profit Utility Trade Associations 2017 Comments at 12–13; AWEA 2017 Comments at 30; Bonneville 2017 Comments at 4; Joint Renewable Parties 2017 Comments at 10; Generation Developers at 25; SEIA 2017 Comments at 7; Portland 2017 Comments at 2; NEPOOL 2017 Comments at 9–10; NextEra 2017 Comments at 20; ITC 2017 Comments at 16; Invenergy 2017 Comments at 11.

[329] MISO TOs 2017 Comments at 26; Non-Profit Utility Trade Associations 2017 Comments at 12.

[330] AFPA 2017 Comments at 10; AWEA 2017 Comments at 30; NEPOOL 2017 Comments at 10; NextEra 2017 Comments at 20; Invenergy 2017 Comments at 12; EDP 2017 Comments at 6.

[331] EDP 2017 Comments at 6; AWEA 2017 Comments at 29; Invenergy 2017 Comments at 11.

[332] AFPA 2017 Comments at 10; EDP 2017 Comments at 6; AWEA 2017 Comments at 31; Invenergy 2017 Comments at 11.

[333] AWEA 2017 Comments at 31; NextEra 2017 Comments at 21.

[334] ISO–NE 2017 Comments at 25.

[335] NextEra 2017 Comments at 20.

[336] AWEA 2017 Comments at 34

[337] Modesto 2017 Comments at 21; Southern 2017 Comments at 19; EEI 2017 Comments at 38.

[338] MISO 2017 Comments at 24–25; Southern 2017 Comments at 19.

[339] AES 2017 Comments at 8–9; Southern 2017 Comments at 19.

facilities, the record indicates that this information may not be available from all transmission providers. We find that requiring transmission providers to publish a method for determining contingent facilities in the LGIP will ensure that there will be a transparent method applied on a non-discriminatory basis across all regions. We also disagree with MISO's and Southern's arguments that it would be more appropriate to publish methods for identifying contingent facilities in business practice manuals or on OASIS. The Commission's ''rule of reason'' policy [340] requires provisions that significantly affect rates, terms, and conditions should be in the filed tariff.[341] The Commission finds, based on the record above, that information on contingent facilities materially affects rates, terms, and conditions, and therefore, needs to be part of the tariff. However, while transmission providers will have to publish their methods in the LGIP, certain technical implementation details relating to the methods that, consistent with the rule of reason, have less direct effect on rates, terms and conditions, may be published in a business practice manual.

201. We disagree with AWEA's argument that the final action should exempt the interconnection customer from financial responsibility for any facilities that are not identified as contingent facilities, because changes in the interconnection queue may require changes to or subtractions from the list of contingent facilities. Thus, we find that the final action strikes the right balance to accomplish our goal of increasing transparency.

c. Timing

i. Comments

202. Several commenters support the proposal that transmission providers provide the list of contingent facilities applicable to an interconnection request at the close of the system impact study phase.[342] AWEA comments that the timing for the identification of contingent facilities has been a major issue for interconnection customers. It argues that, currently, interconnection customers only receive relevant contingent facility information after signing an LGIA. AWEA asserts that the timing requirements in this proposal remove risk for the interconnection customer.[343]

203. MISO requests that the Commission clarify that, in the context of MISO's phased system impact study process, the requirement would apply only after the final system impact study.[344]

ii. Commission Determination

204. We adopt the NOPR proposal to require transmission providers to provide the list of contingent facilities applicable to an interconnection request at the close of the system impact study phase. The system impact study considers generating facilities and identified network upgrades associated with higher-queued interconnection requests, and an accompanying list of contingent facilities can contextualize these results. We find that this timing allows interconnection customers to access contingent facility information early enough to better understand their potential risk exposure and to expedite decisions on queue withdrawal, resulting in a more efficient interconnection process. We note that the majority of responsive commenters support the requirement to provide contingent facility information at the conclusion of the system impact study phase. In response to MISO's request that we address how the final action applies to its system impact study process, we will evaluate each transmission provider's tariff provisions at the time that it submits its compliance filing. In that filing, MISO can explain how its compliance proposal allows for the interconnection customer to use contingent facilities information to understand risk exposure and expedite decisions on queue withdrawal.

d. Requirements for Estimated Network Upgrade Costs and In-Service Completion Times

i. Comments

205. A majority of responsive commenters support the proposed requirement to provide the costs and in-service completion time for each identified contingent facility.[345] AWEA states that interconnection customers use information about potential cost increases, as well as timing of necessary upgrades, to make business decisions and assess risk.[346] Generation Developers explain that there is little value in identifying a contingent facility if the interconnection customer still has no information about its associated costs and timing.[347] AWEA contends that non-disclosure agreements can address commercial sensitivities related to contingent facilities.[348] Invenergy states that PJM, MISO, and SPP already provide this information in some form and that it is unaware of any commercially sensitive information that would need to be revealed in this process.[349] Other commenters state that the burden on transmission providers would be minimal.[350]

206. Duke, MidAmerican, and EEI oppose the proposed requirement to provide estimated network upgrade costs and in-service completion times for each identified contingent facility.[351] EEI argues that the Commission should address concerns related to potential commercially-sensitive information and Critical Energy/Electric Infrastructure Information (CEII). It asks the Commission to clarify that transmission providers need not disclose proprietary, commercially-sensitive, or CEII information without the appropriate consent and/or non-disclosure protections.[352] EEI also has concerns about the proposal's costs and the appropriate recovery mechanisms.[353] Duke states that schedules and cost estimates for milestones are available on OASIS via links to completed generator interconnection studies.[354]

207. A number of commenters state that some or all of the information referenced in the proposal is already made available in their region. ISO–NE states that estimated costs and in-service completion times associated with contingent facilities are available in the

[340] *See Pacificorp,* 127 FERC ¶ 61,144, at P 11 (2009); *City of Cleveland, Ohio* v. *FERC,* 773 F.2d 1368, 1376 (D.C. Cir. 1985) (finding that utilities must file ''only those practices that affect rates and service significantly, that are reasonably susceptible of specification, and that are not so generally understood in any contractual arrangement as to render recitation superfluous''); *Public Serv. Comm'n of N.Y.* v. *FERC,* 813 F.2d 448, 454 (D.C. Cir. 1987) (holding that the Commission properly excused utilities from filing policies or practices that dealt with only matters of ''practical insignificance'' to serving customers).

[341] *Cal. Indep. Sys. Operator Corp.* 119 FERC ¶ 61,076, at P 656 (2007) (citing *ANP Funding I, LLC* v. *ISO–NE, Inc.,* 110 FERC ¶ 61,040, at P 22 (2005); *Prior Notice and Filing Requirements Under Part II of the Federal Power Act,* 64 FERC ¶ 61,139, at 61,986–89, *order on reh'g,* 65 FERC ¶ 61,081 (1993)).

[342] AWEA 2017 Comments at 31; Duke 2017 Comments at 8; Generation Developers 2017 Comments at 25; MISO 2017 Comments at 25–26; TDU Systems 2017 Comments at 26.

[343] AWEA 2017 Comments at 31.

[344] MISO 2017 Comments at 26.

[345] AWEA 2017 Comments at 32; Alevo 2017 Comments at 5–6; Forecasting Coalition 2017 Comments at 4; Generation Developers 2017 Comments at 26; TDU Systems 2017 Comments at 16–17; NEPOOL 2017 Comments at 10; NextEra 2017 Comments at 20; SEIA 2017 Comments at 7.

[346] AWEA 2017 Comments at 32.

[347] Generation Developers 2017 Comments at 26.

[348] AWEA 2017 Comments at 32.

[349] Invenergy 2017 Comments at 12.

[350] NextEra 2017 Comments at 20; AWEA 2017 Comments at 32.

[351] Duke 2017 Comments at 9–10; MidAmerican 2017 Comments at 8; EEI 2017 Comments at 38.

[352] EEI 2017 Comments at 39.

[353] *Id.*

[354] Duke 2017 Comments at 8.

interconnection study reports for the higher-queued projects that are primarily responsible for the cost of the contingent facility, and those reports are available to interconnection customers on the ISO–NE website.[355] Bonneville states that it provides general estimates and schedules associated with contingent facilities in its study reports.[356] MISO states that it already provides the estimated network upgrade costs and in-service completion time of each identified contingent facility via its MISO Transmission Expansion Plan process, updated quarterly and posted publicly.[357] MidAmerican comments that it sees no value in providing this information and expresses concern about the potential administrative burden.[358]

208. TVA comments that it is difficult to estimate the in-service timing of contingent facilities in the system impact study phase, as often the full scope of work is not known until the facilities study.[359] TVA adds that to provide this information at the system impact study phase would increase the cost and duration of all system impact study efforts.[360]

209. Several commenters suggest that the Commission modify or clarify this aspect of the proposal. NextEra suggests clarifying the proposal to limit the information the transmission provider provides to the interconnection customer based on what the transmission provider could reasonably access so that transmission providers need not obtain information that they may not readily have available.[361] Similarly, while Portland does not object to this aspect of the proposal, it argues that such information would be limited to the best information that the transmission provider has access to at the time.[362]

210. Forecasting Coalition and Alevo suggest that the transmission provider provide additional information to the interconnection customer. Alevo suggests that transmission providers also provide ''a detailed list of the symptoms that the transmission owner/operator is trying to cure.'' [363] Alevo comments that this information may allow the interconnection customer to offer a more cost-effective solution (*e.g.,* installing electric storage rather than building a new substation).[364] Forecasting Coalition requests that the transmission provider identify the facility's limiting element along with the details on the electrical limiting element's rating.[365]

211. AWEA and Generation Developers argue that the transmission provider should have to provide information on each identified contingent facility's estimated costs and timing even if the interconnection customer has not explicitly requested it.[366]

ii. Commission Determination

212. We adopt the NOPR proposal, subject to modification, and require the transmission provider to provide, upon request of the interconnection customer, the estimated network upgrade costs and estimated in-service completion time associated with each identified contingent facility when this information is readily available [367] and not commercially sensitive. We are persuaded by comments that contend that this information helps interconnection customers to better assess the business risks associated with contingent facilities and may prevent instances of late-stage withdrawal. We find that these benefits, in turn, lead to a more efficient and informed interconnection process.

213. In response to comments on the administrative burden created by this proposal, we find NextEra's and Portland's comments persuasive. We therefore modify the proposal to clarify that transmission providers must provide information regarding costs and in-service completion times only if such information is ''readily available.'' This will also address TVA's concerns about increasing the costs of the system impact study phase. This clarification strikes a balance between providing more information for the interconnection customer and limiting the scope of what the transmission provider must do.

214. In response to EEI's concern about commercially-sensitive information and CEII, we clarify that the final action does not require the transmission provider to disclose any such information without appropriate non-disclosure protections.

215. In response to comments from AWEA and Generation Developers requesting that transmission providers provide information regarding costs and in-service completion times regardless of whether the interconnection customer requests it, we disagree. We note, consistent with comments from MidAmerican, that not all interconnection customers may need access to this information.[368] The aim of the requirements adopted here is to improve transparency and better inform interconnection customer decision-making. Thus, if the interconnection customer does not request cost or in-service completion date information, we find it unnecessary to require the transmission provider to produce this information.

216. In response to comments from Alevo and Forecasting Coalition requesting that the transmission provider provide additional information related to line ratings and underlying symptoms, we find that such information is outside the scope of the NOPR proposal, which focuses on contingent facilities.

e. Definition of Contingent Facility

i. Comments

217. AWEA and Generation Developers support the proposed definition of contingent facilities.[369] MISO does not oppose the proposed definition.[370] Southern suggests revising the definition to include a reference to the effect of delayed contingent facilities on an interconnection request.[371]

ii. Commission Determination

218. We adopt the proposed definition in the NOPR for contingent facilities, with a minor modification to reflect Southern's comments. Specifically, we adopt the following definition of contingent facilities (with clarifying additions to the language originally proposed in the NOPR in italics):

> Contingent Facilities shall mean those unbuilt interconnection facilities and network upgrades upon which the interconnection request's costs, timing, and study findings are dependent, and if *delayed or* not built, could cause a need for restudies of the interconnection request or a reassessment of the interconnection facilities and/or network upgrades and/or costs and timing.

[355] ISO–NE 2017 Comments at 24.

[356] Bonneville 2017 Comments at 4.

[357] MISO 2017 Comments at 25.

[358] MidAmerican 2017 Comments at 8.

[359] TVA 2017 Comments at 8.

[360] *Id.*

[361] NextEra 2017 Comments at 20.

[362] Portland 2017 Comments at 3.

[363] Alevo 2017 Comments at 5–6.

[364] *Id.*

[365] Forecasting Coalition 2017 Comments at 4.

[366] AWEA 2017 Comments at 31–32; Generation Developers 2017 Comments at 25–26.

[367] In Order No. 792, the Commission defined ''readily available'' information as ''information that the [t]ransmission [p]rovider currently has on hand,'' which does not require that the transmission provider create new data. *Small Generator Interconnection Agreements and Procedures,* Order No. 792, 145 FERC ¶ 61,159, at PP 63–64 (2013), *clarified,* Order No. 792–A, 146 FERC ¶ 61,214 (2014) (Order No. 792–A).

[368] MidAmerican 2017 Comments at 8.

[369] AWEA 2017 Comments at 30; Generation Developers 2017 Comments at 25.

[370] MISO 2017 Comments at 24.

[371] Southern 2017 Comments at 20.

f. Harmonization

i. Comments

219. Most responsive commenters oppose harmonization.[372] AWEA supports a harmonized requirement but explains that it is more critical that each transmission provider detail the method it will use to determine contingent facilities.[373] AWEA asserts that, if a three to five percent distribution factor test increases the availability of interconnection service, then it is a just and reasonable standard.[374] Some commenters support a distribution factor test, similar to MISO's test.[375] AFPA states that consistent standards across regions will reduce discrimination and disputes and supports a lower bound on the distribution factor where a facility would not be considered contingent (*e.g.,* if a facility has a distribution factor below three percent, it will not be considered contingent).[376] Portland supports the use of a standardized percentage power transfer distribution factor but comments that this measure is not typically used for this purpose. Portland opposes a specific percentage threshold, arguing that such a threshold could potentially be used to manipulate the interconnection process.[377]

ii. Commission Determination

220. Based on the comments submitted, it is clear that transmission providers have different approaches for identifying contingent facilities. We find that the present record does not support the use of a distribution factor test or another standard method for identifying contingent facilities across all regions because it is not clear a single method would apply across different queue types and footprints. Therefore, we find that harmonization is not appropriate at this time.

2. Transparency Regarding Study Models and Assumptions

a. NOPR Proposal

221. To increase transparency and ensure consistency in the analysis of interconnection requests, the Commission proposed a requirement that transmission providers detail all the network models and underlying assumptions used for interconnection studies in their *pro forma* LGIPs and on OASIS.[378] The Commission also proposed to require that transmission providers include a non-confidential network model supporting data on OASIS, including, but not limited to, shift factors, dispatch assumptions, load power factors, and power flows.[379] To implement this, the Commission proposed to modify section 2.3 of the *pro forma* LGIP as follows (with proposed additions in italics):

> Base Case Data. Transmission Provider shall provide base power flow, short circuit and stability databases, including all underlying assumptions, and contingency list upon request subject to confidentiality provisions in LGIP Section 13.1. *Additionally, Transmission Provider will maintain network models and underlying assumptions on its OASIS site for access by OASIS users.* Transmission Provider is permitted to require that Interconnection Customer *and OASIS site users* sign a confidentiality agreement before the release of commercially sensitive information or Critical Energy Infrastructure Information in the Base Case data. Such databases and lists, hereinafter referred to as Base Cases, shall include all (1) generation projects and (ii) transmission projects, including merchant transmission projects that are proposed for the Transmission System for which a transmission expansion plan has been submitted and approved by the applicable authority.

222. The Commission sought comment on whether transmission providers should post other specific network model details and underlying assumptions on OASIS and should describe in the *pro forma* LGIP.[380] The Commission also sought comment on whether and how transmission providers should provide notice of any variation from posted network model assumptions for a specific study, including whether the Commission should require notice of any variation to be submitted to the Commission.[381] In addition, the Commission sought comment on any confidentiality or security concerns regarding the posting of specific model assumptions on OASIS or describing them in the *pro forma* LGIP.[382] While the Commission recognized transmission providers' confidentiality and data security concerns, the Commission stated that there are likely safeguards that can satisfactorily address these concerns. The Commission also requested that commenters specify any data elements that should be subject to confidentiality or non-disclosure agreements.

b. General

i. Comments

223. Numerous commenters express support for the proposal to require transmission providers to list all the network models and underlying assumptions used for interconnection studies.[383] Joint Renewable Parties, AFPA, and IECA believe that the proposal decreases opportunities for discrimination.[384] AFPA also states that the proposal will provide important information and analytical tools for interconnection customers to identify potential risks and benefits of project technologies, size, timing, and interconnection points.[385] EDP states that information access improves the interconnection process and that an interconnection customer should not have to make major decisions without understanding how the transmission provider will evaluate its interconnection request.[386] EDP notes that tariffs and business practice manuals often do not contain evaluation and information production practices utilized by transmission providers.[387]

224. MidAmerican asserts that the proposed reforms would assist customers in helping to verify the accuracy of required interconnection facilities and network upgrades.[388] NextEra also notes that receiving the models could help to verify study results with unexpectedly high upgrade costs. NextEra argues that better information about models will lead to a greater ability to determine whether a site is appropriate for interconnection and thus will help reduce the number of ''less favorable'' interconnection requests.[389] SEIA states that providing the interconnection customer directly with data will significantly reduce the

[372] *See, e.g.,* Bonneville 2017 Comments at 5; Duke 2017 Comments at 10; Modesto 2017 Comments at 22; Non-Profit Utility Trade Associations 2017 Comments at 12–13; PJM 2017 Comments at 14.

[373] AWEA 2017 Comments at 32.

[374] *Id.* at 34–35.

[375] ITC 2017 Comments at 17; AFPA 2017 Comments at 10; AWEA 2017 Comments at 33; Generation Developers 2017 Comments at 26; Portland 2017 Comments at 3.

[376] AFPA 2017 Comments at 10.

[377] Portland 2017 Comments at 3.

[378] NOPR, FERC Stats. & Regs. ¶ 32,719 at P 118.

[379] *Id.* P 119.

[380] *Id.* P 120.

[381] *Id.*

[382] *Id.* P 121.

[383] Alevo 2017 Comments at 6; Alliant 2017 Comments at 11; AFPA 2017 Comments at 11; AWEA 2017 Comments 36–37; CAISO 2017 Comments at 17; Joint Renewable Parties 2017 Comments at 10; Generation Developers 2017 Comments at 27; EDP 2017 Comments at 6; Forecasting Coalition 2017 Comments at 4; IECA 2017 Comments at 2; ITC 2017 Comments at 17; MidAmerican 2017 Comments at 13–14; NEPOOL 2017 Comments at 10; NextEra 2017 Comments at 22; SEIA 2017 Comments at 18; TDU Systems 2017 Comments at 18; Xcel 2017 Comment at 13–14.

[384] Joint Renewable Parties 2017 Comments at 11; AFPA 2017 Comments at 11; IECA 2017 Comments at 2.

[385] AFPA 2017 Comments at 11.

[386] EDP 2017 Comments at 6.

[387] *Id.*

[388] MidAmerican 2017 Comments at 13–14.

[389] NextEra 2017 Comments at 22.

need for study discussion and could eliminate several disputes.[390]

225. Xcel supports adding a description of the network model and assumptions in the *pro forma* attachments of the feasibility study agreement and the system impact study agreement. Xcel states that, if network model descriptions and assumptions and the study agreements are posted publicly, then interested interconnection customers can review those agreements to find how similarly situated generators were previously studied.[391]

226. Many commenters voice concerns regarding the proposed requirement that transmission providers post this information on OASIS.[392] CAISO and NYISO state that they already provide network model and study assumptions on their respective websites.[393]

227. NYISO notes that, rather than posting such data on the non-password protected portion of NYISO's OASIS, NYISO posts interconnection studies to the password-protected portion of its website because the studies contain CEII.[394]

228. MISO states that it posts its network models for all MISO market participants, members, and interconnection customers that have signed non-disclosure agreements. MISO requests clarification that, if the Commission adopts its proposal, it will not require OASIS posting if this information is available elsewhere.[395]

229. EEI argues that transmission providers should have discretion as to where to post this information and that interconnection customers can already request certain information covered by this proposal under existing CEII processes; it asserts that other information, such as dispatch information, how transmission providers build their models, and how contingency files are developed, may include proprietary, confidential, and commercially sensitive information or intellectual property.[396]

230. TDU Systems state that the Commission's *pro forma* CEII non-disclosure agreement would be appropriate and sufficient to protect against disclosure of CEII.[397] Duke suggests that transmission providers' power flow models that have been filed with the Commission and identified as CEII be obtained through the Commission's CEII processes.[398]

231. Several commenters oppose the proposal and argue that current posting procedures are sufficient.[399] For example, Duke suggests that interconnection customers request a study review to discuss the underlying study assumptions with the transmission provider.[400] In addition, ISO–NE states that its website provides base cases and study assumptions, subject to CEII protections.[401] MISO TOs state that, to the extent that additional information is necessary, the best way to accomplish this is through improved communications between the transmission provider, the transmission owner, and the interconnection customer.[402] PG&E states that, although an interconnection customer may need to execute a non-disclosure agreement prior to obtaining this information, it is already generally available to them.[403]

232. Commenters that oppose the proposal argue that it may be administratively burdensome.[404] Duke argues, moreover, that the Commission should instead require transmission providers to review the information they already post on OASIS that provides a summary of the transmission planning processes. Then, if necessary, the Commission could augment that description with a high-level description of how transmission providers conduct interconnection studies.[405] Similarly, EEI requests that the Commission only require transmission providers to furnish high-level descriptions on model development.[406] EEI also argues that transmission providers should only have to post updates if there are material changes in the generally applied assumptions.[407]

233. NorthWestern expresses concern that the proposal would be unnecessary and cumbersome given base case changes and asserts that a complete list of models would not benefit an interconnection customer.[408] Further, NorthWestern states that requiring a non-disclosure agreement from each potential interconnection customer prior to the feasibility study would administratively burden transmission providers. It also argues that, in the West, interconnection customers seeking additional information about study benefits and assumptions currently have the ability to request model details from the Western Electricity Coordinating Council.[409]

234. NYISO opposes the provision of shift factors, which, it argues, only pertain to power flow and thermal analyses, which are more applicable to interconnections in RTOs/ISOs that offer physical transmission rights.[410] Tri-State argues that large-scale system planning is dynamic and often requires changes to in-service dates, identification of new delivery points, project cancellations, generation assumptions, and assumed demand levels.[411]

235. Xcel notes that, because each interconnection request is unique, the specific network model assumptions used are also usually distinctive. Xcel argues that the Commission should grant transmission providers flexibility to provide the detailed, unique specifics of the network models in individual study agreements.[412] Xcel also proposes that interconnection customers review the general process, as described in the LGIP or a business practice manual, as well as published study agreements to gain insights into expectations for modeling. Xcel states that the customer can discuss the specific modeling process and assumptions for its request with the transmission provider, and the agreement to be modeled would be memorialized in the agreements posted on OASIS. Xcel asserts that this process would provide significant transparency while allowing the use of the most appropriate studies and up-to-date assumptions for interconnection requests.[413]

[390] SEIA 2017 Comments at 18.

[391] Xcel 2017 Comment at 13–14.

[392] CAISO 2017 Comments at 17; NYISO 2017 Comments at 22; TDU Systems 2017 Comments at 18–19; Xcel 2017 Comment at 14; Duke 2017 Comments at 11–12; EEI 2017 Comments at 40; NEPOOL 2017 Comments at 10; Non-Profit Utility Trade Associations 2017 Comments at 14–15; OATI 2017 Comments at 4; Salt River 2017 Comments at 12; Southern 2017 Comments at 20; TVA 2017 Comments at 9.

[393] CAISO 2017 Comments at 17; NYISO 2017 Comments at 22.

[394] *Id.*

[395] MISO 2017 Comments at 27.

[396] EEI 2017 Comments at 40–41.

[397] TDU Systems 2017 Comments at 18–19.

[398] Duke 2017 Comments at 12.

[399] AES 2017 Comments at 8–9; Duke 2017 Comments at 11; ISO–NE 2017 Comments at 26; MISO TOs 2017 Comments at 27; PG&E 2017 Comments at 5; PJM 2017 Comments at 14; Southern 2017 Comments at 20; TVA 2017 Comments at 9.

[400] Duke 2017 Comments at11.

[401] ISO–NE 2017 Comments at 26.

[402] MISO TOs 2017 Comments at 27–28.

[403] PG&E 2017 Comments at 6.

[404] Duke 2017 Comments at 11; EEI 2017 Comments at 40; NorthWestern 2017 Comments at 4–6; NYISO 2017 Comments at 23; PG&E 2017 Comments at 5; Salt River 2017 Comments at 12; Tri-State 2017 Comments at 6–7.

[405] Duke 2017 Comments at 11.

[406] EEI 2017 Comments at 40.

[407] *Id.* at 43.

[408] NorthWestern 2017 Comments at 5.

[409] *Id.* at 6.

[410] NYISO 2017 Comments at 23.

[411] Tri-State 2017 Comments at 6.

[412] Xcel 2017 Comments at 13.

[413] *Id.* at 14.

ii. Commission Determination

236. We adopt the NOPR proposal, with modifications. Specifically, this final action revises section 2.3 of the *pro forma* LGIP to read as follows (the bracketed text reflects deletions from, and the italicized text reflects additions to, the language proposed in the NOPR):

Base Case Data. Transmission Provider shall *maintain* [provide] base power flow, short circuit and stability databases, including all underlying assumptions, and contingency list *on either its OASIS site or a password-protected website,* [upon request] subject to confidentiality provisions in LGIP Section 13.1. [Additionally]*In addition, Transmission Provider shall* [will] *maintain network models and underlying assumptions on either its OASIS site or a password-protected website* [for access by OASIS users]. *Such network models and underlying assumptions should reasonably represent those used during the most recent interconnection study and be representative of current system conditions. If Transmission Provider posts this information on a password-protected website, a link to the information must be provided on Transmission Provider's OASIS site.* Transmission Provider is permitted to require that Interconnection Customers [and], *OASIS site users, and password-protected website users* sign a confidentiality agreement before the release of commercially sensitive information or Critical Energy Infrastructure Information in the Base Case data. Such databases and lists, hereinafter referred to as Base Cases, shall include all (1) generation projects and (*2* [ii]) [414] transmission projects, including merchant transmission projects that are proposed for the Transmission System for which a transmission expansion plan has been submitted and approved by the applicable authority.

237. Most responsive commenters note that the proposal could significantly increase transparency in the study process. We disagree with commenters that argue that current posting procedures are sufficient. The record before us demonstrates that transmission providers do not consistently make their network models and assumptions available, and access to information regarding the assumptions used is often inconsistent across regions.[415] We believe the revisions to section 2.3 of the *pro forma* LGIP will reduce the possibility that some interconnection customers will have unduly discriminatory access to relevant information and will generally increase transparency for interconnection customers by requiring that network models and assumptions used by transmission providers be made available, subject to the appropriate confidentiality and information requirements. We expect that these revisions will allow interconnection customers to make more informed interconnection decisions while also holding transmission providers accountable as to which network models and assumptions they use to assess interconnection requests.

238. However, we find persuasive concerns voiced by several commenters regarding the proposal's requirement to post the network model and assumption information on OASIS. Specifically, we recognize that a requirement to move information onto OASIS could burden transmission providers that currently make this information available to interconnection customers elsewhere. Therefore, we believe a transmission provider should be able to decide to maintain the required information on its website as long as it has a link to the location of the information on OASIS, as OASIS is the central location for all the information needed to request interconnection service. Accordingly, the revisions to section 2.3 of the *pro forma* LGIP require transmission providers to post network models and assumptions, subject to the appropriate confidentiality and information requirements, on OASIS and/or on a password-protected website. These revisions strike an appropriate balance by increasing transparency while also limiting the burden on transmission providers.

239. In response to those arguments alleging that maintaining network models and underlying assumptions on OASIS or a password-protected website may be administratively burdensome, we find the benefits of increased transparency resulting from the revisions to section 2.3 of the *pro forma* LGIP will outweigh the burden placed on transmission providers to post and maintain up-to-date network models and underlying assumptions. Instead, we note that increasing transparency of network models and assumptions will allow interconnection customers to make informed interconnection decisions, which could potentially help interconnection customers avoid entering the queue with non-viable interconnection requests. Informed interconnection decisions will also allow transmission providers to improve queue management. Improved queue management, in turn, should aid in decreasing the administrative burden on transmission providers. In addition, increased transparency will also mitigate the potential for study disputes, re-studies and late-stage withdrawals, thus increasing the efficiency of the interconnection process.

240. In response to confidentiality and data security concerns associated with providing certain information and system access, we reaffirm that there are safeguards that can be put in place to satisfactorily address these concerns. With the revisions in this final action, section 2.3 of the *pro forma* LGIP allows the transmission provider to require that the interconnection customer sign a confidentiality agreement before the release of commercially sensitive information. We agree with commenters that transmission providers should only provide commercially-sensitive information, such as contingency files and specific dispatch information, under a non-disclosure agreement. We note that the information that this final action requires transmission providers to post will be available on a password-protected website or on the transmission provider's OASIS site.

241. With regard to CEII, we note that the Commission's CEII regulations in 18 CFR 388.113 only govern ''the procedures for submitting, designating, handling, sharing, and disseminating [CEII] *submitted to or generated by the Commission*.'' [416] However, to the extent that certain information that is currently designated by the Commission as CEII is implicated by this portion of the final action, this final action makes no changes to that information's CEII designation or to the Commission's existing CEII requirements. Additionally, even if the information has been designated as CEII, § 388.113 of the Commission's regulations does not govern the transmission provider's handling, sharing, and disseminating of information that the transmission provider submitted for CEII designation, including how it disseminates that information on its OASIS site or password-protected website. We note, however, that nothing in § 388.113 of the Commission's regulations precludes a transmission provider from taking necessary steps to protect information within its custody or control to ensure the safety and security of the electric grid. Specifically, we note that *pro forma* LGIP section 2.3 permits transmission providers to require a confidentiality agreement for anyone that wishes to access ''commercially sensitive information or [information that has been designated as CEII]'' that may be posted in the base case data on the transmission provider's OASIS site or password-protected website.

242. Upon consideration of the comments, we withdraw the NOPR

[414] In this final action, we correct a typographical error in the *pro forma* LGIP.

[415] NOPR, FERC Stats. & Regs. ¶ 32,719 at PP 111–112; *see also* NextEra 2017 Comments at 22; Alliant 2017 Comments at 11.

[416] 18 CFR 388.113 (2017) (emphasis added).

proposal to require transmission providers to post information ''including, but not limited to, shift factors, dispatch assumptions, load power factors, and power flows.'' [417] Such a requirement could result in transmission providers posting certain information that is not informative to interconnection customers and which could delay or otherwise burden the interconnection study process. For example, NYISO states that shift factors generally only pertain to power flow and thermal analyses, which are more applicable to interconnections in RTOs/ISOs that offer physical transmission rights.[418]

c. Suggested Modifications to Transparency Regarding Study Models and Assumptions Proposal

i. Comments

243. Multiple commenters support the proposal but offer suggestions to increase transparency.[419] For example, AWEA suggests that transmission providers should have to review interconnection study models and assumptions every two years and submit a filing pursuant to section 205 of the FPA justifying the model and assumptions to ensure that study models and assumptions are non-discriminatory, realistic, appropriate for generation or regional characteristics, and accountable.[420]

244. Generation Developers request that the modeling provision specify the minimum model assumptions that must be posted, including: (1) Shift factors used by region, sub-region, and even utility area; (2) generation dispatch assumptions by fuel-type of resource by region and sub-region for off-peak and peak hours; (3) load power factors; (4) power flows; (5) whether violations of NERC Category A (TPL–001), Category B (TPL–002), and Category C (TPL–003) require network upgrades and contingent facilities in all or some instances; (6) treatment of currently overloaded facilities; (7) the extent to which Network Resource Interconnection Service (NRIS) is hard-coded in the base model; and (8) contingency files.[421]

245. NextEra notes that, in addition to models, interconnection customers would benefit from two best practices: (1) Providing information about other interconnection requests ''in the same location by point on the transmission grid,'' instead of county-level data; [422] and (2) providing information about lower voltage facilities (*e.g.,* those below 100 kV) and higher voltage facilities.[423]

ii. Commission Determination

246. While we appreciate the additional suggestions on what types of information transmission providers should post, the information requested by the commenters is outside of the scope of the proposal as set forth in the NOPR. In response to AWEA's requests, we note that when the Commission acts pursuant to FPA section 206, it ''must show that [a] utility's existing rate is unjust and unreasonable and . . . that [the Commission's] replacement rate is just and reasonable.'' Thus, the Commission would have to meet the requirements of FPA section 206 to make changes to a currently effective tariff provision.[424] We find that the current record does not support such a finding. With respect to Generation Developers', NextEra's, and TDU Systems' suggestions that transmission providers should have to post more information on OASIS, we clarify that the final action does not mandate an exhaustive list of minimum model assumptions. We find that the record before us does not support mandating that each region post the same set of information in the analysis of interconnection requests.

3. Congestion and Curtailment Information

a. NOPR Proposal

247. In response to developer requests for increased transparency of congestion and curtailment information, the Commission proposed to require that transmission providers post congestion and curtailment information in one location on their OASIS sites so that interconnection customers can more easily access information that may aid in their decision-making.[425] The Commission proposed to require that transmission providers post specific congestion and curtailment information that is disaggregated, or more granular (*e.g.,* hourly and locational data) than the information that some transmission providers currently provide.[426] To effectuate this requirement, the Commission proposed to add a new paragraph (l) to 18 CFR 37.6, which stated that the Transmission Provider must post on OASIS information as to congestion data representing (i) 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 interface, (iii) the cause of the congestion (*e.g.,* a contingency or an outage), and (iv) total megawatt hours of curtailment due to lack of transmission for that month. This data shall be posted on a monthly basis by the 15th day of the following month and shall be posted in one location on the OASIS. The Transmission Provider should maintain this data for a minimum of three years.

248. The Commission also sought comment on whether transmission providers should provide interconnection-request-specific congestion and curtailment information and whether transmission providers should be required to provide this information to interconnection customers during the interconnection study process (*e.g.,* at the scoping meeting).[427]

249. The Commission also sought comment on the level of information to be provided, the frequency at which the information should be provided, and how many months/years the provided information should cover.[428] The Commission sought further comment on the value of requiring transmission providers to post flow duration curves on the major transmission interfaces based on hourly flow data on OASIS.[429] Finally, the Commission sought comment on changes to section 3.3.4 of the *pro forma* LGIP requiring transmission providers or transmission owners to provide curtailment and congestion information at the scoping meeting.[430]

b. Comments

250. Some responsive commenters support the proposed requirement for congestion and curtailment information to be posted in one location on each transmission provider's OASIS site.[431] AFPA asserts that the proposal will allow interconnection customers to better use existing transmission

[417] NOPR, FERC Stats. & Regs. ¶ 32,719 at P 119.

[418] NYISO 2017 Comments at 23.

[419] AWEA 2017 Comments at 37; Generation Developers 2017 Comments at 28; NEPOOL 2017 Comments at 10; NextEra 2017 Comments at 22; TDU Systems 2017 Comments at 18; Xcel 2017 Comments at 13.

[420] AWEA 2017 Comments at 37; *see also* Generation Developers 2017 Comments at 31.

[421] Generation Developers 2017 Comments at 28.

[422] NextEra 2017 Comments at 23.

[423] *Id.*

[424] *Ark. Elec. Coop. Corp.* v. *ALLETE, Inc.,* 156 FERC ¶ 61,061, at P 18 (2016).

[425] NOPR, FERC Stats. & Regs. ¶ 32,719 at P 128.

[426] *Id.* P 130.

[427] *Id.* P 128.

[428] *Id.* P 131.

[429] *Id.*

[430] *Id.* P 133.

[431] AFPA 2017 Comments at 11; Public Interest Organizations 2017 Comments at 5–8; IECA 2017 Comments at 2; SEIA 2017 Comments at 19; Joint Renewable Parties 2017 Comments at 11; Alevo 2017 Comments at 6; NEPOOL 2017 Comments at 11; Alliant 2017 Comments at 12.

infrastructure.[432] Public Interest Organizations and IECA contend that the proposal will help interconnection customers better understand investment risks, which could result in more efficient markets and lower costs.[433] IECA, SEIA, and Joint Renewable Parties indicate that the added transparency will improve access to information, increase efficiency, and reduce discrimination.[434]

251. Joint Renewable Parties, Alliant, Generation Developers, and ITC state that access to the information will improve interconnection customers' ability to appropriately site projects and will reduce queue withdrawals, which occur due to high interconnection facility and network upgrade costs.[435] AWEA asserts that it is crucial for interconnection customers to have access to historical local congestion information, noting that study results do not provide this information and that transmission providers frequently do not make it available. AWEA also states that there is a lack of uniformity in the type and location of information that transmission providers post.[436] AWEA states that non-disclosure agreements can prevent disclosure of commercially sensitive information to the general public.[437]

252. In support of the proposal, NEPOOL and Alevo both argue that transmission owners, transmission providers, and system operators should post data that are as granular as possible. They argue that readily available transmission capacity data at the front end will enable market participants to size their projects appropriately and to anticipate network upgrade costs.[438] AWEA contends that the burden on transmission providers to post this type of information is minimal, as the information is readily available and does not require significant additional studies.[439] TDU Systems also supports the proposal and urges the Commission to clarify that transmission providers should report on congestion that is avoided by dispatching generation out of merit order.[440]

253. Several commenters argue that sufficient procedures already exist for interconnection customers. TVA, EEI, and Xcel contend that the Commission should make existing data collection resources available to potential interconnection customers, rather than requiring transmission providers to create redundant new ones.[441] TVA argues that the information that NERC stores via Transmission Loading Relief (TLR) logs provides enough information to allow the interconnection customer to evaluate its selected location.[442] TVA also contends that the time and expense of analyzing potential interconnection locations should be the interconnection customer's responsibility.[443] Xcel argues that, to the extent stakeholder needs are not met by posting the proposed information, RTO/ISO stakeholder processes should address these issues.[444] Non-Profit Utility Trade Associations ask the Commission to convene a technical conference to determine what congestion and constraint information utilities should maintain, the format of that information, and what information would benefit interconnection customers.[445]

254. CAISO and PG&E note that the requested information is largely already available on CAISO's website.[446] CAISO explains that transmission providers publish dispatch reports, congestion data, and locational marginal price (LMP) data so that potential interconnection customers can understand where there is available capacity.[447] CAISO also states that it already provides interconnection customers with as much information as can be predicted, bearing in mind that economic curtailment protects the grid from events that are difficult or impossible to predict, such as outages, overloads due to oversupply, and contingency events.[448]

255. MISO argues that the sort of granular information the Commission has proposed to be posted will not significantly resolve issues with queue processing.[449] MISO TOs state that MISO posts market reports that contain LMP data and the marginal congestion component for every commercial pricing node, which can be used to develop information on congestion. MISO TOs state that it would be redundant (and burdensome) to require MISO to publish this information on OASIS as well as on its website, where it currently resides.[450]

256. NextEra notes that operational snapshots of the transmission provider's system are more useful than statistics of total hours or MW of curtailment.[451] NextEra notes that MISO and SPP already provide state estimator snapshots from the prior two weeks, which include generator dispatch, system congestion, and power flow information, among other things. NextEra recommends that all RTOs/ISOs adopt this practice and provide snapshots of their systems from different times of the day to show system conditions.[452]

257. PJM agrees with the proposal to require transmission providers to post congestion data representing total hours of curtailment on all interfaces and asserts that it currently posts these data publicly on its website.[453] PJM states that, along with LMP pricing information, these data are adequate to allow an interconnection customer to make informed business decisions relative to their interconnection project.[454]

258. However, PJM states that it opposes the NOPR's proposal to require transmission providers to post total hours of transmission provider-ordered generation curtailment and transmission service curtailment due to congestion on a facility or interface, the cause of the congestion, and total megawatt hours (MWh) of curtailment due to lack of transmission for that month.[455] PJM states that posting information regarding unit-specific and constraint-specific generator curtailment information would allow other market participants to replicate market-sensitive data, such as unit offers, and would require significant effort.[456] PJM contends that publicly posting the cause of congestion would improperly disclose commercially sensitive information and require difficult and time-consuming power flow analysis and market re-runs. PJM notes that it does not have the software capability to determine causes of congestion.[457] PJM states that posting the total monthly MWh of curtailment

[432] AFPA 2017 Comments at 11.

[433] Public Interest Organizations 2017 Comments at 5–8; IECA 2017 Comments at 2.

[434] *Id.;* SEIA 2017 Comments at 19; Joint Renewable Parties 2017 Comments at 11.

[435] *Id.;* Alliant 2017 Comments at 12; Generation Developers 2017 Comments at 31–32; ITC 2017 Comments at 17; *see also* AWEA 2017 Comments at 40.

[436] *Id.* at 39.

[437] *Id.* at 41.

[438] Alevo 2017 Comments at 6; NEPOOL 2017 Comments at 11.

[439] AWEA 2017 Comments at 42.

[440] TDU Systems 2017 Comments at 19–20.

[441] EEI 2017 Comments at 45; TVA 2017 Comments at 10–11; Xcel 2017 Comments at 15–16.

[442] TVA 2017 Comments at 10.

[443] *Id.* at 10–11.

[444] Xcel 2017 Comments at 15–16.

[445] Non-Profit Utility Trade Associations 2017 Comments at 17.

[446] CAISO 2017 Comments at 20; PG&E 2017 Comments at 6 (citing *http://www.caiso.com/market/Pages/OutageManagement/Curtailed-OperationalGeneratorReportGlossary.aspx*).

[447] CAISO 2017 Comments at 19.

[448] *Id.*

[449] MISO 2017 Comments at 28.

[450] MISO TOs 2017 Comments at 30.

[451] NextEra 2017 Comments at 25.

[452] *Id.*

[453] PJM 2017 Comments at 16.

[454] *Id.*

[455] *Id.*

[456] *Id.*

[457] *Id.* at 17.

due to lack of transmission could result in misleading information, as curtailment may be caused by multiple factors.[458]

259. EEI, Six Cities, MISO TOs, CAISO, and Xcel assert that historical congestion and curtailment information may have no bearing on future congestion or curtailment at any specific location, and the posting of this information should not be considered a commitment by the transmission provider to guarantee the availability of additional capacity or expose the transmission provider to damages or other remedies should interconnection customers' expectations regarding curtailment risk not materialize.[459] Duke states that historic congestion and curtailment information might only be useful if the generating facility's location and the area of congestion coincided.[460] Duke and MISO TOs further state that system changes including interconnection and transmission upgrades, large generators going on- or off-line, or a transmission system topology change could render historical congestion information meaningless.[461] Xcel states that future generation impacts future congestion, and that knowledge of where other generation will locate is likely of more value to the interconnecting generators.[462]

260. Xcel notes that the impact of congestion and curtailment varies by region, mostly due to the existence of regional markets, different scheduling practices, and the treatment of firm transmission service.[463] ISO–NE argues that regional flexibility is warranted to allow RTOs/ISOs to identify the relevant congestion and curtailment information in their region and the information that is already available to interconnection customers that meets the NOPR's objective.[464] ISO–NE states that the congestion and curtailment information identified in the NOPR is not relevant in New England because this information relates to availability of *pro forma* transmission service and internal flow gates, neither of which is applicable in New England.[465]

261. NYISO states that it has historically published significant system information on its public website, including congestion and curtailment information.[466] NYISO argues that additional operational data posted to NYISO's public website would not provide the information the NOPR anticipates would be useful to interconnection customers.[467] NYISO further states that the curtailment data requested by AWEA and proposed in the NOPR would not be useful data to NYISO interconnection customers and explains that it may not even have the capability to provide certain data proposed by the NOPR.[468] NYISO contends that it need not maintain and post the same OASIS-related information as RTOs/ISOs with a physical reservation transmission system.[469]

262. MISO asserts that queue congestion is a sub-region-wide issue and not an issue of locating around more granular points of congestion, which the proposed requirements would illuminate. MISO contends that for optimally locating around localized points of congestion, the initial scoping meetings are sufficient to advise customers regarding less congested points of interconnection within an interconnection customer's general preferred area.[470]

263. PG&E questions whether this information should be posted on OASIS, instead of on CAISO's website, since an interconnection customer will not necessarily have access to OASIS until it becomes a transmission customer.[471] PG&E expresses concern about making much of this information public, including but not limited to CEII, since CAISO has a process that provides much of this information to interconnection customers that have executed non-disclosure agreements.[472] MISO TOs state that RTOs/ISOs should develop a method to ensure privileged and/or confidential information is shared only with interconnection customers and is not available to market participants or others without authorization to receive CEII information, in order to prevent market manipulation and potential harm.[473]

264. Duke, NorthWestern, Southern, Xcel, and Non-Profit Utility Trade Associations argue that the proposal should not extend to transmission providers that operate outside of RTOs/ISOs because the information is neither available nor relevant.[474] Duke states that the transmission system outside RTOs/ISOs is planned, designed, and operated so that generating resources with firm bilateral contracts to serve load are not constrained.[475] Xcel notes that, in non-market areas, firm transmission service mitigates congestion and curtailment risk. Xcel and Southern contend that congestion and curtailment information is more relevant for RTOs/ISOs that have locational marginal pricing, and because regional markets usually dispatch generation according to price, curtailment is generally based on price and not a lack of transmission capacity.[476] Southern points out that it provides congestion/curtailment screens specific to each interconnection request in each interconnection study report.[477]

265. NorthWestern and Non-Profit Utility Trade Associations state that the definition of ''congestion'' is unclear in non-RTOs/ISOs.[478] NorthWestern argues that posting congestion could be duplicative because, in contract-path balancing authority areas that operate outside of organized markets, ''congestion'' is synonymous with ''available transfer capability,'' which is already posted on OASIS in real time.[479]

266. Duke, EEI, and OATI assert that the Commission should consult with NAESB regarding standards for making congestion and curtailment information accessible on OASIS.[480] OATI states that it is critical that access to all of these postings require secure and controlled access through a registered OASIS user account per existing OASIS standards.[481] Duke states that NAESB is already working on this issue, as evidenced by its 2017 Wholesale Electric Quadrant Annual Plan item 2.a.ii.1, and should consider designing queries for interconnection customers to use to obtain congestion and

[458] *Id.*

[459] EEI 2017 Comments at 45; Six Cities 2017 Comments at 3–4; MISO TOs 2017 Comments at 29; CAISO 2017 Comments at 19; Xcel 2017 Comments at 14–15.

[460] Duke 2017 Comments at 12.

[461] *Id.* at 13; MISO TOs 2017 Comments at 29.

[462] Xcel 2017 Comments at 14–15.

[463] *Id.*

[464] ISO–NE 2017 Comments at 27–28.

[465] *Id.* n.65.

[466] NYISO 2017 Comments at 24.

[467] *Id.* at 28.

[468] *Id.* at 26 (citing, *e.g., N.Y. Indep. Sys. Operator, Inc.,* 123 FERC ¶ 61,134, at PP 8–13 (2008); *N.Y. Indep. Sys. Operator, Inc.,* Docket No. OA08–13–003 (Nov. 12, 2008) (delegated letter order)).

[469] *Id.* (citing, *e.g., N.Y. Indep. Sys. Operator, Inc.,* Docket Nos. ER11–2048–003 & ER11–2048–004 (June 6, 2011) (delegated letter order); *N.Y. Indep. Sys. Operator, Inc.,* 133 FERC ¶ 61,208, at PP 12–13 (2010)).

[470] MISO 2017 Comments at 28.

[471] PG&E 2017 Comments at 6.

[472] *Id.*

[473] MISO TOs 2017 Comments at 30.

[474] Duke 2017 Comments at 13; NorthWestern 2017 Comments at 6; Southern 2017 Comments at 21–22; Xcel 2017 Comments at 15; Non-Profit Utility Trade Associations 2017 Comments at 15–16.

[475] Duke 2017 Comments at 13.

[476] Xcel 2017 Comments at 15; Southern 2017 Comments at 21.

[477] *Id.* at 21–22.

[478] NorthWestern 2017 Comments at 6; Non-Profit Utility Trade Associations 2017 Comments at 15–16.

[479] NorthWestern 2017 Comments at 6.

[480] Duke 2017 Comments at 13; EEI 2017 Comments at 47–48; OATI 2017 Comments at 2.

[481] *Id.*

curtailment information specific to their interconnection requests.[482] TVA suggests that adding these data to data that NERC already tracks appears a more appropriate regulatory implementation path.[483]

267. NYISO suggests that instead of the proposed OASIS postings, the Commission should consider adding the option of a pre-application report for large facilities, similar to that required to be offered for small facilities under Order No. 792 and the *pro forma* SGIP.[484] NYISO urges the Commission to consider such an approach as an alternative to requiring cumbersome posting requirements that are not applicable in all regions and that can only provide historical data—data that are of little use to an interconnection customer and indeed may be misleading compared to data that could be provided through an interconnection study or in response to a pre-application report request.[485]

c. Commission Determination

268. In this final action, we decline to adopt the proposal in the NOPR to require transmission providers to post certain specified congestion and curtailment information, as described further below.

269. We agree with commenters that access to congestion and curtailment data could better inform the decision-making of interconnection customers and allow them to more appropriately size and site projects, resulting in more efficient use of the transmission system and fewer late stage queue withdrawals. Accordingly, we encourage all transmission providers that already make such information available to continue to do so.

270. However, upon consideration of the comments in this proceeding, we decline to require transmission providers to post the specific information that the Commission originally proposed in the NOPR. We find persuasive those comments that assert that, in some instances, generating information on the causes of congestion or on unit-specific or constraint-specific curtailment information is technically infeasible or would require significant additional effort.[486]

271. In addition, as several commenters argue, many transmission providers already publish congestion and curtailment data such as LMP data and dispatch reports on their public websites.[487] Further, the NERC Transmission Loading Relief (TLR) Logs make publicly available information on the duration, direction, and MW total of curtailments in the Eastern Interconnection.[488] We also note that some commenters question the usefulness of some of the data contemplated by the NOPR proposal to prospective interconnection customers and that others argue that some of this data is not available outside of RTOs/ISOs.

272. Accordingly, we decline to adopt the proposed revisions to add a new paragraph (l) to 18 CFR 37.6 that would require transmission providers to post specific congestion and curtailment information in one location on OASIS.

4. Definition of Generating Facility in the Pro Forma LGIP and Pro Forma LGIA

a. NOPR Proposal

273. The Commission proposed to revise the definition of ''Generating Facility'' in the *pro forma* LGIP and the *pro forma* LGIA to include electric storage resources, similar to how it revised the definition of a ''Small Generating Facility'' in the *pro forma* SGIP and the *pro forma* SGIA in Order No. 792.[489] Specifically, the Commission proposed to amend the definition of a Generating Facility in the *pro forma* LGIP and the *pro forma* LGIA as follows (with proposed additions in italics): ''Generating Facility shall mean Interconnection Customer's device for the production *and/or storage for later injection* of electricity identified in the Interconnection Request, but shall not include the interconnection customer's Interconnection Facilities.'' [490]

b. General

i. Comments

274. A majority of responsive commenters, including utilities, RTOs/ISOs, and renewable interests, support the proposal.[491] MISO and NYISO state that they already account for electric storage resources in their definitions.[492] CAISO states that it has clarified that electric storage resources can participate as generators to ''provide supply'' and ancillary services. CAISO further states that it studies the reliability impacts of an electric storage resource's charging, but not as firm load.[493] To the extent that an electric storage resource requires firm load treatment, CAISO states that it can apply to the local distribution company.[494]

ii. Commission Determination

275. In this final action, we adopt the NOPR proposal to modify the definition of ''Generating Facility'' in the *pro forma* LGIP and *pro forma* LGIA to include ''and/or storage for later injection.'' We find that this definitional change will reduce a potential barrier to large electric storage resources with a generating facility capacity above 20 MW that wish to interconnect pursuant to the terms in the *pro forma* LGIP and *pro forma* LGIA. Additionally, this finding and definitional change are consistent with provisions already implemented in the *pro forma* SGIP and the *pro forma* SGIA.[495]

c. Electric Storage Resources as Transmission Assets

i. Comments

276. ESA and California Energy Storage Alliance, both of which support the proposal, raise concerns that the proposal may inadvertently prohibit the deployment of electric storage resources as transmission assets.[496] ESA recommends that the Commission state that neither a SGIA nor an LGIA is necessary for electric storage resources to be employed as transmission assets and that electric storage resources providing transmission services should not be excluded from seeking an LGIA or SGIA to provide wholesale generator services.[497] Public Interest Organization

[482] Duke 2017 Comments at 13.

[483] TVA 2017 Comments at 10–11.

[484] NYISO 2017 Comments at 29.

[485] *Id.* at 29–30.

[486] PJM 2017 Comments at 16–17; NYISO 2017 Comments at 29–30.

[487] *See e.g.,* CAISO 2017 Comments at 20; NYISO 2017 Comments at 24; PJM 2017 Comments at 16.

[488] NERC TLR Logs, *http://nerc.com/pa/rrm/TLR/Pages/TLR-Logs.aspx.*

[489] NOPR, FERC Stats. & Regs. ¶ 32,719 at PP 134, 136 (citing Order No. 792, 145 FERC ¶ 61,159 at P 228 (emphasis in original)).

[490] *Id.* PP 138–139.

[491] AFPA 2017 Comments at 12; AWEA 2017 Comments at 55; Bonneville 2017 Comments at 5; CAISO 2017 Comments at 20; California Energy Storage Alliance 2017 Comments at 4; Duke 2017 Comments at 15; EDP 2017 Comments at 6; ESA 2017 Comments at 6; IECA 2017 Comments at 3; ISO–NE 2017 Comments at 32–33; Joint Renewable Parties 2017 Comments at 10–11; MISO 2017 Comments at 29; MISO TOs 2017 Comments at 32; Modesto 2017 Comments at 22; NEPOOL 2017 Comments at 12–13; NextEra 2017 Comments at 26; Non-Profit Utility Trade Associations 2017 Comments at 17; PG&E 2017 Comments at 6; PJM 2017 Comments at 19–20; Public Interest Organizations 2017 Comments at 7–8; TDU Systems 2017 Comments at 20; TVA 2017 Comments at 11.

[492] MISO 2017 Comments at 29; NYISO 2017 Comments at 30.

[493] CAISO 2017 Comments at 20.

[494] CAISO 2017 Comments at 20.

[495] *Pro forma* SGIP at Attachment 1 (Glossary of Terms); *Pro forma* SGIA at Attachment 1 (Glossary of Terms).

[496] ESA 2017 Comments at 6; California Energy Storage Alliance 2017 Comments at 4.

[497] ESA 2017 Comments at 7 (citing *Utilization of Electric Storage Resources for Multiple Services When Receiving Cost-Based Rate Recovery,* 158 FERC ¶ 61,051 (2017)).

generally supports the proposal but opposes requiring all electric storage resources, including those intended to serve as transmission assets, to go through the formal large generator interconnection process.[498]

277. AES and Alevo both oppose the change of definition, arguing that electric storage resources can also act as transmission assets instead of, or in addition to, participating in the markets and that the proposal may prohibit the deployment of electric storage resources as transmission assets.[499]

ii. Commission Determination

278. We find that there is no need to further revise the definition of Generating Facility to address these concerns because the definition, as revised here, would not affect whether electric storage resources operate as transmission assets. The Commission previously has found that, in certain situations, electric storage resources can function as a generating facility, a transmission asset,[500] or both.[501]

279. The purpose of this definition change is to make clear that electric storage resources with a capacity of more than 20 MW may interconnect pursuant to the *pro forma* LGIP and *pro forma* LGIA. These final action revisions are meant to clarify that new technologies may avail themselves of the existing *pro forma* interconnection process, so long as they meet the threshold requirements as stated in those documents.

d. Characteristics of Electric Storage Resources

i. Comments

280. ESA asserts that the proposal does not address the differences between electric storage resources and traditional generators.[502] ESA recommends that the Commission require RTOs/ISOs to develop Electric Storage Interconnection Agreements and Processes that account for the unique characteristics of electric storage resources.[503] In addition, ESA recommends that the Commission revise tariffs and modify the *pro forma* LGIP and the *pro forma* LGIA into a *pro forma* Large Facility Interconnection Agreement and Process, in which facilities are defined to consist of only a generating unit, only an electric storage unit, or a combination of generating units and electric storage units.[504]

281. Alevo and AES state that the proposal does not account for the full capability of electric storage resources.[505] Alevo states that a new definition should be made separately for electric storage resources, while AES suggests that the development of a new interconnection agreement specific to electric storage resources.[506]

282. EEI and Portland request that the Commission hold a technical conference on this proposal.[507] EEI states that it is unclear how existing interconnection agreements and processes would account for the generation and load characteristics of electric storage resources.[508] Portland states that further discussions are necessary to address the unique characteristics of electric storage resources and that a new definition for storage facilities may be appropriate.[509]

283. Southern argues that redefining Generating Facility to include electric storage resources would complicate the *pro forma* LGIP and *pro forma* LGIA.[510] Southern states that electric storage resources could be considered generation or load, and this could cause problems when discussing reactive power in article 9.6 of the *pro forma* LGIA, which references the generating facility capacity rather than the load.[511]

284. NYISO, while stating that it does not take a position, suggests that any revisions should also reflect that the facility may store energy for withdrawal, as energy storage facilities typically both inject and withdraw energy to the grid.[512] Indicated NYTOs, who support the proposal, agree with NYISO on the addition of the term ''withdrawal'' to the definition.[513] MidAmerican states that the Commission should clarify that the proposal does not permit transmission providers to impose restrictions on withdrawals by storage resources in excess of restrictions imposed on any other load.[514]

ii. Commission Determination

285. We disagree with EEI's and Southern's arguments that the *pro forma* LGIP and *pro forma* LGIA may be unable to accommodate the load characteristics of an electric storage resource. We note that studies under the *pro forma* LGIP already provide transmission providers with the flexibility to address the load characteristics of electric storage resources, and that electric storage resources have already successfully interconnected pursuant to a Commission-jurisdictional LGIP and LGIA.[515] EEI and Southern provide no evidence that the requirements of the LGIP and LGIA cannot accommodate the load characteristics of electric storage resources. We note that, if a transmission provider finds a particular resource to be outside the scope of its existing LGIA, the LGIP permits a transmission provider to enter into non-conforming LGIAs when necessary.

286. We find that ESA's suggestion that we remove the term ''generator'' from the *pro forma* LGIA and the *pro forma* LGIP in favor of interconnection agreements based on a facility's technical and operational characteristics is beyond the scope of this proposal. We find that AES's and Alevo's assertions are beyond the scope of this rulemaking because, as previously noted, the final action revisions are meant to clarify that new technologies with a capacity of more than 20 MW may avail themselves of the existing *pro forma* generator interconnection process and interconnection agreement rather than defining an electric storage resource. In response to NYISO's suggestion to add ''withdrawal'' to the definition, we do not believe it is necessary to accept this suggestion. While the meaning of NYISO's comment is unclear, to the extent that it refers to an electric storage resource's ability to charge, our adopted definition already accounts for this ability through the inclusion of the word ''storage.'' Anything beyond this interpretation is beyond the scope of this proceeding.

e. Other

i. Comments

287. EEI seeks clarification on whether the proposed change will affect tax treatment of generators.[516] In addition, EEI states that the Commission should clarify the applicability of

[498] Public Interest Organizations 2017 Comments at 7–8.

[499] AES 2017 Comments at 9–11; Alevo 2017 Comments at 2–4.

[500] *See, e.g., Western Grid Dev., LLC,* 130 FERC ¶ 61,056 *(Western Grid), reh'g denied,* 133 FERC ¶ 61,029 (2010).

[501] *See Utilization of Electric Storage Resources for Multiple Services When Receiving Cost-Based Rate Recovery,* 158 FERC ¶ 61,051.

[502] ESA 2017 Comments at 6.

[503] *Id.* at 7 (citing, *e.g., ISO New England, Inc.,* 151 FERC ¶ 61,024 (2015)).

[504] *Id.* at 8.

[505] AES 2017 Comments at 9–11; Alevo 2017 Comments at 2–4.

[506] AES 2017 Comments at 10–11; Alevo 2017 Comments at 2–4.

[507] EEI 2017 Comments at 48; Portland 2017 Comments at 3–4.

[508] EEI 2017 Comments at 48.

[509] Portland 2017 Comments at 4.

[510] Southern 2017 Comments at 22.

[511] *Id.*

[512] NYISO 2017 Comments at 30.

[513] Indicated NYTOs 2017 Comments at 14.

[514] MidAmerican 2017 Comments at 21.

[515] *See, e.g., AES New Creek,* Docket No. ER12–1100–000 (Apr. 10, 2012) (delegated letter order) (accepting a non-conforming interconnection agreement between PJM, Virginia Electric Power, and a combined solar and electric storage resource).

[516] EEI 2017 Comments at 49.

wholesale distribution charges to electric storage resources using distribution facilities and that the inclusion of electric storage resources in the definition does not affect the jurisdiction of interconnection studies.[517]

ii. Commission Determination

288. In response to EEI's concern that the proposed change to the *pro forma* LGIP and *pro forma* LGIA definition of generating facility might affect tax treatment of generators, we note that the purpose of this proposal is only to allow electric storage resource's with a capacity above 20 MW to interconnect pursuant to the *pro forma* LGIP and *pro forma* LGIA. It should not affect tax treatment of electric storage resources.

289. We find that this definitional change will not affect the jurisdictional issues EEI raises. The *pro forma* LGIP is the process provided for Commission-jurisdictional interconnections by resources above 20 MW, and this definition change ensures that electric storage resources above 20 MW that seek a Commission-jurisdictional interconnection can access that interconnection process. All relevant jurisdictional delineations and precedent remain unchanged. This definition change also does not affect the Commission's precedent on wholesale distribution charges when distributed resources use the distribution system to reach the wholesale market.

5. Interconnection Study Deadlines

a. NOPR Proposal

290. The *pro forma* LGIP requires that transmission providers use ''reasonable efforts'' [518] to complete feasibility studies in 45 days, system impact studies in 90 days, and facilities studies within 90 or 180 days.[519] The Commission proposed to require that transmission providers post on their OASIS on a quarterly basis summary statistics indicating the number of interconnection requests withdrawn and interconnection studies completed and delayed, the proportion of studies completed within tariff timeframes, and the average time to complete a study. Additionally, the Commission proposed to require that a transmission provider that exceeds study deadlines for more than 25 percent of any study type for two consecutive quarters must file informational reports at the Commission for the four calendar quarters (Filed Report Requirement). If during this period, the transmission provider exceeds more than 25 percent of study deadlines for any study type for two consecutive quarters, the reporting requirement would be retriggered for another four consecutive quarters from the date of the last consecutive quarter to exceed the 25 percent threshold.[520]

291. To implement this proposal, the Commission proposed to modify section 3.4 of the *pro forma* LGIP [521] to institute quarterly reporting requirements for transmission providers to report interconnection study performance on their OASIS. The Commission also proposed reporting requirements and justifications that would be triggered if a transmission provider exceeds study deadlines for more than 25 percent of any study type for two consecutive calendar quarters.

292. The Commission also sought comment on whether: (1) To require different interconnection processing statistics to be posted on OASIS by the transmission provider; (2) the Commission has proposed the appropriate summary data requirements to enhance transparency and what customizations of these requirements should be made to adjust for different regional processes; (3) interconnection customers have sufficient information regarding the cause of study delays; (4) transmission providers should have to provide a more detailed explanation to interconnection customers regarding the cause(s) of study delays; (5) a transmission provider should have to inform interconnection customers regarding its process for revising study timelines once a delay occurs; and (6) the transmission provider should also describe in sufficient detail any relevant issues that could further affect the revised timeline for a particular interconnection customer.

b. Interconnection Study Metrics Reporting

i. Comments

293. Numerous commenters support a requirement for transmission providers to report on their interconnection study performance.[522] AWEA states that many transmission providers consistently experience interconnection study delays due to factors completely within their control.[523] NEPOOL states that reporting requirements will provide greater transmission provider accountability, thereby tending to improve transmission provider performance and facilitating market entry.[524] NextEra notes that, while it would prefer to eliminate the reasonable efforts standard, the NOPR proposal will improve transparency into study delay causes and frequency, and this transparency could lead to appropriate solutions.[525]

294. Some commenters support requiring transmission providers to provide additional or even more detailed statistics than the Commission proposed [526] or argue that the Commission should lower the hurdle for triggering the Filed Report Requirement (*e.g.,* lowering the 25 percent hurdle to 10 percent).[527]

295. Some supporting commenters would prefer scaling back or eliminating specific aspects of the NOPR proposal. PJM opposes the Filed Report Requirement; it argues that this requirement would not increase efficiency and that the ability to meet study deadlines is often outside the transmission provider's control.[528] Portland also opposes the Filed Report Requirement, stating that this proposal could disproportionately affect utilities

[517] *Id.*

[518] The *pro forma* LGIP states that reasonable efforts ''shall mean, with respect to an action required to be attempted or taken by a Party under the Standard Large Generator Interconnection Agreement, efforts that are timely and consistent with Good Utility Practice and are otherwise substantially equivalent to those a Party would use to protect its own interests.'' *Pro forma* LGIP Section 1 (Definitions).

[519] *Pro forma* LGIP Sections 6.3, 7.4, and 8.3.

[520] In this final action, we are modifying the calculation for determining whether a transmission provider has triggered the Filed Report Requirement so that it reads more simply. For example, for the calculation in 35.2.2(E), the new calculation will be the sum of 35.2.2(B) plus 35.2.2(C) divided by the sum of 35.2.2(A) plus 35.2.2(C). For ease of readership, we abbreviate here as (B + C) / (A + C). This calculation would represent the quarterly total of late studies, *i.e.,* completed late studies plus uncompleted late studies, divided by the number of studies that *should have* been completed, *i.e.,* completed studies plus uncompleted late studies. Although this is a simpler calculation, we note that it is mathematically equivalent to the calculation proposed in the NOPR, which we abbreviate here as 1 − (A − B) / (A + C).

[521] In the ''Utilization of Surplus Interconnection Service'' section, the Commission proposed revisions to the *pro forma* LGIP that result in renumbering of several existing sections. One section that the Commission proposed to be renumbered is section 3.4. For this reason, the proposed revisions to the ''OASIS Posting'' section (current section 3.4) will begin at section 3.5.1.

[522] Alevo 2017 Comments at 7–8; Alliance for Clean Energy 2017 Comments at 1; AWEA 2017 Comments at 43; Competitive Suppliers 2017 Comments at 9; EDP 2017 Comments at 7; Joint Renewable Parties 2017 Comments at 11; NEPOOL 2017 Comments at 13; NextEra 2017 Comments at 27; PJM 2017 Comments at 20–21; Portland 2017 Comments at 5–6; SEIA 2017 Comments at 19; TDU Systems 2017 Comments at 21–22.

[523] AWEA 2017 Comments at 43–44.

[524] NEPOOL 2017 Comments at 13.

[525] NextEra 2017 Comments at 27.

[526] Alliance for Clean Energy 2017 Comments at 1–2; AWEA 2017 Comments at 45; EDP 2017 Comments at 7; Generation Developers 2017 Comments at 34–36; NextEra 2017 Comments at 28.

[527] AWEA 2017 Comments at 44–45; Competitive Suppliers 2017 Comments at 10; Generation Developers 2017 Comments at 35–36.

[528] PJM 2017 Comments at 20.

with small queues or those that jointly own, but do not operate, transmission facilities. Portland suggests that the Commission apply a minimum threshold of delayed interconnection studies for triggering justifications and that the Commission not impose these requirements if the reasons for missing deadlines are outside the transmission provider's control.[529]

296. Alevo and Invenergy favor financial incentives or penalties over reporting requirements to encourage timely study completion.[530] Relatedly, AWEA states that a final action should include remedies for interconnection customers affected by transmission providers' failures to complete studies accurately and in a timely fashion.[531] AWEA suggests that the Commission require transmission providers to specify remedies in their study services agreements for failure to comply with timeline provisions.[532] While it concedes that the NOPR proposal increases transparency, Invenergy likewise argues that concrete incentives and penalties would result in more timely interconnection study performance.[533] Generation Developers assert that the proposal does not respond to the issue of consistently delinquent transmission providers. They argue that, as a consequence, such transmission providers will have no motivation to improve.[534]

297. Some commenters express concerns regarding the potential administrative burden imposed by the proposal.[535] Bonneville, PG&E, and Alevo argue that the proposal could divert transmission providers' planning resources from conducting studies to meeting administrative burdens with no improvement on the underlying causes of delays.[536] EEI states that posting the aggregate number of employee hours and third party consultant hours expended toward interconnection studies is overly burdensome, is not helpful in evaluating performance, and raises customer costs.[537] TVA notes that the process and tracking burden would need to be borne continually by transmission providers, without regard to whether a reporting trigger is met.[538] In contrast, NextEra believes that the proposal would not impose a material burden on transmission providers because they already know the status of their studies.[539]

298. APS states that the proposal compromises transmission provider flexibility to complete studies and argues that the time required to properly assess an interconnection request may vary significantly.[540] APS states that the addition of metrics would constrain the interconnection process while providing minimal benefits to the interconnection customer.[541]

299. A few commenters state that they do not object to the NOPR's proposed reporting requirement.[542] MidAmerican nonetheless would prefer that transmission providers reform the queue process itself, rather than reporting on existing processes.[543] MISO TOs also do not oppose the additional study reporting requirements, but they point out that they are already subject to extensive reporting requirements.[544] For this reason, they ask the Commission to allow MISO to retain its existing reporting requirements, subject to modification as needed to include the types of information required by the final action.[545]

300. Other commenters expressly oppose the proposal to require the posting of interconnection study statistics.[546] Duke states that the primary reasons for delays are queue withdrawals and material modifications.[547] EEI argues that the proposal fails to consider circumstances outside the transmission provider's control, and that without additional context, this information will not benefit interconnection customers.[548] NYISO indicates that the 25 percent missed deadline requirements are unnecessarily punitive and would jeopardize NYISO's ability to be flexible as needed during the interconnection process.[549] NYISO also argues that additional administrative requirements to track study statistics will not expedite the study process.[550]

301. Xcel states that delays are often caused by interconnection customer actions and minor disputes between interconnection customers and transmission providers, but there is no evidence that transmission providers are being opaque or have not provided sufficient justifications for delays. Xcel notes that interconnection customers can challenge unreasonable delays through a variety of means—including the Commission's Enforcement hotline and the FPA section 206 process—and that Commission audits review the interconnection process.[551] Xcel also argues that the NOPR proposal does not account for regions with fewer requests or delays caused by changes in study assumptions, negotiation of contractual language, or interpretation of technical study results. Xcel states that, if the Commission proceeds with this proposal, it should limit the LGIP requirements to providing a written description of the cause of the delay.[552]

302. Some commenters consider currently available information to be sufficient for interconnection customers.[553] Duke asserts that the LGIP already requires transmission providers to inform interconnection customers about the causes of study delays and schedule revisions.[554] Indicated NYTOs state that NYISO currently provides sufficient interconnection study information on its public website and to interconnection customers, and NYISO updates its Transmission Planning Advisory Committee on the status of all pending large generator facility interconnections.[555] Indicated NYTOs also state that NYISO updates its OASIS with additional information as to where an interconnection request is situated in the study process and which studies have been completed.[556] Additionally, Indicated NYTOs state that interconnection customers receive more detailed information directly throughout the study process.[557] Xcel indicates interconnection customers currently have sufficient transparency regarding the causes of delays and that any delays are discussed directly with the customer. Xcel states that if the customer does not understand the cause

[529] Portland 2017 Comments at 5–6.

[530] Alevo 2017 Comments at 7–8; Invenergy 2017 Comments at 8.

[531] AWEA 2017 Comments at 46.

[532] *Id.*

[533] Invenergy 2017 Comments at 3, 7.

[534] Generation Developers 2017 Comments at 34.

[535] *See, e.g.,* Xcel 2017 Comments at 16.

[536] Bonneville 2017 Comments at 6; PG&E 2017 Comments at 6; Alevo 2017 Comments at 7–8.

[537] EEI 2017 Comments at 51.

[538] TVA 2017 Comments at 12.

[539] NextEra 2017 Comments at 27.

[540] APS 2017 Comments at 4.

[541] *Id.*

[542] MidAmerican 2017 Comments at 14; MISO TOs 2017 Comments at 34; Non-Profit Utility Trade Associations 2017 Comments at 17.

[543] MidAmerican 2017 Comments at 14.

[544] MISO TOs 2017 Comments at 33 (citing *Midcontinent Indep. Sys. Operators, Inc.,* 158 FERC ¶ 61,003, at P 108 (2017)).

[545] *Id.*

[546] Duke 2017 Comments at 15–16; EEI 2017 Comments at 50; ISO–NE 2017 Comments at 33–35; NYISO 2017 Comments at 32–34; Xcel 2017 Comments at 16.

[547] Duke 2017 Comments at 16.

[548] EEI 2017 Comments at 50–51.

[549] NYISO 2017 Comments at 34.

[550] *Id.* at 32.

[551] Xcel 2017 Comments at 16.

[552] *Id.*

[553] *See, e.g.,* EEI 2017 Comments at 51 (citing *pro forma* LGIP Sections 6.3, 7.4, and 8.3).

[554] Duke 2017 Comments at 16; *see also* Xcel 2017 Comments at 16.

[555] Indicated NYTOs 2017 Comments at 11; *see also* NYISO 2017 Comments at 30.

[556] Indicated NYTOs 2017 Comments at 11.

[557] *Id.*

of a delay, it can ask the transmission provider for clarification.[558]

303. NYISO states that it currently maintains on its OASIS a list of all valid interconnection requests, together with the status of the interconnection request including, for example, where the project is in the study process and what studies have been completed.[559] NYISO asserts that adding additional detail regarding the status of a particular study is not informative to the specific interconnection customer, which already knows its status. Moreover, NYISO argues that additional administrative requirements to track study statistics will not expedite the study process.[560] NYISO contends that the best way to expedite interconnection studies is through targeted process improvements, such as those NYISO has proposed to its stakeholders; [561] NYISO states that it has a number of proposals that would improve study processing efficiency.[562] Similarly, MISO recommends allowing existing stakeholder processes to accomplish the objectives of the proposed reporting requirements and notes that it is currently working to increase study timing visibility.[563]

304. NYISO urges the Commission to allow it to tailor appropriate process improvements with the goal of expediting the studies rather than merely tracking their status.[564] NYISO contends that posting the requested information is only informative if a transmission provider reveals additional details that may require disclosure of confidential information. NYISO also argues that such detailed information regarding the status of a particular study is appropriately shared only with the interconnection customer, not all projects in the interconnection queue.[565]

ii. Commission Determination

305. In this final action, we adopt the NOPR proposal modifying the *pro forma* LGIP section on OASIS Posting [566] to require transmission providers to post interconnection study metrics to increase the transparency of interconnection study completion timeframes. We note, however, that we are modifying the posting location requirement, as discussed further below in the subsection ''Requirement to Post Interconnection Study Metrics on OASIS'' of this final action. As proposed in the NOPR, transmission providers shall post this interconnection study metric information on a quarterly basis. We also adopt the Filed Report Requirement.[567] The revisions to the *pro forma* LGIP adopted in this final action are provided in Appendix B to Order No. 845.

306. The current requirement that transmission providers complete interconnection studies on a timely basis is based on a ''reasonable efforts'' [568] standard. This standard can be challenging to apply in the absence of information required in this final action, including information about how long it takes transmission providers to complete studies and the resources a transmission provider uses to complete interconnection studies. Information on interconnection study metrics should provide needed transparency to allow interconnection customers to assess whether a transmission provider is using ''reasonable efforts.'' This information should also allow interconnection customers to develop informed expectations about how long the interconnection study portion of the process actually takes.

307. Many commenters that oppose this proposal cite concerns about the potential administrative burden. We find unpersuasive comments that these requirements will be administratively burdensome for transmission providers in general, to those with small queues, or those that jointly own, but do not operate, their transmission assets. We find that the reporting requirement we adopt strikes a reasonable balance between providing increased transparency and information to interconnection customers while not unduly burdening transmission providers. We find that the increased transparency resulting from these new requirements should provide for improved queue management and better informed interconnection customer planning—results that may be important enough to support some corresponding burden on transmission providers. Further, as noted by NextEra, transmission providers already know the status of their studies, which suggests that the reporting requirement should impose minimal, additional administrative burdens on transmission providers. With regard to the assertion that the reporting requirement will unduly burden transmission providers with smaller interconnection queues, we find it reasonable for a transmission provider with a small volume interconnection queue to detail the reasons for the delay of a lone study or a small number of studies, information that is still beneficial to interconnection customers. In these instances, the reporting requirement would not be more burdensome than for transmission providers with high volume queues that must provide this information for a greater number of studies, if additional reporting requirements are triggered. With regard to Portland's contention that the reporting requirement will disproportionately burden transmission providers that jointly own, but do not operate, their transmission assets, we find little evidence in the record to support this assertion. We note that a transmission owner's assignment of operational responsibility to a joint owner does not necessarily relieve it of its responsibilities or performance obligations.

308. Multiple commenters argue that interconnection customers are often the cause of interconnection study delays. Others question the usefulness of the information to be posted for interconnection customers or other stakeholders. We find that the detailed information provided to the Commission through the Filed Report Requirement should be particularly beneficial in identifying process deficiencies and the causes of delays in regions that experience significant delays in interconnection study processing. Additionally, this requirement complements the requirement that the causes of study delays be provided to interconnection customers upon request and does not duplicate the requirement in sections 6.3, 7.4, and 8.3 of the *pro forma* LGIP related to informing interconnection customers about the causes of study delays. While those provisions require transmission providers to provide the reasons for study delays to individual interconnection customers, these newly adopted provisions require the transmission provider to submit study delay information to the Commission.

309. Some commenters encourage consideration of modifications and alternatives to the Commission's proposal. We find that the reporting requirements we adopt in this final action strike a reasonable balance between transparency into the timing and processing of interconnection

[558] Xcel 2017 Comments at 16.

[559] NYISO 2017 Comments at 30.

[560] *Id.* at 32.

[561] *Id.* at 30–32.

[562] *Id.* at 32.

[563] MISO 2017 Comments at 30.

[564] NYISO 2017 Comments at 32.

[565] *Id.* at 33.

[566] This has been renumbered to *pro forma* LGIP section 3.5 through this final action.

[567] Any informational reports that transmission providers file at the Commission are for informational purposes and will not be formally noticed nor require additional action by the Commission. *See Grid Assurance LLC,* 154 FERC ¶ 61,244, at n.106, *order on clarification,* 156 FERC ¶ 61,027 (2016).

[568] ''Reasonable Efforts'' in *Pro forma* LGIP Section 1 (Definitions).

requests while maintaining a transmission provider's schedule flexibility to process complex and interdependent interconnection requests. As noted in the NOPR and supporting comments, the requirements should identify the geographical locations where interconnection study delays occur most often and will document the delays' causes. We recognize that often a delay will not be the result of the transmission provider having acted inappropriately; therefore, we do not propose implementing automatic penalties for delayed studies, in recognition of this possibility. Nonetheless, we believe that adopting *pro forma* LGIP provisions will improve transparency by highlighting where interconnection study delays are most common and the causes of delays in these regions. Such information could highlight systemic problems for individual transmission providers and interconnection customers. This information could also be useful to the Commission in determining if additional action is required to address interconnection study delays.

310. In response to commenters that seek to eliminate the Filed Report Requirement, we reiterate that this information should be useful for identifying the causes of delays in regions that experience a significant number of study delays. A number of entities should find the publication of this information useful, including stakeholders active in or considering entrance into a regional interconnection queue, the Commission, and transmission providers as they actively monitor their queue management efforts. We reiterate that we do not expect this information to be overly burdensome, as it should largely consist of information already tracked by the transmission provider. In response to commenters that propose alternative metrics to trigger reporting requirements, the Commission notes that the timeframes stated in the tariff are clear and defined and thus should be familiar to the transmission provider and appropriate to use for measuring transmission provider performance.

311. In response to commenters that advocate development of solutions and requirements through the regional stakeholder process, we find that the information required through interconnection study metrics should better inform stakeholder discussions, including discussions about need for further action. Further, many interconnection customers develop generation projects in multiple regions. Therefore, having a minimum set of information that is comparable across regions would allow for quicker and more useful assessment by interconnection customers of the viability of potential projects. Furthermore, this reform is not intended to disrupt stakeholder processes. We note that, on compliance, each transmission provider may explain how it will comply with the requirements adopted in this final action.

c. Requirement To Post Interconnection Study Metrics on OASIS

i. Comments

312. CAISO objects to the requirement to post interconnection study information on OASIS.[569] CAISO contends that using existing public websites, portals, and reports should satisfy any publication requirement and would save ratepayers from the expense of moving data onto OASIS.[570] Additionally, CAISO argues that using existing public websites, portals, and reports would allow the critical assets to remain confidential.[571] OATI states that the metrics proposed are in line with similar requirements for transmission request studies but asks the Commission to direct this posting requirement to NAESB to establish a uniform location for the posting of these metrics on OASIS.[572]

ii. Commission Determination

313. In this final action, we are modifying the location requirement for the quarterly posted summary interconnection study metrics. In the NOPR proposal, the quarterly summary statistic information required posting on OASIS. However, we agree with CAISO's comments that transmission providers should have the flexibility to post this information on their OASIS sites or on a public website. If the transmission provider posts on its website, however, it must provide a clear link to the information on OASIS.

314. In response to OATI's request, we decline to specifically require that transmissions providers work through NAESB to develop a uniform posting location for these requirements. Transmission providers may, of course, coordinate as they determine appropriate to implement the Commission's requirements and to develop any relevant posting protocols.

d. Reasonable Efforts Standard and Firm Study Deadlines

i. Comments

315. Generation Developers and NextEra advocate elimination of the ''reasonable efforts'' standard as a way to improve study timeliness,[573] the result of which would be to impose firm study deadlines Generation Developers state that, even with the new reporting requirement, transmission providers still have no obligation or incentives to meet the study deadline in their LGIPs.[574]

316. Several commenters prefer to retain the ability of transmission providers to use ''reasonable efforts'' to complete interconnection studies.[575] According to Imperial, numerous factors affect timely study completion, and preserving the reasonable efforts standard, while imposing these new reporting requirements, will afford transmission providers the requisite flexibility to account for study delays beyond their control.[576] NYISO states that, in its experience, interconnection customer non-responsiveness and inaccuracy interferes with its ability to perform timely interconnection studies. NYISO also notes that it must coordinate with all affected systems. NYISO states that, given these factors and other unique project complexities, the Commission should continue to evaluate interconnection study completion in accordance with the reasonable efforts standard.[577]

317. TVA expresses concern that the transmission provider efforts needed to meet all deadlines would reduce the current flexibility that benefits both interconnection customers and transmission providers.[578] PG&E and Indicated NYTOs oppose establishment of fixed study deadlines.[579] Indicated NYTOs argue that imposing artificial deadlines can lead to prematurely completed studies that do not fully investigate all reliability issues, which could result in transmission owners having to pay for later-identified upgrades.[580]

318. TDU Systems urge the Commission to consider adding a tolling provision to relevant provisions of the

[569] CAISO 2017 Comments at 22.

[570] *Id.*

[571] *Id.*

[572] OATI 2017 Comments at 6.

[573] Generation Developers 2017 Comments at 33–34; NextEra 2017 Comments at 27.

[574] Generation Developers 2017 Comments at 33–34.

[575] Bonneville 2017 Comments at 6; Duke 2017 Comments at 15–16; Imperial 2017 Comments at 19; NYISO 2017 Comments at 33–34.

[576] Imperial 2017 Comments at 20.

[577] NYISO 2017 Comments at 33–34.

[578] TVA 2017 Comments at 12.

[579] Indicated NYTOs 2017 Comments at 10–11; PG&E 2017 Comments at 6–7.

[580] Indicated NYTOs 2017 Comments at 11.

pro forma OATT because hard deadlines can be a ''two-edged sword'' for interconnection customers. Thus, they urge the Commission to toll the deadlines during periods when the transmission provider is responding to questions from the interconnection customer concerning study methods or results. TDU Systems contend that this will ensure that the deadline does not serve as a reason for the transmission provider to refuse to respond to legitimate questions from the interconnection customer.[581]

319. Rather than set study timeframes, APS and Bonneville believe that interconnection customers would benefit more from discussion and establishment of realistic study timeframes than from the reporting requirements.[582] APS suggests that the Commission could better address queue delays by empowering transmission providers to set a default timeframe for study completion that is tiered based on specific factors, such as size, location, presence of affected systems, or expected amount of upgrades.[583] APS asserts that, if the Commission determines that an interconnection customer needs additional details about a request's study progress, the best solution is a requirement that the transmission provider coordinate more closely with the interconnection customer.[584]

320. If the Commission adopts the NOPR proposal, ISO–NE asks that the Commission revise the reporting construct so that performance is evaluated in accordance with the reasonable efforts standard and not the timeframes established in the *pro forma* LGIP.[585] ISO–NE states that, alternatively, the Commission should allow regional flexibility for ISO–NE to evaluate and revise the timeframes to more realistically reflect the time that it takes to complete interconnection studies.[586]

321. CAISO opposes the interconnection study reporting requirement proposal as applied to CAISO and other transmission providers with firm study deadlines.[587] CAISO states that its interconnection procedures and transmission planning process are coordinated such that one process informs the other and that this linkage necessitates timely interconnection study completion.[588] As such, CAISO asserts, its transmission owners complete studies on a timely basis, and it already publishes detailed study process schedules for each queue cluster on its public website.[589] CAISO requests that the Commission clarify that this proposal is limited to those transmission providers and owners whose tariffs do not have firm study deadlines.[590]

ii. Commission Determination

322. In response to concerns that the Commission is implementing firm interconnection study deadlines, we clarify that the NOPR did not propose, and the final action declines to adopt, firm deadlines for completing interconnection studies. Further, the NOPR did not propose to, and this final action does not eliminate, the reasonable efforts standard or reduce transmission provider flexibility. Many commenters seem to equate measurement of a transmission provider's ability to meet the study timeframes in their tariffs as the equivalent of establishing firm study deadlines. Many commenters argue against firm study deadlines and against elimination of the reasonable efforts standard.

323. We do not believe the current record supports elimination of the ''reasonable efforts'' standard to meet study deadlines and to instead impose firm deadlines. At this time, we believe the reasonable efforts standard continues to be the appropriate approach to interconnection study processing. We find that reliance on improved reporting is a preferable approach to encourage timely processing of interconnection studies, rather than moving to a regime of firm study deadlines. Such reporting should also help inform the Commission if any future action should be considered.

324. We disagree with ISO–NE's argument that interconnection study metrics should be calculated to reflect compliance with the reasonable efforts standard rather than tariff deadlines. The reasonable efforts standard is not meant to specify a timeframe but rather to impose a performance standard on the transmission provider. If ISO–NE's request [591] is that each interconnection study conducted per an interconnection request have a specific amount of time determined as appropriate for completion under the reasonable efforts standard, we note that ISO–NE has tariff-prescribed timeframes that are designed to apply to most interconnection requests.

325. APS, Bonneville and ISO–NE contend that the Commission should allow transmission providers to establish interconnection study timeframes that more realistically reflect the time that it takes to complete interconnection studies. This request is outside the scope of this proceeding because the final action is not proposing to modify the study timeframes currently memorialized in transmission providers' LGIP.

326. We disagree with CAISO's contention that transmission providers with firm deadlines should not be subject to the reporting requirements of this final action. Interconnection customers and the queue management process would still benefit from posting relevant metrics regarding study completion in prescribed timeframes. We also note that, if a transmission provider has firm study deadlines that it always meets, then it would not trigger the Filed Report Requirement.

e. Challenges in Calculating Reported Metrics

i. Comments

327. Southern states that there are too many potential clock resets and restudies to result in any meaningful metrics.[592] It does not see the value of using withdrawal metrics and considers average study cost to be a more meaningful metric than aggregating the total number of employee and third-party consultant hours.[593] TVA asserts that, for the proposed metrics to be useful, there would need to be consistent definitions of start and stop times for each study phase and ways to adjust for customer-caused delays.[594]

328. Consistent with Order No. 890, 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.[595]

[581] TDU Systems 2017 Comments at 21–22.

[582] APS 2017 Comments at 5; Bonneville 2017 Comments at 6.

[583] APS 2017 Comments at 4.

[584] APS 2017 Comments at 4–5.

[585] ISO–NE Comments at 35.

[586] *Id.* at 36.

[587] CAISO 2017 Comments at 21.

[588] *Id.* at 22.

[589] *Id.* (citing *https://www.caiso.com/planning/Pages/GeneratorInterconnection/Default.aspx*).

[590] *Id.*

[591] ISO–NE 2017 Comments at 35.

[592] Southern 2017 Comments at 23.

[593] *Id.*

[594] TVA 2017 Comments at 12–13.

[595] ISO–NE 2017 Comments at 36 (citing *Preventing Undue Discrimination and Preference in Transmission Service,* Order No. 890, FERC Stats. & Regs. ¶ 31,241, at P 747, *order on reh'g,* Order No. 890–A, FERC Stats. & Regs. ¶ 31,261 (2007), *order on reh'g,* Order No. 890–B, 123 FERC ¶ 61,299 (2008), *order on reh'g,* Order No. 890–C, 126 FERC ¶ 61,228, *order on clarification,* Order No. 890–D, 129 FERC ¶ 61,126 (2009) (clarifying that the 60-day due diligence period starts on the date the transmission study agreement is executed, unless the transmission provider and the customer agree

Continued

329. Additionally, ISO–NE requests that the Commission extend the period for posting the information from 30 to 60 days to allow sufficient time for the transmission provider to collect the information, such as from third-party consultant invoices.[596]

330. PG&E requests clarification as to the application of the Commission's proposed metrics.[597] PG&E states that it is unclear whether they would apply to material modification applications, to cluster studies only, or also to Fast Track, repowering, and in-service date studies.[598]

ii. Commission Determination

331. In response to Southern's and TVA's comments, we clarify that the start date for each study included in the performance reporting metrics is the date that the transmission provider receives a fully executed study agreement. If multiple study agreements have been executed for an interconnection request, or interconnection studies have been completed, delayed, or are ongoing, then the metric reporting period should begin the date that the transmission provider received the last executed study agreement and be measured to the most recent relevant study conducted or planned for that study agreement. In response to TVA's comment about adjusting the performance metrics for interconnection customer-caused delays, we note that one of the objectives of the quarterly metrics is to identify regions where the transmission provider consistently completes interconnection studies on a delayed basis. The metric is not intended to identify the causes of those delays. This information is potentially useful to existing stakeholders as well as generation developers considering pursuing projects in that region and the lack of metric adjustment for delaying factors provides for easier comparability of interconnection study completion timeframes across regions. The Commission believes that stakeholders will be most interested in explanations for missed deadlines in queue backlogged regions and an informational report to the Commission from such regions will be useful for identifying the delay causes.

332. We disagree with ISO–NE that the starting point for interconnection study metrics should be a date other than the date the transmission provider receives a fully executed study agreement. The metrics adopted in this final action provide information on the transmission provider's ability to meet the timeframes described in the *pro forma* tariff. These date ranges are clearly defined, and the period between the executed study agreement and the study completion date reflects the amount of time to complete a study after the study's terms are formally agreed upon. Some regions may experience significant delays in beginning a study after study agreements are signed; in these instances, metrics based on a transmission provider's performance once a study is begun—which could be long after executing the study agreement—would not be as informative and useful as the Commission's adopted metrics.

333. We also disagree with ISO–NE that we should extend the posting time period from 30 to 60 days. Interconnection customers make decisions with information as it becomes available, and we believe that 30 days allows sufficient time for the transmission provider to post the required information.

334. In response to PG&E's question about the application of the proposed metrics, we clarify that these metrics apply to interconnection requests within the queue, including clustering and fast-track projects. We expect that a change to a project that triggers material modification provisions, though it will lose its queue position, would be in the queue as would repowering projects. Thus, the study performance metric calculations must include such projects.

6. Improving Coordination With Affected Systems

a. NOPR Request for Comments

335. The interconnection of a new generating facility to a transmission system may affect the reliability of a neighboring, or affected, transmission system. Currently, section 3.5 of the *pro forma* LGIP requires the transmission provider to coordinate the conduct of any studies required to determine the impact of an interconnection request on affected systems with the affected system operators. The transmission provider should also, if possible, include those results in the applicable interconnection study. Because the affected system operator is not bound by the terms of the interconnection transmission provider's LGIP, its process and schedule may differ from the transmission provider's processing of the interconnection request. In Order No. 2003, the Commission explained that:

> [a]lthough the owner or operator of an Affected System is not bound by the provisions of the . . . LGIP or LGIA, the Transmission Provider must allow any Affected System to participate in the process when conducting the Interconnection Studies, and incorporate the legitimate safety and reliability needs of the Affected System.[599]

336. Order No. 2003 further explained that, if the affected system operator does not provide information in a timely manner, a transmission provider may proceed without accounting for any information the affected system could have provided.[600] Often, however, transmission providers will not proceed without receiving reliability-related analysis from any affected systems. AWEA raised the issue of affected system impacts in its petition,[601] and the Commission discussed the issue at the 2016 Technical Conference.

337. Order No. 2003 does not require that transmission providers publish their affected system coordination process. During the Order No. 2003 proceeding, the Commission declined Duke's request to require affected systems to participate in the interconnection process with interconnection customers.[602] The Commission reiterated, however, that a transmission provider must allow any affected system to participate in the interconnection study process and must incorporate the affected system's legitimate safety and reliability needs.[603]

338. The Commission stated in the NOPR that providing affected system coordination guidelines and timeframes could better inform interconnection customers and could result in fewer late-stage withdrawals due to the unforeseen cost of affected system network upgrades.[604] The Commission further posited that clear procedures and timelines regarding the affected system's study of a proposed interconnection memorialized in a Commission-approved affected systems

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)).

[596] *Id.* at 39.

[597] PG&E 2017 Comments at 7.

[598] *Id.*

[599] Order No. 2003, FERC Stats. & Regs. ¶ 31,146 at P 121.

[600] *Id.* On rehearing, the Commission clarified that delays by an affected system in performing interconnection studies or providing information for such studies is not an acceptable reason to deviate from the timetables established in Order No. 2003 unless the interconnection itself (as distinct from any future delivery service) will endanger reliability. *See* Order No. 2003–A, FERC Stats. & Regs. ¶ 31,160 at P 114.

[601] Petition at 31.

[602] Order No. 2003, FERC Stats. & Regs. ¶ 31,146 at P 121.

[603] *Id.* PP 120–121.

[604] NOPR, FERC Stats. & Regs. ¶ 32,719 at P 158.

analysis agreement could ameliorate delays caused by the affected systems coordination process.

339. In the NOPR, the Commission sought comment on the following: prescribing guidelines for affected systems coordination; imposing study requirements and associated timelines on affected systems that are also public utility transmission providers; standardizing the process for coordinating with an affected system during the interconnection process; developing a standard affected system study agreement; and additional steps (*e.g.,* conducting a technical conference or workshop focused on improving issues that arise when affected systems are impacted).

b. Comments

340. Multiple commenters responded to the questions posed by the NOPR. We have not included a summary of the comments pertaining to affected systems coordination because the Commission did not propose any specific reforms pertaining to affected systems in the NOPR and is considering these issues in another proceeding, as discussed below. However, these comments informed that discussion.

c. Commission Determination

341. On April 3 and 4, 2018, Commission staff convened a technical conference in Docket No. AD18–8–000 to explore issues related to the coordination of affected systems raised in this proceeding. The technical conference also explored issues related to the coordination of affected systems raised in the complaint filed by EDF Renewable Energy, Inc. against Midcontinent Independent System Operator, Inc., Southwest Power Pool, Inc., and PJM Interconnection, L.L.C. in Docket No. EL18–26–000. The Notice Inviting Post-Technical Conference Comments, which issued concurrently with this final action, states that initial and reply comments are due within 30 days and 45 days, respectively, from the date of the notice's issuance. The Commission is considering next steps in light of the technical conference held in Docket Nos. AD18–8–000 and EL18–26–000. We decline to take further action in this rulemaking proceeding. Any further action on this issue would reference Docket No. AD18–8–000.

C. Enhancing Interconnection Processes

342. In the NOPR, the Commission proposed reforms designed to enhance interconnection processes by making use of underutilized interconnection service, providing interconnection service earlier, and accommodating changes in the development process.

1. Requesting Interconnection Service Below Generating Facility Capacity

a. NOPR Proposal

343. The Commission proposed to modify the *pro forma* LGIP to allow interconnection customers to request interconnection service that is lower than full generating facility capacity,[605] recognizing the need for proper control technologies and penalties to ensure that the generation facility does not inject energy above the requested level of service.[606] The Commission also requested comment on whether, instead of such *pro forma* LGIP revisions, such interconnection requests should be processed on an *ad hoc* basis.[607]

344. The Commission proposed that an interconnection customer that seeks interconnection service below its generating facility capacity should be subject to reasonable provisions that enforce a maximum export limit and a process for notifying an interconnection customer that it has exceeded such limit.

345. The Commission also specifically proposed that interconnection customers be subject to reasonable penalties if they exceed their requested service levels, and that such penalties could be discrete financial penalties, a requirement to pay the cost of additional interconnection facilities or network upgrades, or the loss of interconnection rights. The Commission sought comment on the potential penalties that may be imposed if an interconnection customer exceeds its service level.[608]

346. The Commission also specifically sought comment on the types and availability of control technologies and protective equipment to ensure that a generating facility does not exceed its level of interconnection service.[609] Finally, the Commission proposed changes to the definitions of ''Large Generating Facility'' and ''Small Generating Facility'' in the *pro forma* LGIP and *pro forma* LGIA so that they are based on the level of interconnection service for the generating facility rather than the generating facility capacity.[610]

347. Consistent with the proposals above, the NOPR proposed to add the following new paragraph at the end of section 3.1 of the *pro forma* LGIP (with proposed new text in italics):

The Transmission Provider shall have a process in place to consider requests for Interconnection Service below the Generating Facility Capacity. These requests for Interconnection Service shall be studied at the level of Interconnection Service requested for purposes of Interconnection Facilities, Network Upgrades, and associated costs, but may be subject to other studies at the full Generating Facility Capacity to ensure safety and reliability of the system, with the study costs borne by the Interconnection Customer. Any Interconnection Facility and/or Network Upgrade costs required for safety and reliability also would be borne by the Interconnection Customer. Interconnection Customers may be subject to additional control technologies as well as testing and validation of those technologies consistent with article 6 of the LGIA. The necessary control technologies and protection systems as well as any potential penalties for exceeding the level of Interconnection Service established in the executed, or requested to be filed unexecuted, LGIA shall be established in Appendix C of that executed, or requested to be filed unexecuted, LGIA.[611]

348. The NOPR proposed to add the following language to the end of section 6.3 of the *pro forma* LGIP (with proposed new text in italics):

Transmission Provider shall study the interconnection request at the level of service requested by the interconnection customer, unless otherwise required to study the full Generating Facility Capacity due to safety or reliability concerns.[612]

349. The NOPR proposed to insert the following language in section 7.3 of the *pro forma* LGIP in line 8 of the second paragraph (with proposed new text in italics):

For purposes of determining necessary interconnection facilities and network upgrades, the System Impact Study shall consider the level of interconnection service requested by the Interconnection Customer, unless otherwise required to study the full Generating Facility Capacity due to safety or reliability concerns.[613]

350. The NOPR proposed to add the following language to the end of section 8.2 of the *pro forma* LGIP (with proposed new text in italics):

The Facilities Study will also identify any potential control equipment for requests for

[605] The term generating facility capacity means ''the net capacity of the Generating Facility and the aggregate net capacity of the Generating Facility where it includes multiple energy production devices.'' *Pro forma* LGIA Art. 1.

[606] NOPR, FERC Stats. & Regs. ¶ 32,719 at P 167–68.

[607] *Id.* P 173.

[608] *Id.* P 168.

[609] *Id.* P 169.

[610] *Id.* P 172.

[611] *Id.* P 174. In this final action, the adopted language differs slightly from the NOPR language because we remove the word ''the'' before ''Transmission Provider.''

[612] *Id.* P 175.

[613] *Id.* P 176.

Interconnection Service that are lower than the Generating Facility Capacity.[614]

351. The NOPR proposed to add the following language to Appendix 1, Item 5, of the *pro forma* LGIP, as sub-item h (with proposed new text in italics):

Requested capacity (in MW) of Interconnection Service (if lower than the Generating Facility Capacity).[615]

352. Lastly, the NOPR proposed to change the definition of ''Large Generating Facility'' and ''Small Generating Facility'' in section 1 of the *pro forma* LGIP and article 1 of the *pro forma* LGIA as follows (proposed to delete the bracketed text and add the italicized text):

Large Generating Facility shall mean a Generating Facility *for which an Interconnection Customer has* [having a Generating Facility Capacity] *requested Interconnection Service* of more than 20 MW.

Small Generating Facility shall mean a Generating Facility *for which an Interconnection Customer has requested Interconnection Service* [that has a Generating Capacity] of no more than 20 MW.[616]

b. General

i. Comments

353. Most responsive commenters support the proposal.[617] Alevo states that electric storage facilities may not plan to use the maximum power rating of their facilities; therefore, they should have the ability to request interconnection service at the power rating of their choice.[618] NextEra also argues that rejecting requests for interconnection below full generating facility capacity can result in paying for unneeded interconnection facilities and network upgrades.[619]

354. A number of commenters see benefits to the proposal. Several commenters see the potential for lower costs.[620] AFPA and the Public Interest Organizations assert that allowing for interconnection service below capacity will improve the efficiency and fairness of the interconnection process and enhance reliability.[621] ESA agrees, adding that the proposal will allow interconnection customers to request service that reflects a given resource's intended operation.[622] ESA and AFPA contend that the proposal will remove undue discrimination toward highly controllable or unique resources, such as electric storage resources or combined heat and power, in interconnection processes.[623] ESA further argues that the proposal will facilitate market entry of electric storage resources by eliminating excessive costs and will allow electric storage resources to use spare interconnection service to repower existing conventional generators or firm the deliveries of variable generators.[624]

355. AWEA states that developers of new technologies have an interest in requesting interconnection service at levels below generating facility capacity.[625] It notes that wind turbine manufacturers often make minor upgrades to equipment or software to increase capacity, and these upgrades sometimes occur during the pendency of an interconnection request. As a result, the final generating facility capacity may be greater than what was originally specified in the interconnection request. AWEA argues that in such cases, the interconnection customer may prefer to avoid seeking an increase in interconnection service because increasing the generating facility capacity may constitute a material modification that triggers the need for a restudy.[626] AWEA further argues that allowing an interconnection customer to increase its capacity without increasing its requested level of interconnection service and without it being considered a material modification would promote more efficient operation of wind plants.[627] AWEA states that allowing interconnection service at levels below generating facility capacity would benefit wind facilities due to the collector system losses that occur, as the output of the multiple turbines at a wind farm are aggregated before injection to the grid. According to AWEA, these losses result in the maximum real power output at the point of interconnection being measurably lower than the combined generating facility capacity of the individual units.[628]

356. ESA and NextEra also point out that, in Order No. 792, the Commission revised the *pro forma* SGIP to allow small generating facilities to attain interconnection service below installed capacity, if the interconnection customer installs acceptable control technologies to avoid violating injection limits; thus, it would be inconsistent to not allow the same for large generating facilities.[629]

357. ELCON, ESA, and NextEra also note that the proposal will reduce the overbuilding of interconnection facilities and network upgrades.[630] According to Industrial Energy Consumers of America, this reform should also increase existing asset utilization and improve the accuracy and reliability of interconnection studies.[631] MidAmerican argues that the proposal may reduce late-stage withdrawals from the queue by allowing interconnection customers to operate at reduced output levels rather than requiring network upgrades that would otherwise render them non-viable.[632] NEPOOL suggests that the proposal provides options and flexibility for market participants and could facilitate market entry of new resources.[633]

358. CAISO notes that the flexibility afforded by the proposal can benefit interconnection customers—especially for newer resources that combine storage, conventional generation, high auxiliary load, and/or onsite demand-side management.[634] It further argues that the transmission operator is unaffected so long as the interconnection request studies the correct capacity and the generating facility never exceeds that capacity.[635] ELCON also notes that the proposal would provide benefits for industrial co-generators or other behind-the-meter industrial generation.[636]

359. Multiple commenters note that similar programs are already in place in some RTOs/ISOs, either on a formal or informal basis, including CAISO, MISO, PJM, and ISO–NE.[637] ESA and NextEra offer examples of where interconnection

[614] *Id.* P 177.

[615] *Id.* P 178.

[616] *Id.* P 179.

[617] Alevo 2017 Comments at 8; AFPA 2017 Comments at 3; AWEA 2017 Comments at 52; Bonneville 2017 Comments at 7; CAISO 2017 Comments at 27; California Energy Storage Alliance 2017 Comments at 6; Joint Renewable Parties 2017 Comments at 12; ELCON 2017 Comments at 7; ESA 2017 Comments at 8.

[618] Alevo 2017 Comments at 8.

[619] NextEra 2017 Comments at 34–35 (citing NOPR, FERC Stats. & Regs. ¶ 32,719 at P 167).

[620] AFPA 2017 Comments at 14; Public Interest Organizations 2017 Comments at 5–8; ELCON 2017 Comments at 7; ESA 2017 Comments at 8; IECA 2017 Comments at 3.

[621] AFPA 2017 Comments at 14; Public Interest Organizations 2017 Comments at 5–8; MidAmerican 2017 Comments at 17.

[622] ESA 2017 Comments at 8.

[623] *Id.;* AFPA 2017 Comments at 14.

[624] ESA 2017 Comments at 10.

[625] AWEA 2017 Comments at 52.

[626] *Id.* at 52–53.

[627] *Id.* at 52–53.

[628] *Id.* at 53–54.

[629] ESA 2017 Comments at 11 (citing Order No. 792, 145 FERC ¶ 61,159 at P 230); NextEra 2017 Comments at 37.

[630] ESA 2017 Comments at 8; ELCON 2017 Comments at 7; NextEra 2017 Comments at 35.

[631] IECA 2017 Comments at 3.

[632] MidAmerican 2017 Comments at 17.

[633] NEPOOL 2017 Comments at 14–15.

[634] CAISO 2017 Comments at 27.

[635] *Id.*

[636] ELCON 2017 Comments at 7.

[637] CAISO 2017 Comments at 27; MISO 2017 Comments at 33; PJM 2017 Comments at 23–24; NEPOOL 2017 Comments at 14–15.

service lower than installed capacity is already occurring without reliability problems.[638] ESA provides examples in CAISO, MISO, and PJM, where it believes projects have been sized to allow greater generation deliveries over time, but where the facilities (including one that combines solar and storage) never deliver at maximum output.[639]

360. CAISO and PG&E state that CAISO allows interconnection requests for less than generating facility capacity, as long as the interconnection customer installs appropriate monitoring and control technologies to enforce the maximum export limit.[640] PG&E notes that various projects have made such requests, particularly solar resources.[641]

361. PG&E notes that CAISO also allows interconnection projects to downsize their capacity, which is functionally equivalent to limiting a project with excess capacity.[642]

362. MISO notes that its generator interconnection agreement allows interconnection customers to request interconnection service below the capacity of the proposed generating facility and limits the net injection to the allowed interconnection service level.[643] MISO notes that the additional limiting language gives the transmission owner and MISO the right to enforce the limit.[644] Similarly, NextEra explains that MISO has allowed it to amend an existing interconnection agreement to reflect an increase in the rating of a wind generation project without an increase in the level of interconnection service provided.[645]

363. PJM states that it currently allows interconnection customers to limit injection rights subject to additional studies at both the requested level of interconnection service to identify required network upgrades, as well as at the generating facility's full capacity.[646] PJM explains that these studies allow PJM to specify the system protections necessary in the event of system contingencies.[647] NextEra states that PJM has allowed a wind generator to install capacity in excess of the level of interconnection service in the agreement.[648]

364. ISO–NE states that it supports the proposal and has already implemented a similar process under its existing interconnection procedures.[649] Similarly, NEPOOL states that interconnection customers in ISO–NE can already request an amount of interconnection service less than generating facility capacity at the time of the interconnection request or before beginning the system impact study.[650] NEPOOL notes that if a generating facility consists of multiple generating units, ISO–NE would need to study a number of possible output combinations, which could increase study costs and timelines but could also potentially reduce upgrade requirements.[651] NEPOOL states that ISO–NE studies such requests at the requested below-generating facility capacity amount, and the interconnection customer must explain how it will limit output of its facility to that level.[652]

365. Non-Profit Utility Trade Associations, NYISO, and SEIA do not object to the proposal.[653] Portland generally supports this proposal, but states that there are potential queue and reliability impacts.[654] TVA argues that the proposal imposes an undesirable monitoring and mitigation burden on transmission system operators, and that the necessary protective systems introduce undesirable reliability challenges.[655] Southern expresses concern that interconnection customers could take advantage of this proposal to avoid costly network upgrades.[656] EEI requests that the Commission ensure that any revisions to the *pro forma* LGIA or LGIP provide clear requirements for interconnection customers.[657] Non-Profit Utility Trade Associations recommend establishing NERC reliability standards for interconnection customers operating at levels below their rated capacity, which would constrain them to the rating at which their generation was studied.[658]

366. In response to the Commission's question in the NOPR regarding whether, instead of revising the *pro forma* LGIP, such interconnection requests should be processed on an ad hoc basis,[659] ESA states that an *ad hoc* basis for considering interconnection requests below cumulative installed capacity does not provide sufficient certainty to interconnection customers seeking interconnection service below a resource's installed capacity.[660] NextEra agrees, arguing that an *ad hoc* approach could lead to arbitrary and potentially unduly discriminatory results.[661]

ii. Commission Determination

367. In this final action, we adopt the NOPR proposal to modify sections 3.1, 6.3, 7.3, 8.2, and Appendix 1 of the *pro forma* LGIP to allow interconnection customers to request interconnection service that is lower than full generating facility capacity, recognizing the need for proper control technologies and penalties to ensure that the generating facility does not inject energy above the requested level of service.[662] We also withdraw the proposal to revise the definitions of ''Large Generating Facility'' and ''Small Generating Facility'' in the *pro forma* LGIA so that they are based on the level of interconnection service for the generating facility rather than the generating facility capacity, and make certain clarifications, as discussed further below.

368. The majority of responsive comments either support the NOPR proposals outright or emphasize the importance of allowing transmission providers to retain the tools necessary to continue to ensure reliable operations. Furthermore, as noted by some commenters, some RTOs/ISOs have already permitted such flexibility in the generator interconnection process without causing reliability issues.

369. We find that the reforms and clarifications made in this final action, coupled with existing provisions in the *pro forma* LGIA, provide the desired flexibility for interconnection customers while allowing transmission providers to ensure reliability.

370. The reforms adopted here are consistent with existing provisions of the *pro forma* LGIA. Article 6 of the *pro forma* LGIA provides transmission providers with broad ability to test and inspect or require the testing and inspection of interconnection facilities and network upgrades. Articles 7 and 8 of the *pro forma* LGIA provide a similarly broad ability to transmission

[638] ESA 2017 Comments at 10–11; NextEra 2017 Comments at 36.

[639] ESA 2017 Comments at 10–11.

[640] CAISO 2017 Comments at 27; PG&E 2017 Comments at 7 (citing CAISO Business Practice Manual for Generator Management, Section 6.5.4.1).

[641] PG&E 2017 Comments at 7.

[642] *Id.*

[643] MISO 2017 Comments at 33.

[644] *Id.*

[645] NextEra 2017 Comments at 36–37.

[646] PJM 2017 Comments at 24.

[647] *Id.*

[648] NextEra 2017 Comments at 36–37.

[649] ISO–NE 2017 Comments at 40.

[650] NEPOOL 2017 Comments at 15.

[651] NEPOOL 2017 Comments at 15.

[652] *Id.*

[653] Non-Profit Utility Trade Associations 2017 Comments at 4, 21–22; NYISO 2017 Comments at 36; SEIA 2017 Comments at 21.

[654] Portland 2017 Comments at 6.

[655] TVA 2017 Comments at 14–16.

[656] Southern 2017 Comments at 25.

[657] EEI 2017 Comments at 54; NYISO 2017 Comments at 36.

[658] Non-Profit Utility Trade Associations 2017 Comments at 24.

[659] NOPR, FERC Stats. & Regs. ¶ 32,719 at P 173.

[660] ESA 2017 Comments at 11.

[661] NextEra 2017 Comments at 37–38.

[662] We are therefore not pursuing the alternative, *ad hoc* approach to interconnections below generating facility capacity, about which the NOPR sought comment.

providers with respect to metering and communications requirements relevant to interconnection. All of these existing provisions would apply to interconnection requests that are below generating facility capacity, just as they do to other interconnection requests, and they would thus help ensure that the necessary control technologies for limiting injection adhere to transmission provider requirements.

371. Most importantly, article 9 of the *pro forma* LGIA describes both the transmission provider's and the interconnection customer's obligations with respect to operations of the interconnection facilities and network upgrades and, in particular, defines system protection facilities to include ''the equipment, including necessary protection signal communications equipment, required to protect the transmission provider's transmission system from faults or *other electrical disturbances* occurring at the generating facility.'' [663] Article 9.7.4.1 of the *pro forma* LGIA requires the interconnection customer to pay for the installation, operation, and maintenance of system protection facilities associated with its interconnecting generating facility. We find that the necessary control technologies for limiting injection discussed in the NOPR are a subset of the system protection facilities that transmission providers are empowered to require and all interconnection customers are required to pay for under article 9.7.4.1 of the *pro forma* LGIA.

372. We note that nothing in article 9.7.4.1 of the *pro forma* LGIA prevents interconnection customers from proposing system protection facilities to limit their injection rights to meet the transmission provider's requirements. Therefore, this aspect of the final action makes those interconnection customer rights explicit, while still preserving the transmission provider's ability to ensure system protection under the existing *pro forma* LGIA provisions. Commenters have not argued that these broad, existing authorities are insufficient in the context of interconnection requests operating below full generating facility capacity.

373. Furthermore, article 5.9 of the *pro forma* LGIA permits an interconnection customer to request the study and, if appropriate, subsequent use of, a lower level of interconnection service, termed ''limited operation,'' in cases where the transmission provider's interconnection facilities or network upgrades are not reasonably expected to be completed prior to the commercial operation date of the generating facility. While this existing LGIA provision is intended to permit temporary operation at below generating facility capacity, the fact that entities have successfully made use of this provision demonstrates that there should not be anything inherently unworkable about the concept of interconnection below generating facility capacity. Therefore, we find that this final action does not adversely impact transmission providers' ability to ensure reliable interconnection consistent with good utility practice.

374. Finally, with respect to the Non-Profit Utility Trade Associations' suggestion that a NERC reliability standard be considered that would constrain interconnection customers operating at levels below their rated generating facility capacity to the rating at which the facilities are studied, we find that suggestion to be outside the scope of this rulemaking proceeding. As discussed above, the existing system protection facility provisions of the *pro forma* LGIA, which apply to all interconnection customers, adequately ensure that below-generating facility capacity interconnection customers do not exceed the limits for which they are studied.

c. Study Assumptions and Modeling

i. Comments

375. Commenters disagree on the appropriate way to model and conduct studies of resources that seek to interconnect below their capacity. Some commenters argue that the studies should focus solely on the reduced generating facility capacity. For example, AWEA, ESA, and NextEra assert that transmission providers should not be able to study interconnection requests at full generating facility capacity. They argue that the interconnection customer should be able to determine operational assumptions and limitations, especially given the sophisticated and reliable characteristics of available monitoring and control technologies.[664]

376. ESA argues that, if a transmission provider is skeptical that proposed control systems are adequate, it should identify the shortcomings of the proposed control scheme to the customer and suggest what modifications address these shortcomings.[665] NextEra argues that requiring studies at full generating facility capacity would ''undermine the very goal of the Commission's proposed reforms.'' [666]

377. On the other hand, NYISO contends that, to ensure reliability, short circuit analysis of the full generating facility capability and steady-state and dynamic study evaluations of the specific mechanism, which would serve to enforce this limit, are necessary.[667] NYISO asserts that these evaluations are necessary to ensure that the mechanism does not impact the resource's ability to reliably interconnect to the New York state transmission system or distribution system and that, in the event that the mechanism fails, there are no adverse short circuit impacts.[668]

378. Similarly, ESA and NextEra suggest that short circuit and stability studies should be performed using full generating facility capacity, whereas thermal studies should be at the level of interconnection requested.[669] However, if a transmission provider decides to perform thermal studies at the full generating facility capacity rating, then NextEra suggests tariff language stating that those study costs should be borne by the transmission provider and be outside the normal queue timeframe.[670] NextEra adds that a transmission provider should be able to refuse to grant the requested lower level of interconnection service just as it could refuse to proceed with an interconnection request, subject to dispute resolution, if a customer objects to a system protection facility proposed by the transmission provider.[671]

379. Bonneville and Non-Profit Utility Trade Associations emphasize that transmission providers should be able to study at full generating facility capacity in cases where safety or reliability concerns may arise.[672] Duke goes further, stating that system impact studies and facilities studies should use full generating facility capacity for reliability reasons.[673]

380. On the other hand, TDU Systems contends that, to ensure transparency, the transmission provider must be able to document the need for a study at full generating facility capacity.[674] EEI is not aware of any protection system that would eliminate the need to study the full generating facility capacity and

[663] LGIA Art. 1 (Definitions) (emphasis added).

[664] AWEA 2017 Comments at 54; ESA 2017 Comments at 12; NextEra 2017 Comments at 40–41.

[665] ESA 2017 Comments at 12.

[666] NextEra 2017 Comments at 39.

[667] NYISO 2017 Comments at 36.

[668] *Id.*

[669] ESA 2017 Comments at 12–13; NextEra 2017 Comments at 40.

[670] *Id.* at 41.

[671] *Id.* at 41.

[672] Bonneville 2017 Comments at 7; Non-Profit Utility Trade Associations 2017 Comments at 4, 21–22.

[673] Duke 2017 Comments at 19.

[674] TDU Systems 2017 Comments at 27–28.

therefore doubts that the proposal would reduce costs.[675]

381. ITC and Six Cities support the NOPR proposal that the costs of all additional studies should be borne by the interconnection customer.[676]

382. SoCal Edison takes a middle view, stating that the necessary studies would depend on the specifics of each interconnecting project.[677] It states that, based on its experience, the cost to study a generating facility at less than its full capacity is either the same as or higher than a regular process.[678] SoCal Edison suggests that dual technologies (*e.g.,* solar coupled with energy storage) will require more study time than normal,[679] and would actually have higher study costs, despite the fact that the output is limited, as two or three different scenarios would need to be evaluated for stability and post-transient voltage performance.[680]

ii. Commission Determination

383. We adopt the NOPR proposal that the transmission provider will study requests for interconnection service at the level of interconnection service requested by the interconnection customer for purposes of interconnection facilities, network upgrades, and associated costs, but may, at the transmission provider's discretion as clarified below, also perform other studies at the full generating facility capacity to ensure safety and reliability of the transmission system, with the study costs borne by the interconnection customer.

384. We clarify that, if the transmission provider determines, based on good utility practice and related engineering considerations and after accounting for the proposed control technology, that studies at the full generating facility capacity are necessary to ensure safety and reliability of the transmission system when an interconnection customer requests interconnection service that is lower than full generating facility capacity, then it must provide a detailed explanation for such a determination in writing to the interconnection customer. For example, some interconnection customers may have proposed generating facilities that may raise short-circuit/fault-duty concerns that require certain studies to be performed at full generating facility capacity, even if the generating facilities will normally be limited to operation below full generating facility capacity. If the transmission provider determines in accordance with good utility practice and related engineering considerations after accounting for the proposed control technology that additional network upgrades are needed based on these studies, the transmission provider must: (1) Specify which additional network upgrade costs are based on which studies; and (2) provide a detailed explanation why the additional network upgrades are needed.

385. In response to Duke's comment that transmission providers should always perform system impact studies and facilities studies at full generating facility capacity for reliability reasons, we reiterate that, if the transmission provider either accepts the interconnection customer's proposed control technology or designs its own control technology as part of the system protection facilities for the interconnection, then the transmission provider should, subject to the limited exception discussed above, perform the necessary studies to ensure safety and reliability of the transmission system and evaluate system performance to interconnect the generating facility at the requested generating facility capacity level. In addition, to improve transparency, we clarify that the transmission provider must inform the interconnection customer, after the feasibility study phase regarding which studies (*e.g.,* steady-state, short circuit/fault duty, and dynamic stability analysis) will be performed at which generating facility capacity level.

386. We further clarify that, if disputes related to the transmission provider's use of discretion while processing interconnection requests for interconnection service that is lower than full generating facility capacity cannot be resolved, the parties may seek dispute resolution through any process that may be available in the relevant LGIP, LGIA or through DRS, and/or may bring the dispute to the Commission under a FPA section 206 complaint or, if appropriate, as part of the transmission provider's filing of an unexecuted LGIA.

d. Limits on Energy Injection/Monitoring/Control

i. Comments

387. Many commenters focus on ways to ensure that generating facilities do not exceed the energy injection limits in the interconnection agreement. Almost all agree that appropriate control technology is necessary to prevent interconnection customers from exceeding the approved interconnection service limit.[681] Most agree that such tools are available, though there is wide variation in suggested implementation. For example, Portland agrees that sufficient mechanical and electronic tools exist that can restrain an interconnection customer from operating above its allowed service level, and also that transmission providers should establish such arrangements.[682]

388. AWEA notes that programmable meters and other technologies that allow plant operators to self-curtail are widely available,[683] and ESA and NextEra state that wind and solar projects already use software control systems and inverters to modulate their output, and that equipment failure is rare.[684]

389. CAISO states that exceeding studied interconnection capacity can result in serious safety and reliability risks to the grid and the generator itself.[685] It argues that it is more critical to have tested and well-maintained protection schemes that enforce these limits and operate circuit breakers to disconnect the generator from the transmission system than an interconnection customer's contractual commitment to do so.[686] CAISO supports strict enforcement of interconnection capacity limits, including opening breakers as enforcement and, if needed, terminating LGIAs.[687] NYISO also states that it and the connecting transmission owner should be able to take action as necessary to maintain reliability—*e.g.,* the ability to curtail the resource.[688] Non-Profit Utility Trade Associations note that control equipment ensuring appropriate power flows is a critical reliability feature.[689]

390. PJM explains that it currently requires that interconnection customers install appropriate power flow monitoring and control technologies at their generating facilities to limit the facilities' allowable injection on to the transmission system.[690] ISO–NE argues

[675] EEI 2017 Comments at 55.

[676] ITC 2017 Comments at 18, Six Cities 2017 Comments at 5.

[677] SoCal Edison 2017 Comments at 7.

[678] *Id.*

[679] *Id.*

[680] *Id.*

[681] AFPA 2017 Comments at 14; ESA 2017 Comments at 12; AWEA 2017 Comment at 54; California Energy Storage Alliance 2017 Comments at 5–6; PJM 2017 Comments at 24; Duke 2017 Comments at 18–19; EEI 2017 Comments 2017 at 54; TDU Systems 2017 Comments at 27–28.

[682] Portland 2017 Comments at 7.

[683] AWEA 2017 Comments at 54.

[684] ESA 2017 Comments at 12, NextEra 2017 Comments at 39.

[685] CAISO 2017 Comments at 27.

[686] *Id.*

[687] *Id.*

[688] NYISO 2017 Comments at 36–37.

[689] Non-Profit Utility Trade Associations 2017 Comments at 22.

[690] PJM 2017 Comments at 24–25.

that any control equipment proposed to restrict the generating facility's output to the requested interconnection service levels must be identified in the project description at the beginning of the study process.[691]

391. SoCal Edison states that, to mitigate the risk of exceeding an interconnection service limit, the interconnection customer should have to install a control system that meters total output at the high side of the main transformer banks.[692]

392. The Non-Profit Utility Trade Associations also argue that interconnection customers should bear the costs of control technologies and protection system costs because such equipment is not useful to other customers.[693] MISO TOs, Duke and TDU Systems state that the interconnection customer should be obliged to install or pay for the necessary control technologies.[694]

393. NextEra further explains that an over-delivery would only result from a failure of the generation control system or inverter controls, akin to a computer malfunction, which NextEra notes is theoretically possible, but very rare.[695] NextEra also argues that, if a malfunction were to occur, protective relay controls could be installed that manually trip breakers when output levels exceed specified levels at the point of interconnection, establishing a secondary and redundant control mechanism.[696]

394. In contrast, while MidAmerican agrees that the generating facility output must not exceed the level of interconnection service, it does not support a universal requirement for special hardware or software systems.[697] MidAmerican sees no clear reason why resources having interconnection service at levels below their full output should be singled out for special hardware or software requirements. Further, it argues that the Commission's proposal for ''provisional'' service appears functionally equivalent to operating a generating facility for a period of time below its rated generating facility capacity, yet the proposal for provisional service makes no mention of special hardware or software schemes.[698]

395. Xcel also advises the Commission to not regulate specific technical processes used to limit dispatch as technology may evolve and each region's processes are unique. Xcel notes that it uses a manual process for its net-zero facility in MISO, and believes its process is sufficient.[699] Similarly, for inverter-based resources, California Energy Storage Alliance asks the Commission not to impose a requirement for burdensome and expensive protection equipment that may duplicate similar utility equipment.[700]

ii. Commission Determination

396. As discussed above, we find that the revisions and clarifications in this rulemaking coupled with existing provisions of the *pro forma* LGIA adequately address the Commission's proposal to require that any interconnection customer that seeks interconnection service below its generating facility capacity install appropriate monitoring and control technologies at its generating facility. We agree with ISO–NE's argument that any control technologies proposed by the interconnection customer to restrict the generating facility's output to the requested interconnection service levels must be identified in the project description at the beginning of the study process. We clarify that we see no reason to preclude a customer from relying on the transmission provider to identify protection and control technologies in the first instance. Indeed, as discussed earlier, the existing system protection facilities provisions in the *pro forma* LGIA already allow the transmission provider to identify and require the installation of appropriate system protection facilities.[701]

397. With respect to SoCal Edison's argument that the interconnection customer's control technologies should have to meter total output at the high side of the main transformer banks, we see no need for this requirement because the *pro forma* LGIP and *pro forma* LGIA require transmission providers to make such engineering judgments consistent with good utility practice.

398. With respect to the Non-Profit Utility Trade Associations' argument that control technologies and protection system costs should be treated as directly assigned costs, as discussed earlier, we find that these control and protection technologies are system protection facilities as defined in existing *pro forma* LGIA article 9.7.4.1, which already directly assigns these costs to the interconnection customer.

399. MidAmerican and NextEra argue that facilities without special control systems are no more likely to over-deliver than generators that have not requested interconnection service below their facility capacity. As an example, MidAmerican points out the case of a generator operating under provisional interconnection service, which has the ability to over-generate if it does not adhere to its interconnection service request level. NextEra makes a similar observation with respect to thermal generation generally.[702] We appreciate these points, and note further that many generators of various types interconnected under ERIS may have the technical capability to generate beyond the level to which they are limited by the terms of their LGIAs providing for ERIS. However, we note that article 9.7.4.1 of the *pro forma* LGIA already generally allows a transmission provider to require appropriate control technologies for limiting injection from interconnection customers. The revisions to sections 3.1 and 8.2 of the *pro forma* LGIP that we adopt here with regard to control technologies serve to make such provisions explicit in the *pro forma* LGIP in the case where interconnection service is requested below generating facility capacity, in recognition of the fact that, in such instances, the generating facility may be coordinating output from multiple generating facilities, and may therefore have unique control characteristics and challenges.

400. With regard to the type of control strategy/design that NextEra proposed, we expect a transmission provider to find such a control system, or a control system of equal dependability, acceptable for the purposes of evaluating interconnection requests for interconnection service that is lower than full generating facility capacity. There may be circumstances in which a transmission provider could reasonably find that additional back-ups or other functions are necessary for a control system to be acceptable. We stress that the transmission provider should identify such circumstances based on relevant technical details, reliability requirements, and good utility practice,

[691] ISO–NE 2017 Comments at 41–42.

[692] SoCal Edison 2017 Comments at 6.

[693] Non-Profit Utility Trade Associations 2017 Comments at 4, 21–22.

[694] MISO TOs 2017 Comments at 36; Duke 2017 Comments at 18–19; TDU Systems 2017 Comments at 27–28.

[695] NextEra 2017 Comments at 40.

[696] *Id.* n.26.

[697] MidAmerican 2017 Comments at 18.

[698] *Id.*

[699] Xcel 2017 Comments at 17.

[700] California Energy Storage Alliance 2017 Comments at 5–6.

[701] As discussed earlier, any protection and control technologies necessary to restrict the generating facility's output to the requested interconnection service levels would be components of the system protection facilities associated with that generating facility's interconnection.

[702] NextEra 2017 Comments at 45.

and that it should make such determinations in a manner that is not unduly discriminatory or preferential.

e. Process for Changing an Interconnection Request

i. Comments

401. As discussed further below, in the *pro forma* LGIP, interconnection customers are allowed to reduce the level of their generating facility capacity at two points: prior to the system impact study and prior to the facilities study. Commenters suggest that the Commission should consider provisions to allow customers to also request reduced interconnection service at varying points through the interconnection process, though they do not necessarily agree on the details. For example, AWEA and EEI argue that, if an interconnection customer wishes to change service levels at a later time, the interconnection customer should be required to submit an additional interconnection request for the new level of service unless the new level of service was previously studied.[703]

402. Similarly, Idaho Power, Portland, and Southern assert that, if the customer has a future request to operate at a higher MW level, a new system impact study should be required.[704] Southern further states that an interconnection customer's request to modify the interconnection service amount to less than the generating facility capacity should constitute a material modification to its interconnection request.[705] In a related vein, NEPOOL states that some of its participants want flexibility for the interconnection customer. They request that the customer be able to base necessary upgrades on either a smaller generating facility that has been approved as non-material or based on an agreement to limit the generating facility output below the originally requested service. They argue that the customer should be able to do this once studies have started or after studies are completed and the transmission provider has provided estimates regarding upgrade costs, all without losing queue position.[706] NEPOOL contends that some developers might consider particularly high upgrade costs unacceptable, which could result in more queue withdrawals if interconnection customers cannot reduce their requested generating facility capacity without losing their queue position.[707] NEPOOL states that, in some cases even a small reduction in the requested amount of interconnection service can significantly reduce interconnection upgrade costs and make projects viable.[708] NEPOOL requests that the final action clarify when interconnection customers can reduce their requested level of interconnection service and provide guidance on the appropriateness of affording any flexibility to reduce capacity for purposes of determining upgrades after interconnection studies have started or are complete.[709]

403. Similarly, Idaho Power argues that the NOPR fails to address a situation where a customer agrees to accept a lower level of service to shift network upgrade costs to other interconnection customers behind in the queue that may be vying for limited capacity (*i.e.,* by delaying operation to the higher capacity until network upgrades have been funded by these projects).[710] ITC goes further, arguing that, where a generator has already executed an LGIA, a request for reduced generating facility capacity could undermine the study assumptions for lower-queued projects, and therefore, the Commission should permit transmission providers to deny requests for reduced service where granting such a request would cause cascading adverse impacts.[711]

404. Non-Profit Utility Trade Associations argue that the Commission should allow for cost-sharing of upgraded systems funded by subsequent interconnecting customers if the generation-limited entity chooses to take advantage of that additional investment by subsequently increasing output.[712] They state that there could be instances where a generation-limited entity may wish to increase its output as a result of subsequent interconnection customers that fund network upgrades that increase system capabilities. They indicate that, in such instances, the upgrade users, including the generation-limited entity, should share the costs to guard against gaming by entities that would attempt to ''foist upgrade costs upon subsequent interconnecting entities.'' [713]

ii. Commission Determination

405. The Commission agrees with those commenters that suggest that interconnection customers should be able to request reduced interconnection service after submitting an interconnection request. However, we do not believe this flexibility can be without limit, or it could adversely impact the interconnection process. As will be explained further below, interconnection customers already have the right to reduce the generating facility capacity at certain points in the interconnection process, even though such reductions may impact interconnection requests later in the queue. The provisions that allow an interconnection customer to reduce its requested generating facility capacity do not currently allow an interconnection customer to reduce its requested level of interconnection service at the same points. Therefore, in this final action, we are revising the *pro forma* LGIP to allow an interconnection customer to either request interconnection service below generating facility capacity at the outset or reduce its level of requested interconnection service at the same two points in the interconnection process, as set forth below. An interconnection customer may choose to do so if doing so is, in its business judgment, advantageous and if it is willing to abide by the limitations of interconnection service below generating facility capacity. Accordingly, as described further below, the Commission revises *pro forma* LGIP sections 4.4.1 and 4.4.2 to permit interconnection customers to reduce their requested level of interconnection service at the same points in the interconnection process as they are currently able to reduce their generating facility capacity. Specifically, this final action requires that interconnection customers can submit a request for interconnection service below generating facility capacity as its initial interconnection request, or may submit a request to reduce interconnection service below generating facility capacity at two points after the interconnection process has begun: (1) As a revision of its interconnection request prior to when the interconnection customer returns an executed system impact study agreement to the transmission provider; and (2) as a revision of its interconnection request prior to when the interconnection customer returns an executed facility study agreement to the transmission provider. These decision points are based on existing sections 4.4.1 and 4.4.2 of the *pro forma* LGIP.

[703] AWEA 2017 Comments at 54–55; EEI 2017 Comments at 54.

[704] Idaho Power 2017 Comments at 5; Portland 2017 Comments at 6; Southern 2017 Comments at 25.

[705] *Id.* at 25–26.

[706] NEPOOL 2017 Comments at 15.

[707] *Id.*

[708] *Id.* at 15–16.

[709] *Id.* at 16.

[710] Idaho Power 2017 Comments at 5.

[711] ITC 2017 Comments at 18–19.

[712] Non-Profit Utility Trade Associations 2017 Comments at 4, 21–22.

[713] *Id.* at 23.

406. Section 4.4.1 of the *pro forma* LGIP allows interconnection customers to decrease the electrical output of the proposed project by up to 60 percent before the interconnection customer returns an executed system impact study agreement to the transmission provider.[714] Additionally, section 4.4.2 of the *pro forma* LGIP allows customers to decrease the plant size by an additional 15 percent prior to the return of an executed facility study agreement.[715] As originally written, these sections allow interconnection customers to reduce the generating facility capacity from that proposed in the original interconnection request (*i.e.,* interconnection customers may request to build a smaller plant). In other words, as originally written, these sections do not allow for reductions in interconnection service (*i.e.,* for interconnection customers to lower interconnection service levels without altering the size of the generating facility). However, with the appropriate transmission provider-approved control technologies in place, we see no reason why interconnection customers should not also have the option of reducing the level of interconnection service at these two stages of the interconnection process. Therefore, we revise *pro forma* LGIP sections 4.4.1 and 4.4.2 as follows (with new text in italics):

4.4.1. Prior to the return of the executed Interconnection System Impact Study Agreement to the Transmission Provider, modifications permitted under this Section shall include specifically: (a) a reduction up to 60 percent (MW) of electrical output of the proposed project, *through either (1) a decrease in plant size or (2) a decrease in interconnection service level (consistent with the process described in Section 3.1) accomplished by applying transmission provider-approved injection-limiting equipment;* (b) modifying the technical parameters associated with the Large Generating Facility technology or the Large Generating Facility step-up transformer impedance characteristics; and (c) modifying the interconnection configuration. For plant increases, the incremental increase in plant output will go to the end of the queue for the purposes of cost allocation and study analysis.

4.4.2. Prior to the return of the executed Interconnection Facility Study Agreement to the Transmission Provider, the modifications permitted under this Section shall include specifically: (a) additional 15 percent decrease *of electrical output of the proposed project through either (1) a decrease* in plant size (MW) *or (2) a decrease in interconnection service level (consistent with the process described in Section 3.1) accomplished by applying transmission provider-approved injection-limiting equipment,* and (b) Large Generating Facility technical parameters associated with modifications to Large Generating Facility technology and transformer impedances; provided, however, the incremental costs associated with those modifications are the responsibility of the requesting Interconnection Customer.

407. We disagree with Southern's contention that an interconnection customer's request to modify the interconnection service amount to less than the generating facility capacity should always constitute a material modification of its interconnection request. A request to reduce the interconnection service amount is similar in many respects to a request to reduce generating facility capacity. Because the *pro forma* LGIP already permits reductions in generating facility capacity at certain points in the interconnection process without triggering material modification provisions, the Commission finds that requests to reduce the interconnection service amount at those same points within the interconnection process should also not trigger material modification provisions. We also note that the phrase ''additional 15 percent'' is meant to allow a total of up to a 75 percent reduction (60 percent plus 15 percent) from the original interconnection request.

408. ITC argues that transmission providers should be able to deny requests to reduce interconnection service where such a request would adversely affect lower-queued interconnection requests. Similarly, Idaho Power and Non-Profit Utility Trade Associations argue that the Commission has either failed to address the situation where a request to reduce interconnection service would adversely affect lower-queued interconnection requests or that appropriate cost-sharing provisions should apply if a below-generating facility capacity interconnection customer later requests an increase in interconnection service to take advantage of upgraded systems funded by subsequent interconnection requests. We find that no additional LGIP or LGIA revisions are necessary to address these scenarios because reductions in interconnection service level are similar in their queue-related impacts to reductions in generating facility capacity, which the existing *pro forma* LGIP already permits.

409. Furthermore, lower-queued interconnection requests have always faced potential impacts from the decisions of higher-queued interconnection requests. For example, lower-queued interconnection requests are frequently impacted by the withdrawal of higher-queued interconnection requests. The impact on lower-queued interconnection requests from a withdrawal higher in the queue is similar to what would happen when a higher-queued interconnection customer requests a reduction in interconnection service level. In both cases, the higher-queued interconnection request could avoid paying for some level of network upgrades (if such upgrades are required), and lower-queued interconnection requests could be impacted as a result. Furthermore, if an interconnection customer limited in output to below generating facility capacity later seeks an increase in interconnection service, this will be a new interconnection request with a new position at the end of the interconnection queue, very similar to the situation where a higher-queued interconnection request withdraws and later re-enters the queue. While we recognize that these two scenarios are not identical in all respects, we nevertheless believe that they are similar enough that the normal queue management and interconnection processes, including being subject to the full slate of interconnection studies and being potentially responsible for the cost of new network upgrades, can adequately address the issues raised by commenters.

f. Penalties

i. Comments

410. Commenters disagree regarding penalties for over-generation. Some argue that no additional penalties are necessary. NextEra, NYISO, ESA, and MidAmerican argue that existing provisions in the *pro forma* LGIA are

[714] *Pro forma* LGIP Section 4.4.1. Prior to the return of the executed Interconnection System Impact Study Agreement to the Transmission Provider, modifications permitted under this Section shall include specifically: (a) a reduction up to 60 percent (MW) of electrical output of the proposed project; (b) modifying the technical parameters associated with the Large Generating Facility technology or the Large Generating Facility step-up transformer impedance characteristics; and (c) modifying the interconnection configuration. For plant increases, the incremental increase in plant output will go to the end of the queue for the purposes of cost allocation and study analysis.

[715] *Pro forma* LGIP Section 4.4.2. Prior to the return of the executed Interconnection Facility Study Agreement to the Transmission Provider, the modifications permitted under this Section shall include specifically: (a) additional 15 percent decrease in plant size (MW), and (b) Large Generating Facility technical parameters associated with modifications to Large Generating Facility technology and transformer impedances; provided, however, the incremental costs associated with those modifications are the responsibility of the requesting Interconnection Customer.

sufficient.[716] NextEra explains that in CAISO, their combined solar/battery storage project relies solely on the remedies provided for in the existing LGIA. According to NextEra, one other LGIA for a project in CAISO includes additional language about the ability to curtail, but it does not provide for penalties. NextEra notes that MISO has also taken a similar approach. NextEra states that PJM has added significant language to its interconnection agreements below full generating capacity but notes that this language repeats the *pro forma* indemnification responsibilities. NextEra and ESA also argue that any other financial penalties would be punitive and inconsistent with existing and reasonable practices in CAISO, MISO and PJM.[717]

411. NextEra also notes that thermal generation may be able to produce higher levels of output under certain conditions and does not have any additional requirements, nor are there special requirements for the operation of System Protection Facilities.[718] NextEra argues that, if the Commission creates any additional penalties, it would need to do so equally to all generation under all circumstances to avoid undue discrimination.[719]

412. Xcel states that, although penalties may sometimes be appropriate, if the system can reliably accept the energy, over-generation may sometimes be beneficial or may not be a significant reliability or free rider issue.[720]

413. Some commenters see the value of additional penalties. For instance, Bonneville, ITC, TDU Systems, Six Cities, SoCal Edison, Xcel, Portland, and Duke support both financial and non-financial penalties, including curtailment, if an interconnection customer exceeds its service limit to maintain reliability.[721] MISO TOs support imposition of penalties for exceeding authorized levels of service but defer to RTOs/ISOs to develop the specifics of such penalties.[722]

414. Six Cities observes that a requirement to pay incremental network upgrade costs may be most appropriate in circumstances where an interconnection customer has consistently exceeded its specified level of interconnection service over some period of time, while a monetary penalty may be most appropriate to address isolated exceedances. Six Cities argues that RTOs/ISOs are in the best position to develop appropriate penalty proposals for application in their respective regions.[723]

415. SoCal Edison requests that the Commission clarify that penalties apply to interconnection customers whose agreed-upon interconnection service level is for the full generating facility capacity, not just those whose agreed-upon interconnection service levels are below the full generating facility capacity.[724] SoCal Edison suggests that penalties should range from temporary disruption of service to permanent termination of service.[725]

ii. Commission Determination

416. With respect to penalties, based on the record here, we find that current provisions in the *pro forma* LGIA, which allow a transmission provider to curtail service or terminate an LGIA, are sufficient to ensure proper behavior by interconnection customers. As noted by NextEra, thermal generation may be able to produce higher levels of output than the interconnection service level under certain conditions, such as lower than benchmark ambient air temperature, and does not face any additional penalty requirements beyond curtailment of service or termination of its LGIA for breach if a party defaults and fails to cure that default.[726] The Commission agrees that this is an analogous situation to interconnection below generating facility capacity, and therefore the same treatment with respect to penalties should apply. Furthermore, as NextEra also notes, there are no special penalty requirements beyond these for the operation of system protection facilities. As discussed earlier, this final action finds that the control technologies at issue are system protection facilities. Based on these facts, we decline to generically adopt into the *pro forma* LGIP any additional financial penalties for exceeding the limitations for interconnection service established in the interconnection agreements. However, if a transmission provider can justify a need for additional penalties, it may propose such penalties in a section 205 filing.

417. As mentioned above, article 17 of the *pro forma* LGIA provides a process for termination of an LGIA if a party defaults[727] on its obligations and fails to cure such defaults. Given the potential reliability and operational ramifications, failure to adhere to the injection limits included in a below-generating facility capacity LGIA could rise to the level of default, and termination of the LGIA would be a serious consequence for an interconnection customer, as the resulting disconnection and idling of the generating facility could cause significant economic losses. Furthermore, existing article 9.7.2 of the LGIA allows the transmission provider to reduce deliveries from (*i.e.,* curtail) an interconnection customer if required by good utility practice. Because of these existing provisions, and the fact that no other consequences currently apply in the analogous situations described above, we see no need to devise new penalties at this time.

g. Changes to the Definitions of Large and Small Generating Facilities

i. Comments

418. TDU Systems conditionally support the Commission's proposal to change the definitions of Large Generating Facility and Small Generating Facility in the *pro forma* LGIP and *pro forma* LGIA to base them on the level of interconnection service actually provided, rather than on the generating facility's capacity, subject to the transmission provider being able to study the full generating facility capacity if it believes there is a need to do so at the cost of the interconnection customer.[728] However, TDU Systems urge the Commission to ensure that the interconnection customer (or potential interconnection customer) knows what upgrade costs it may incur if seeks to use the generating facility's full capacity.[729]

419. Similarly, IECA argues that industrial combined heat and power and waste heat recovery facilities with net generating capacities in excess of 20 MW can export far less total electricity to the grid than a wind or solar facility with similar or less generating facility capacity.[730] IECA indicates that a generator's size classification should be based on the maximum amount of power that could be exported to the grid

[716] NextEra 2017 Comments at 43; NYISO 2017 Comments at 36–37; ESA 2017 Comments at 13; MidAmerican 2017 Comments at 18.

[717] NextEra 2017 Comments at 43; ESA 2017 Comments at 13.

[718] NextEra 2017 Comments at 45.

[719] *Id.*

[720] Xcel 2017 Comments at 17–18.

[721] Bonneville 2017 Comments at 7; ITC 2017 Comments at 18; Duke 2017 Comments at 18; TDU Systems 2017 Comments at 27–28; Six Cities 2017 Comments at 5; SoCal Edison 2017 Comments at 6; Xcel 2017 Comment at 17; Portland 2017 Comments at 6.

[722] MISO TOs 2017 Comments at 36.

[723] Six Cities 2017 Comments at 5.

[724] SoCal Edison 2017 Comments at 6.

[725] *Id.* at 6.

[726] NextEra 2017 Comments at 45.

[727] The *pro forma* LGIA defines default as ''the failure of a Breaching Party to cure its Breach in accordance with Article 17.'' *Pro forma* LGIA Art. 1 (Definitions). A breach is ''the failure of a Party to perform or observe any material condition'' of the *pro forma* LGIA. *Id.*

[728] TDU Systems 2017 Comments at 27.

[729] *Id.*

[730] IECA 2017 Comments at 3.

under normal manufacturing operations at the combined heat and power and waste heat recovery facility location, rather than being based on net generation.[731]

420. On the other hand, Portland opposes the proposal to redefine the term generating facility based on the level of interconnection service. Instead, Portland argues that generating facility definitions should be based on nameplate capacity.[732] TVA thinks that the Commission should define generating facility capacity more specifically, particularly with regard to certain parameters such as what power factor is measured and whether it is gross or net of station service load.[733] It also notes that many transmission owners and providers have MW thresholds that trigger more robust interconnection facility requirements, and states that interconnection for less than the full generator output should not be allowed to circumvent these thresholds.[734]

421. Six Cities states it is not sure what the Commission means by the statement that these definition changes ''are not intended to conflict with any applicable [NERC] Reliability Standards or NERC's compliance registration process.'' [735] Six Cities seeks clarity as to whether the current NERC compliance registration criteria for generating facilities will continue to be based on nameplate ratings irrespective of the requested level of interconnection service, or if the Commission intends for the registration criteria to be revised based upon the level of interconnection service that is requested and implemented.[736]

ii. Commission Determination

422. Upon consideration of the comments, we withdraw the NOPR proposal to change the definitions of large and small generating facilities so that they are based on the level of interconnection service for the generating facility rather than the generating facility capacity.[737] Our particular concern is the possibility of unintended and unforeseen consequences with respect to the interconnection study process and NERC compliance registration process.

423. As we have withdrawn this proposal, there is no need to address comments on the proposal or to address IECA's argument that a transmission provider should base a combined heat and power and waste heat recovery facility's size classification on the maximum amount of power that could be exported to the grid under normal manufacturing operations.

2. Provisional Interconnection Service

a. NOPR Proposal

424. The Commission proposed to allow interconnection customers to enter into provisional agreements for limited interconnection service prior to the completion of the full interconnection process. Under this proposal, interconnection customers with provisional agreements would be able to begin operation up to the MW level permitted by a previously conducted, readily available interconnection study (available study), additional studies as necessary, and regularly updated studies. In the NOPR, the Commission noted that the transmission provider may require milestone payments prior to submission of the provisional agreement. The provisional agreement would be in effect while awaiting the final results of the interconnection studies, the execution of a LGIA, and the construction of any additional interconnection facilities and/or network upgrades that may result from the full interconnection process. The Commission also proposed that provisional large generator interconnection agreements and the associated provisional interconnection service would terminate upon completion of construction of network upgrades required for the interconnection customer's full level of service.[738]

425. The Commission proposed that interconnection customers with provisional agreements must still assume all risk and liabilities associated with the required interconnection facilities and network upgrades for their interconnection that are identified pursuant to the full set of interconnection studies for the requested interconnection service.[739]

426. The Commission therefore proposed to require that transmission providers allow interconnection customers to request provisional interconnection service and operate under provisional interconnection agreements based on available or additional studies as necessary and regularly updated studies that demonstrate that necessary interconnection facilities and network upgrades are in place to meet applicable NERC or other regional reliability requirements for new, modified, and/or expanded generating facilities. If available studies do not demonstrate whether the transmission provider can reliably accommodate provisional interconnection service, the transmission provider would perform additional studies as necessary. An evaluation of provisional service by the transmission provider would determine whether stability, short circuit, and/or voltage issues would arise if the interconnection customer seeking provisional interconnection service interconnects without modifications to the generating facility or the transmission provider's system. The Commission also proposed that transmission providers must assess any safety or reliability concerns posed by provisional agreements, and establish a process for the interconnection customer to mitigate any reliability risks associated with operation pursuant to provisional agreements.[740]

427. The Commission sought additional comment on the proposal and the means by which transmission providers and interconnection customers could mitigate any risks and/or liabilities for provisional interconnection service. The Commission, acknowledging that transmission providers have limited resources to conduct studies, also sought comment on the circumstances under which provisional interconnection service would be beneficial and how common such circumstances would be for potential interconnection customers.[741]

428. The Commission proposed to add the following new definitions to Section 1 of the *pro forma* LGIP, and to article 1 of the *pro forma* LGIA (with proposed additions in italics):

Provisional Interconnection Service shall mean interconnection service provided by the Transmission Provider associated with interconnecting the Interconnection Customer's Generating Facility to the Transmission Provider's Transmission System and enabling that Transmission System to receive electric energy and capacity from the Generating Facility at the Point of Interconnection, pursuant to the terms of the Provisional Large Generator

[731] *Id.* at 3–4.

[732] Portland 2017 Comments at 7.

[733] TVA 2017 Comments at 15.

[734] *Id.* at 15–16.

[735] Six City 2017 Comments at 7 (citing NOPR, FERC Stats. & Regs. ¶ 32,719 at P 180).

[736] *Id.*

[737] As a result of the withdrawal of this proposal, the determination of whether a generator is large or small, including for purposes of whether it qualifies for the LGIP or SGIP, will continue to be based on the generating facility capacity.

[738] NOPR, FERC Stats. & Regs. ¶ 32,719 at P 186.

[739] *Id.* P 187.

[740] *Id.* P 188.

[741] *Id.*

Interconnection Agreement and, if applicable, the Tariff.[742]

Provisional Large Generator Interconnection Agreement shall mean the interconnection agreement for Provisional Interconnection Service established between the Transmission Provider and/or the Transmission Owner and the Interconnection Customer. This agreement shall take the form of the Large Generator Interconnection Agreement, modified for provisional purposes.[743]

429. Additionally, the Commission proposed a new article 5.10 for the *pro forma* LGIA that defines the requirements for transmission providers to provide provisional interconnection service and the responsibilities of the interconnection customer. The Commission did not propose a *pro forma* Provisional Large Generator Interconnection Agreement, reasoning that parties could develop such agreements on an *ad hoc* basis or transmission providers could establish their own *pro forma* agreements. Nonetheless, the Commission sought comment on the need to establish a *pro forma* Provisional Large Generator Interconnection Agreement as well as any details related to interconnection service. The proposed new article 5.10 to the *pro forma* LGIA reads as follows (with proposed text in italics):

5.10 Provisional Interconnection Service.

Upon the request of Interconnection Customer, and prior to completion of requisite Network Upgrades, the Transmission Provider may execute a Provisional Large Generator Interconnection Agreement or Interconnection Customer may request the filing of an unexecuted Provisional Large Generator Interconnection Agreement with the Interconnection Customer for limited interconnection service at the discretion of Transmission Provider based upon an evaluation that will consider the results of available studies. Transmission Provider shall determine, through available studies or additional studies as necessary, whether stability, short circuit, thermal, and/or voltage issues would arise if Interconnection Customer interconnects without modifications to the Generating Facility or Transmission Provider's system. Transmission Provider shall determine whether any Network Upgrades, Interconnection Facilities, Distribution Upgrades, or System Protection Facilities that are necessary to meet the requirements of NERC, or any applicable Regional Entity for the interconnection of a new, modified and/or expanded Generating Facility are in place prior to the commencement of interconnection service from the Generating Facility. Where available studies indicate that such Network Upgrades, Interconnection Facilities, Distribution Upgrades, and/or System Protection Facilities that are required for the interconnection of a new, modified and/or expanded Generating Facility are not currently in place, Transmission Provider will perform a study, at the Interconnection Customer's expense, to confirm the facilities that are required for provisional interconnection service. The maximum permissible output of the Generating Facility in the Provisional Large Generator Interconnection Agreement shall be studied and updated on a quarterly basis. Interconnection Customer assumes all risk and liabilities with respect to changes between the Provisional Large Generator Interconnection Agreement and the Large Generator Interconnection Agreement, including changes in output limits and Network Upgrades, Interconnection Facilities, Distribution Upgrades, and/or System Protection Facilities cost responsibilities.[744]

b. General

i. Comments

430. Most responsive commenters either support the proposal[745] or do not oppose it.[746] ISO–NE, Tri-State, and TVA oppose the proposal.[747] NEPOOL takes no position, but states that it would oppose the proposal if it raises system reliability concerns, introduces interconnection study delays, or degrades ISO–NE's interconnection/forward capacity market processes.[748]

431. Alevo, ITC, MISO TOs, NextEra, and Six Cities agree that the interconnection customers should assume all associated risks and liabilities with regard to provisional interconnection service.[749] Alevo asks for clarification on whether a provisional interconnection can become permanent at the provisional MW level.[750]

432. As noted in the NOPR, certain regions already include some form of provisional interconnection service.[751] Bonneville states that it already allows limited facility operation using existing interconnection capacity prior to the completion of upgrades needed for the full interconnection request.[752] MISO states that its GIP includes a process for obtaining a provisional GIA that is subject to study and the maximum permissible output of the facility is updated on a quarterly basis. MISO notes that the provisional GIA is replaced by a ''permanent'' GIA upon the completion of the interconnection customer's assigned network upgrades.[753] NYISO states that it already provides provisional interconnection service under the limited operation provision of NYISO's LGIA.[754] However, Indicated NYTOs state that the Commission must ensure that any final action to accommodate provisional interconnection service does not diminish the superior interconnection standards in regions like NYISO.[755]

433. CAISO provides different avenues for ''provisional'' interconnection service.[756] However, CAISO requests clarification regarding the NOPR statement that ''in some cases, there is a certain amount of interconnection capacity that has already been studied.'' [757] It argues that the only interconnection capacity that it has studied is already in use or planned to be in use soon. CAISO supports the proposal to the extent that the NOPR is consistent with this understanding.[758] PG&E states that interconnection customers are able to obtain limited interconnection service prior to the completion of the full interconnection process in some circumstances, and CAISO conducts a limited operation study six months ahead of a project's in-service date and allows phased projects and energy-only projects to interconnect before certain upgrades or studies are completed.[759]

434. SoCal Edison supports the existing CAISO process but argues that the NOPR proposal may unintentionally

[742] In this final action, the adopted language differs slightly from the NOPR language because we remove the word ''the'' before ''Transmission Provider.''

[743] *Id.* P 189. In this final action, the adopted language differs slightly from the NOPR language because we remove the word ''the'' before ''Transmission Provider.''

[744] *Id.* P 190.

[745] AES 2017 Comments at 11; Alevo 2017 Comments at 9; AFPA 2017 Comments at 15; AWEA 2017 Comments at 56; Bonneville 2017 Comments at 8; California Energy Storage Alliance 2017 Comments at 13; Duke 2017 Comments at 20; Forecasting Coalition 2017 Comments at 4; EDP 2017 Comments at 8; ELCON 2017 Comments at 7; ESA 2017 Comments at 15; Idaho Power 2017 Comments at 6; IECA 2017 Comments at 3; ITC 2017 Comments at 19; Joint Renewable Parties 2017 Comments at 12; MidAmerican 2017 Comments at 18–19; NextEra 2017 Comments at 46; Public Interest Organizations 2017 Comments at 6; TDU Systems 2017 Comments at 28–29; Xcel 2017 Comments at 18.

[746] Non-Profit Utility Trade Associations 2017 Comments at 24; NYISO 2017 Comments at 37; PJM 2017 Comments at 25.

[747] ISO–NE 2017 Comments at 43–44; Tri-State 2017 Comments at 9; TVA 2017 Comments at 16.

[748] NEPOOL 2017 Comments at 16–17.

[749] Alevo 2017 Comments at 9; ITC 2017 Comments at 19; MISO TOs 2017 Comments at 37–38; NextEra 2017 Comments at 46; PJM 2017 Comments at 25–26; and Six Cities 2017 Comments at 6.

[750] Alevo 2017 Comments at 9.

[751] NOPR, FERC Stats. & Regs. ¶ 32,719 at P 183.

[752] Bonneville 2017 Comments at 8.

[753] MISO 2017 Comments at 34–35.

[754] NYISO 2017 Comments at 37.

[755] Indicated NYTOs 2017 Comments at 9.

[756] CAISO 2017 Comments at 28.

[757] *Id.* (citing NOPR, FERC Stats. & Regs. ¶ 32,719 at P 181).

[758] *Id.*

[759] PG&E 2017 Comments at 8.

degrade safety and reliability.[760] SoCal Edison states that, while interconnection capacity may be temporarily available due to construction delay, there is no assurance that short-circuit duty levels will be within allowable limits or that overall system performance would meet all NERC reliability criteria.[761]

435. Eversource states that transmission providers should have discretion to determine whether there is capacity available to accommodate provisional interconnection service.[762] It also states that any provisional process should be tailored, adapted to, and consistent with each region's existing interconnection and market rules.[763]

436. EEI states that an interconnection customer should only be able to use provisional interconnection service when: (1) Studies indicate that there is a level of interconnection that can occur without any additional upgrades and the interconnection customer wishes to make use of that level of interconnection while the upgrades required for its full interconnection request are completed; and (2) where a previously completed study indicates there is a level of interconnection that can occur without any additional upgrades while such study is updated.[764] Southern agrees that all provisional service should be limited to the amount of service that can be provided until all required network upgrades identified by interconnection studies are in service.[765]

437. ISO–NE opposes the establishment of provisional interconnection service, arguing that it would unnecessarily increase uncertainty and create difficult obligations for system operators.[766] ISO–NE further argues that the proposal would allow an interconnection customer requesting provisional interconnection service to jump ahead of a higher-queued interconnection request and would require the transmission provider to conduct studies for the provisional interconnection request before completing a higher-queued project's studies.[767] It states that, if the proposal is adopted, the Commission should provide regional flexibility for ISO–NE to deviate from the final action.[768]

ii. Commission Determination

438. In this final action, we adopt the NOPR proposal to define Provisional Interconnection Service and Provisional Large Generator Interconnection Agreement in section 1 of the *pro forma* LGIP and article 1 of the *pro forma* LGIA; and add article 5.9.2 [769] to the *pro forma* LGIA, as modified below. We require transmission providers to make the changes to their LGIPs and LGIAs so that all interconnection customers may request provisional interconnection service, but we modify the proposed *pro forma* LGIA provisions to allow transmission providers to determine the frequency for updating provisional interconnection studies, and to clarify the cost responsibilities of the interconnection customer.

439. In response to Alevo's question regarding whether provisional interconnection service could become permanent, we clarify that provisional interconnection service could not become permanent because it is only available to interconnection customers awaiting the completion of the full interconnection process and will terminate upon completion of construction of interconnection facilities and network upgrades.

440. In response to CAISO, we clarify that ''a certain amount of capacity already studied'' [770] refers to situations where, for example, available studies or additional studies as necessary indicate that there is a certain amount of interconnection service available without the need for additional network upgrades and the transmission provider can reliably accommodate the interconnection service. In such cases, an interconnection customer may use the identified interconnection service while it awaits the completion of the full interconnection process.

441. In response to requests for clarification of the conditions for requesting provisional interconnection service, we clarify that interconnection customers may seek provisional interconnection service when available studies or additional studies as necessary indicate that there is a level of interconnection that can occur without any additional interconnection facilities and/or network upgrades and the interconnection customer wishes to make use of that level of interconnection service while the facilities required for its full interconnection request are completed.

442. In response to ISO–NE's objection that the provisional interconnection service proposal could cause lower-queued projects to ''leapfrog'' higher-queued interconnection customers, we acknowledge that there may be instances when a lower-queued project may interconnect and receive provisional interconnection service before a higher-queued project completes the full interconnection process. It is possible that the resources needed to complete the transmission provider's interconnection studies may be required to perform provisional studies for a lower-queued interconnection customer. But, a higher-queued interconnection customer should have the opportunity to request provisional service prior to a lower-queued interconnection customer. The availability of this service would not unduly disadvantage higher-queued interconnection customers, which would have the first chance to use any available provisional service, but may have been unable or uninterested in doing so. In addition, the availability of provisional service should not advantage lower-queued interconnection customers in the processing of their full interconnection service request. We emphasize that provisional interconnection service may not provide an interconnection customer its full requested level of interconnection service. We further note that any interconnection customer, regardless of queue position, may request provisional interconnection service.

c. Pro Forma Provisional Interconnection Agreement

i. Comments

443. Duke, Xcel, and Southern see no need for the Commission to develop a *pro forma* provisional interconnection service agreement at this time.[771] MISO agrees because its GIP includes a process for obtaining a provisional GIA and because MISO already conducts quarterly provisional interconnection service studies.[772] NYISO states that a separate provisional interconnection agreement would unnecessarily complicate and prolong the interconnection agreement negotiations.[773] PJM opposes the creation of a separate provisional interconnection agreement because

[760] SoCal Edison 2017 Comments at 8.

[761] *Id.*

[762] Eversource 2017 Comments at 16.

[763] *Id.*

[764] EEI 2017 Comments at 57.

[765] Southern 2017 Comments at 26.

[766] ISO–NE 2017 Comments at 43–44.

[767] *Id.* at 45–46.

[768] *Id.* at 47.

[769] To avoid extensive renumbering of the article 5 of the *pro forma* LGIA, the Commission is re-titling article 5.9 ''Other Interconnection Options.'' Existing article 5.9 Limited Operation will now be article ''5.9.1 Limited Operation,'' and the newly adopted Provisional Interconnection Service provision will be article 5.9.2 instead of 5.10.

[770] NOPR, FERC Stats. & Regs. ¶ 32,719 at P 181.

[771] Duke 2017 Comments at 21; Xcel 2017 Comment at 18; Southern 2017 Comments at 26.

[772] MISO 2017 Comments at 34–35.

[773] NYISO 2017 Comments at 38.

PJM's current interconnection agreement already provides for the service.[774]

ii. Commission Determination

444. In this final action, we agree with commenters and decline to adopt a separate *pro forma* Provisional Large Generator Interconnection Agreement.

d. Additional Studies

i. Comments

445. EEI argues that a transmission provider should not have to perform additional studies to offer provisional interconnection service and should not have to perform periodic studies to update the level of maximum permissible provisional interconnection service.[775] Southern agrees and also argues that transmission providers should have discretion over granting provisional interconnection service based on standard interconnection studies or any other applicable and valid studies.[776]

446. Duke and NYISO oppose the requirement to conduct quarterly restudies.[777] Instead, NYISO proposes to define a timeframe for which provisional service will be provided, and study the proposed project to determine the permissible output level of the project over the entire defined provisional timeframe. NYISO further proposes to retain the discretion to update its analysis as necessary based on system changes.[778]

447. Eversource argues that additional studies could turn the interconnection process into a protracted iterative design process while the interconnection customer determines its cheapest option for network upgrades.[779] Six Cities also has concerns that additional studies may prolong the interconnection process.[780] Tri-State and TVA argue that the proposal burdens transmission providers because it requires regularly-updated or additional studies,[781] or imposes distracting monitoring and/or mitigation burdens.[782]

ii. Commission Determination

448. In this final action, we modify the NOPR proposal and article 5.9.2 of the *pro forma* LGIA, Provisional Interconnection Service, to allow transmission providers to determine the frequency for updating provisional interconnection studies. This flexibility will allow transmission providers to determine a study frequency that best suits their individual needs. However, the determined frequency should be consistent across all interconnection customers seeking provisional interconnection service. In addition, we modify the NOPR proposal, and add article 5.9.2 of the *pro forma* LGIA, to clarify that any study performed by the transmission provider to update the available maximum provisional interconnection service will be at the expense of the interconnection customer. To effectuate this change, we renumber existing article 5.9 as follows (deleting bracketed text and adding the italicized text):

5.9 [Limited Operation] *Other Interconnection Options*

5.9.1 Limited Operation

* * * * *

449. We also revise article 5.9.2 of the LGIA from the version proposed in the NOPR as follows (deleting bracketed, un-italicized text and adding the italicized text):

5.*9.*[1]*2*[0] Provisional Interconnection Service.

Upon the request of Interconnection Customer, and prior to completion of requisite *Interconnection Facilities,* Network Upgrades, *Distribution Upgrades, or System Protection Facilities* [the]Transmission Provider may execute a Provisional Large Generator Interconnection Agreement or Interconnection Customer may request the filing of an unexecuted Provisional Large Generator Interconnection Agreement with the Interconnection Customer for limited interconnection service at the discretion of Transmission Provider based upon an evaluation that will consider the results of available studies. Transmission Provider shall determine, through available studies or additional studies as necessary, whether stability, short circuit, thermal, and/or voltage issues would arise if Interconnection Customer interconnects without modifications to the Generating Facility or Transmission Provider's system. Transmission Provider shall determine whether any [Network Upgrades,] Interconnection Facilities, *Network Upgrades,* Distribution Upgrades, or System Protection Facilities that are necessary to meet the requirements of NERC, or any applicable Regional Entity for the interconnection of a new, modified and/or expanded Generating Facility are in place prior to the commencement of interconnection service from the Generating Facility. Where available studies indicate that such [Network Upgrades,] Interconnection Facilities, *Network Upgrades,* Distribution Upgrades, and/or System Protection Facilities that are required for the interconnection of a new, modified and/or expanded Generating Facility are not currently in place, Transmission Provider will perform a study, at the Interconnection Customer's expense, to confirm the facilities that are required for Provisional Interconnection Service. The maximum permissible output of the Generating Facility in the Provisional Large Generator Interconnection Agreement shall be studied and updated *[on a frequency determined by Transmission Provider and at the Interconnection Customer's expense.]* [on a quarterly basis]. Interconnection Customer assumes all risk and liabilities with respect to changes between the Provisional Large Generator Interconnection Agreement and the Large Generator Interconnection Agreement, including changes in output limits and [Network Upgrades,] Interconnection Facilities, *Network Upgrades,* Distribution Upgrades, and/or System Protection Facilities cost responsibilities.[783]

450. In response to Tri-State's and TVA's concern about the additional burden associated with providing provisional interconnection service, and Eversource's and Six Cities' concern that provisional interconnection service will prolong the interconnection process, we acknowledge that providing provisional interconnection service may require additional studies, which could prolong the interconnection process for some interconnection customers. However, because provisional interconnection service is partly based on the results of available studies, and the studies to confirm that provisional service continues to be available are less intensive than full interconnection studies, interconnection customers in the queue that do not select provisional interconnection service should not experience additional significant delay. In the regions where provisional interconnection service is currently available, the Commission is unaware of any delays to the interconnection process due to transmission provider processing of provisional studies. Furthermore, as stated above, we recognize the individual needs of the transmission providers, and the modification from the NOPR proposal to allow transmission providers the flexibility to determine the frequency to study and update the maximum permissible output of the generating facility should further minimize delays and lessen any burden.

e. Other

i. Comments

451. Imperial and Modesto ask the Commission to clarify how the provisional service would be subject to section 3.5 of the *pro forma* LGIP, which provides for coordination of any study required to determine the

[774] PJM 2017 Comments at 26.

[775] EEI 2017 Comments at 58.

[776] Southern 2017 Comments at 26.

[777] Duke 2017 Comments at 21; NYISO 2017 Comments at 38.

[778] *Id.*

[779] Eversource 2017 Comments at 17.

[780] Six Cities 2017 Comments at 6.

[781] Tri-State 2017 Comments at 9.

[782] TVA 2017 Comments at 16.

[783] NOPR, FERC Stats. & Regs. ¶ 32,719 at P 190.

interconnection request's impact on affected systems, and how the transmission provider would conduct the studies for provisional interconnection service in conjunction with affected systems.[784]

ii. Commission Determination

452. In response to concerns about negative effects to other systems or system reliability, we emphasize that available studies or additional studies as necessary performed by transmission providers at the interconnection customer's expense, should identify any associated negative effects on system reliability. We also reiterate that Commission staff convened a technical conference in Docket No. AD18–8–000 to explore issues related to the coordination of affected systems raised in this proceeding and from a complaint filed in Docket No. EL18–26–000. Thus, while the Commission is not taking action on affected systems issues in this rulemaking, the Commission is considering these kinds of issues. As a reminder, the Notice Inviting Post-Technical Conference Comments in Docket No. AD18–8–000, which issued concurrently with this final action, states that initial and reply comments are due within 30 days and 45 days, respectively, from the date of the notice's issuance.

3. Utilization of Surplus Interconnection Service

a. NOPR Proposal

453. In the NOPR, the Commission proposed to add a new definition for Surplus Interconnection Service to section 1 of the *pro forma* LGIP and to article 1 of the *pro forma* LGIA, and a requirement that transmission providers provide an expedited process for interconnection customers to utilize or transfer surplus interconnection service at existing generating facilities.[785] The intent of this proposal was to allow another interconnecting resource owned by an existing generating facility owner or an affiliated owner the ability to use any surplus interconnection service associated with the existing generating facility. The Commission also proposed that transmission providers establish open and transparent processes for generating facilities that wish to transfer that surplus interconnection service to others if the generating facility owner and its affiliates elect not to use it.[786]

454. In the NOPR, the Commission pointed to MISO's Net Zero Interconnection Service, which is offered under MISO's tariff. MISO designed this service ''to allow an existing interconnection customer to increase the gross generating capacity at the point of interconnection of an existing generating facility without increasing the total interconnection service at the point of interconnection.'' [787] In its order accepting MISO's proposal for Net Zero Interconnection Service, the Commission directed MISO to submit a compliance filing to ensure that MISO offered Net Zero Interconnection Service ''on a fair, transparent, and non-discriminatory basis.'' [788]

455. To ensure system reliability, the Commission proposed to require reactive power, short circuit/fault duty, and stability analyses studies for this service, and that transmission providers perform steady-state (thermal/voltage) analyses as necessary to ensure evaluation of all required reliability conditions.[789] The Commission also proposed that, if the transmission provider does not study surplus interconnection service under off-peak conditions, it would perform off-peak steady state analyses to the level necessary to demonstrate reliability.[790] The Commission further proposed that, if the original system impact study is not available while the surplus interconnection service is going through the study process, both off-peak and peak analyses may be necessary for the existing generating facility associated with the request for surplus interconnection service.[791] Additionally, the Commission proposed that a process for the use or transfer of surplus interconnection service be available for any quantity of surplus interconnection service that currently exists.[792]

456. The Commission proposed to require that the transmission provider, transmission owner (as applicable), and the surplus interconnection service customer execute, or file unexecuted, a new agreement for surplus interconnection service. The Commission noted that the surplus interconnection customer could be the interconnection customer for the existing generating facility, one of its affiliates, or a new interconnection customer selected through an open and transparent solicitation process.[793] In addition to the new interconnection agreement for surplus interconnection service, the Commission recognized that other contractual arrangements may be necessary.[794]

457. While the Commission did not propose specific contractual arrangements with respect to surplus interconnection service in the NOPR, the Commission sought comment on how these arrangements should work and on whether requirements for such arrangements should be established in the Commission's *pro forma* LGIP and *pro forma* LGIA.[795] The Commission also sought comment on whether the interconnection agreement for surplus interconnection service should terminate upon the retirement of the existing generating facility, or whether there are circumstances under which the surplus interconnection service customer may operate its generating facility under the terms of the surplus interconnection service agreement after the retirement of the existing generating facility.[796]

458. Under the NOPR proposal, an existing generating facility owner or its affiliate would have priority to use any surplus interconnection service and would be able to execute or request the filing of an unexecuted surplus interconnection service agreement without posting that service to OASIS or going through an open solicitation process.[797] However, if an existing generating facility owner that has surplus interconnection service wished to transfer it but did not wish to use the surplus interconnection service itself or to transfer it to one of its affiliates, the existing generator would conduct an open and transparent solicitation process for that surplus interconnection service.[798] While the Commission proposed that priority be given to the existing generating facility owner of the surplus interconnection service or its affiliates, the Commission sought comment on the need for further limitations on the entities with priority use of that surplus interconnection service.[799]

[784] Imperial 2017 Comments at 13; Modesto 2017 Comments at 18.

[785] NOPR, FERC Stats. & Regs. ¶ 32,719 at P 201.

[786] *Id.*

[787] *Id.* P 193 (citing MISO FERC Electric Tariff, Attachment X, Section 1 (Definitions) (47.0.0) (''Net Zero Interconnection Service shall mean a form of Energy Resource Interconnection Service that allows an interconnection customer to alter the characteristics of an existing generating facility, with the consent of the existing generating facility, at the same [point of interconnection] such that the Interconnection Service limit remains the same'')).

[788] *Midwest Indep. Transmission Sys. Operator, Inc.*, 138 FERC ¶ 61,233, at P 302 (2012).

[789] NOPR, FERC Stats. & Regs. ¶ 32,719 at P 202.

[790] *Id.*

[791] *Id.*

[792] *Id.*

[793] *Id.* P 203.

[794] *Id.*

[795] *Id.* P 204.

[796] *Id.*

[797] *Id.* P 206.

[798] *Id.*

[799] *Id.*

459. With regard to specific requirements, the Commission proposed to add the following new definition to section 1 of the *pro forma* LGIP and to article 1 of the *pro forma* LGIA (with proposed text in italics):

Surplus Interconnection Service shall mean any unused portion of Interconnection Service established in a Large Generator Interconnection Agreement, such that if Surplus Interconnection Service is utilized the Interconnection Service limit at the Point of Interconnection would remain the same.[800]

460. The Commission proposed to add a new section 3.3 to the *pro forma* LGIP that requires the transmission provider to establish a process for the use of surplus interconnection service as follows (with proposed text in italics):

Utilization of Surplus Interconnection Service. The Transmission Provider must provide a process that allows an Interconnection Customer to utilize or transfer Surplus Interconnection Service at an existing Generating Facility. The original Interconnection Customer or one of its affiliates shall have priority to utilize Surplus Interconnection Service. If the existing Interconnection Customer or one of its affiliates does not exercise its priority, then that service may be made available to other potential interconnection customers through an open and transparent solicitation process.[801]

461. The Commission proposed to add a new section 3.3.1 to the *pro forma* LGIP that describes the process for using surplus interconnection service (with proposed text in italics):

Surplus Interconnection Service Requests. Surplus Interconnection Service requests may be made by the existing Generating Facility or one of its affiliates. Surplus Interconnection Service requests also may be made by another Interconnection Customer selected through an open and transparent solicitation process. The Transmission Provider shall provide a process for evaluating interconnection requests for Surplus Interconnection Service. Studies for Surplus Interconnection Service shall consist of reactive power, short circuit/fault duty, stability analyses, and any other appropriate studies. Steady-state (thermal/voltage) analyses may be performed as necessary to ensure that all required reliability conditions are studied. If the Surplus Interconnection Service was not studied under off-peak conditions, off-peak steady state analyses shall be performed to the required level necessary to demonstrate reliable operation of the Surplus Interconnection Service. If the original System Impact Study is not available for the Surplus Interconnection Service, both off-peak and peak analysis may need to be performed for the existing Generating Facility associated with the request for Surplus Interconnection Service. The reactive power, short circuit/fault duty, stability, and steady-state analyses for Surplus Interconnection Service will identify any additional Interconnection Facilities and/or Network Upgrades necessary.[802]

462. Finally, the Commission proposed to add a new section 3.3.2 to the *pro forma* LGIP that establishes the open and transparent solicitation process for surplus interconnection service (with proposed text in italics):

Solicitation Process for Surplus Interconnection Service. If the existing Generating Facility owner elects to transfer rights for Surplus Interconnection Service to an unaffiliated Interconnection Customer, it must do so through an open and transparent solicitation process. The existing Generating Facility owner must first request that the Transmission Provider post on its website that it is willing to accept requests for Surplus Interconnection Service at the existing Point of Interconnection. Such posting will include the name of the existing Generating Facility, the exact electrical location of the physical termination point of the Surplus Interconnection Service, including proposed breaker position(s) within its substation, the state and county of the existing Generating Facility, and a valid email address and phone number to contact the representative of the existing Generating Facility. The existing Generating Facility owner must provide the Transmission Provider with the System Impact Study performed for the existing Generating Facility with its request for posting Surplus Interconnection Service or indicate that such study is not available.

After the existing Generating Facility owner requests that the Transmission Provider post the availability of Surplus Interconnection Service, the Transmission Provider will also post on its website a description of the selection process for transferring rights to the Surplus Interconnection Service that will include a timeline and the selection criteria developed by the existing Generating Facility owner. The selection process may vary among existing Generating Facility owners but the existing Generating Facility owner will choose the winning request after all necessary studies have been performed by the Transmission Provider. The existing Generating Facility owner will submit to the Transmission Provider, for posting on the Transmission Provider's website, the results of the selection process and will include a description of whose proposal for the Surplus Interconnection Service was selected and why. After an Interconnection Customer has been chosen, the new Interconnection Customer will execute, or request the filing of an unexecuted, interconnection agreement with the Transmission Provider and Transmission Owner (as applicable) upon completion of all necessary studies for its new Generating Facility.[803]

b. General

i. Comments

463. Several commenters support this proposal. ESA supports the proposal and the ability to transfer interconnection capacity between parties because it may encourage co-location of storage and generation. It also states that the net-zero model developed by MISO, following the Commission's guidance in that proceeding, does not meet the objective of encouraging the use of surplus interconnection service and that a separate, faster process to transfer surplus is necessary.[804] AWEA states that better use of interconnection capacity would reduce system costs and improve competition. AWEA argues that an interconnection customer would benefit from being able to split its GIA into multiple GIAs when it is a party to a Power Purchase Agreement that does not account for all of the capacity under the customer's interconnection agreement.[805] Xcel supports a ''net-zero-like'' interconnection service and argues that existing interconnection customers or affiliates should have priority to use any available surplus interconnection service.[806] Duke supports the proposal if it is like MISO's net-zero program and suggests that MISO's interconnection agreement is a good model for such transactions.[807] FTC states that transferred interconnection capacity rights can play a significant role in providing transmission capacity for use by generation entrants quickly and at low cost.[808] TDU Systems argue that the

[800] *Id.* P 208. With respect to these new additions to the *pro forma* LGIP and *pro forma* LGIA, we make minor clarifying edits to the *pro forma* tariff language originally proposed in the NOPR, as shown in Appendices B and C to Order No. 845. Specifically, the term ''unused'' is replaced with the term ''unneeded,'' and the term ''Interconnection Service limit'' is replaced with ''total amount of Interconnection Service.''

[801] *Id.* P 209. With respect to these new additions to the *pro forma* LGIP, we make minor clarifying edits to the *pro forma* tariff language originally proposed in the NOPR, as shown in Appendix B to Order No 845. Specifically, in the first sentence, the words ''Generating Facility'' are replaced with the words ''Point of Interconnection'' and in the last sentence, the words ''through an open and transparent solicitation process'' are struck.

[802] *Id.* P 210. With respect to these new additions to the *pro forma* LGIP, we make minor clarifying edits to the *pro forma* tariff language originally proposed in the NOPR, as shown in Appendix B to Order No. 845. Specifically, the first sentence is modified as follows (with additions made in italics): ''Surplus Interconnection Service requests may be made by the existing *Interconnection Customer whose* Generating Facility *is already interconnected or one of its affiliates.*'' Additionally, the second sentence is modified by striking the words ''selected through an open and transparent solicitation process.'' We also remove the word ''the'' before ''Transmission Provider.''

[803] *Id.* P 211.

[804] ESA 2017 Comments at 13–14.

[805] AWEA 2017 Comments at 58.

[806] Xcel 2017 Comments at 19.

[807] Duke 2017 Comments at 22.

[808] FTC 2017 Comments at 10.

transmission provider must give comparable service to non-affiliates as they do to their own affiliates.[809] MISO generally supports the Commission's proposal, as do Alliant, ITC, MidAmerican, MISO TOs, and TDU Systems.[810]

464. Several commenters express concerns with some aspects of, but do not completely oppose, the Commission's proposal. For example, EEI states that the concept is reasonable but would burden transmission providers and should thus be optional.[811] NYISO opposes simple transfer of capacity from an interconnection customer to another party because more than just MW capacity is needed for safe and reliable interconnection (for example, evaluation of short circuit issues). If the new interconnection customer is under 20 MW, NYISO suggests that it might be easier to use the SGIP and SGIA where it is easier to waive certain studies.[812] PJM does not support the proposed open solicitation for transfer of any surplus interconnection service. PJM contends that there are no surplus capacity rights on its system because capacity is based on tested output. PJM asserts that it would have to create some form of energy rights that could be transferred. PJM prefers to continue using the transfer process contained in its tariffs and manuals.[813]

465. Other commenters, including several RTOs/ISOs, oppose the proposal entirely. For example, ISO–NE states that its markets are already managing surplus transfers through its process that integrates its forward capacity market with its interconnection queue. ISO–NE argues that the Commission proposal would significantly disrupt or misalign this process.[814] CAISO appeals to the Commission to ''not sacrifice reliability studies on the altar of convenience.'' [815] CAISO questions the need for this proposal, stating that interconnection customers can already retire/replace, repower, or assign available capacity through bilateral transactions, which according to CAISO work better than the administrative process in the NOPR.[816] SoCal Edison supports the Commission's goal but does not support the NOPR due to the expedited process and concerns that the expedited NOPR process: (1) May be inferior to current processes like CAISO's Material Modification Assessment; (2) may encourage interconnection customers to request more interconnection service than they intend to use; and (3) should not enable a surplus interconnection customer to avoid the installation of necessary facilities to enable a safe and reliable interconnection.[817] SEIA does not support the creation of a process to reassign surplus interconnection capacity.[818] NYISO asserts that the NOPR may conflict with the principle of open access and might allow for undue discrimination by establishing a process that favors affiliates of an existing interconnection customer over other interconnection customers.[819] AES states that this proposal could reduce flexibility to the transmission provider or reliability coordinator, and they would prefer that RTOs/ISOs determine for themselves how to address the topic of transferring surplus capacity.[820]

466. Several commenters state that either there is no surplus on their systems or that it is unclear what ''surplus'' means. For example, CAISO questions how to define surplus interconnection capacity and states that it assigns interconnection capacity by the actual size of the generator; thus, there is no surplus service in its region.[821] Similarly, PJM states that it does not permit excess capacity to be obtained through the initial request. PJM rates interconnection capacity at the tested output of the generator after installation.[822] Southern questions whether capacity being ''surplus'' should refer to its lack of use in operation, in the interconnection study, or in the interconnection request.[823] NYISO's LGIA requires interconnection customers to inform NYISO if the built generating facility is smaller than what had been proposed, which initiates a process to consider amending the interconnection agreement, or requires a new interconnection request if the interconnection customer proposes to expand its facility.[824] NYISO allows interconnection customers to pay for larger network upgrades than required for the initial project, as long as they are reasonably related to the interconnection of the proposed project.[825] According to NYISO, another later interconnection customer can also use these network upgrades, so long as it reimburses the earlier interconnection customer that paid for them.[826]

ii. Commission Determination

467. In this final action, we adopt, with certain modifications and clarifications, the NOPR proposals to: (1) Add a definition for ''Surplus Interconnection Service'' to section 1 of the *pro forma* LGIP and to article 1 of the *pro forma* LGIA; (2) add a new section 3.3 to the *pro forma* LGIP that requires the transmission provider to establish a process for the use of surplus interconnection service; and (3) add a new section 3.3.1 to the *pro forma* LGIP that describes the process for using surplus interconnection service.[827] As described in more detail below, we will withdraw the NOPR proposal to add a new section 3.3.2 to the *pro forma* LGIP that establishes an open and transparent solicitation process for surplus interconnection service. We affirm that requiring transmission providers to establish an expedited process, separate from the interconnection queue, for the use of surplus interconnection service could reduce costs for interconnection customers by increasing the utilization of existing interconnection facilities and network upgrades rather than requiring new ones, improve wholesale market competition by enabling more entities to compete through the more efficient use of surplus existing interconnection capacity, and remove economic barriers to the development of complementary technologies such as electric storage resources that may be able to easily tailor their use of interconnection service to adhere to the limitations of the surplus interconnection service that may exist. Further, we find that facilitating the use of surplus interconnection service could improve capabilities at existing generating facilities, prevent stranded costs, and improve access to the transmission system.

468. We clarify that surplus interconnection service is created because generating facilities may not operate at full capacity at all times. Consistent with the requirements of

[809] TDU Systems 2017 Comments at 19–20.

[810] MISO 2017 Comments at 5; Alliant 2017 Comments at 8; ITC 2017 Comments at 121; MidAmerican 2017 Comments at 19; MISO TOs 2017 Comments at 40; TDU Systems 2017 Comments at 19–20.

[811] EEI 2017 Comments at 59.

[812] NYISO 2017 Comments at 39.

[813] PJM 2017 Comments at 27–28.

[814] ISO–NE 2017 Comments at 48.

[815] CAISO 2017 Comments at 32.

[816] *Id.* at 34.

[817] SoCal Edison 2017 Comments at 9–13.

[818] SEIA 2017 Comments at 21.

[819] NYISO 2017 Comments at 39–40 (citing *Midwest Indep. Transmission Sys. Operator, Inc.,* 140 FERC ¶ 61,237, at PP 50–51 (2012), and *Midwest Indep. Transmission Sys. Operator, Inc.,* 155 FERC ¶ 61,274, at P 19 (2016)).

[820] AES 2017 Comments at 11–12.

[821] CAISO 2017 Comments at 31–32.

[822] PJM 2017 Comments at 27.

[823] Southern 2017 Comments at 28.

[824] NYISO 2017 Comments at 40.

[825] *Id.* at 42.

[826] *Id.*

[827] With respect to these new additions to the *pro forma* LGIP and *pro forma* LGIA, we make minor clarifying edits to the *pro forma* tariff language originally proposed in the NOPR, as shown in Appendix B and C to Order No. 845.

Order No. 2003, transmission providers assume that each interconnection customer is fully utilizing its interconnection service when studying other requests for new interconnections. Thus, currently, even if a generating facility only operates a few days a year, or routinely operates at a level below its maximum capacity, the remaining, unused interconnection service is assumed to be unavailable to other prospective interconnection customers.

469. As noted above, Order No. 2003 mandates that transmission providers assume that generating facilities operate at their full capacity. To illustrate this, we note that Order No. 2003 listed, as separate services, Energy Resource Interconnection Service (ERIS),[828] a ''basic or minimum interconnection service,'' [829] and Network Resource Interconnection Service (NRIS),[830] a ''more flexible and comprehensive service.'' [831] In Order No. 2003, the Commission stated that, for a generating facility with ERIS, ''[t]he Interconnection Studies to be performed . . . would identify the Interconnection Facilities required as well as the Network Upgrades needed to allow the proposed Generating Facility to operate at *full output*'' and ''the *maximum allowed output* of the Generating Facility without Network Upgrades.'' [832]

470. Similarly, Order No. 2003 stated that NRIS ''provides for all of the Network Upgrades that would be needed to allow the Interconnection Customer to designate its Generating Facility as a Network Resource and obtain Network Integration Transmission Service'' so that for ''an Interconnection Customer [that] has obtained Network Resource Interconnection Service, any future transmission service request for delivery from the Generating Facility would not require additional studies or Network Upgrades.'' [833] To allow for this, ''[t]he Transmission Provider would study the Transmission System at peak load, under a variety of severely stressed conditions, to determine whether, with the Generating Facility *at full output,* the aggregate of generation in the local area can be delivered to the aggregate of load, consistent with the Transmission Provider's reliability criteria and procedures'' and ''would assume that some portion of the capacity of existing Network Resources is displaced by the output of the new Generating Facility.'' [834]

471. Thus, to provide interconnection service to an original interconnection customer at a particular point of interconnection, the transmission provider must conduct a study that assumes that the generating facility will produce at its full output and that the interconnection customer will fully utilize the amount of interconnection service requested. Consequently, it is possible for an original interconnection customer to have surplus interconnection service at a particular interconnection point because the generating facility capacity that the transmission provider originally studied pursuant to the *pro forma* LGIP may be in excess of the actual interconnection service required by the generating facility, at least during some periods. For these reasons, we find that, where proper precautions are taken to ensure system reliability, it would be unjust and unreasonable to deny an original interconnection customer the ability either to transfer or use for another resource surplus interconnection service.

472. As established in this final action and explained further below, surplus interconnection service cannot exceed the total interconnection service already provided by the original interconnection customer's LGIA. Furthermore, if the original LGIA is for ERIS, any surplus interconnection customer associated with the original LGIA at the same point of interconnection would also need to be an ERIS customer in order to avoid the potential need for new network upgrades. If the original LGIA is for NRIS, then either ERIS or NRIS service could be offered to the surplus interconnection service customer. The provisions addressed in this final action will allow an existing interconnection customer to make a specified and limited amount of surplus interconnection service available at a particular interconnection point under a variety of circumstances, including, for example, on a continuous basis (*i.e.,* a certain number of MW of surplus interconnection service always available for use by a co-located generating facility), or on a scheduled, periodic basis (*i.e.,* a specified number of MW available intermittently).[835] In contrast, an interconnection customer making a new interconnection request can request any level of interconnection service at or below its resource's generating facility capacity, and ERIS, NRIS, or provisional interconnection service.

473. We note that, to avoid abuse of this reform, which is intended to increase utilization of existing, underutilized interconnection service provided at a particular point of interconnection, we are restricting surplus interconnection service when new interconnection service would be more appropriate. Specifically, surplus interconnection service cannot be offered if the original interconnection customer's generating facility is scheduled to retire and permanently cease commercial operation before the surplus interconnection service customer's generating facility begin commercial operation. This restriction is consistent with the Commission's statement in Order No. 2003 that interconnection service is ''associated with interconnecting the Interconnection Customer's Generating Facility to the Transmission Provider's Transmission System.'' [836]

474. As this statement demonstrates, the interconnection service provided under an original interconnection customer's LGIA is associated with interconnecting that interconnection customer's generating facility. Once that original generating facility retires and ceases commercial operation, whether that retirement was scheduled or caused prematurely by unexpected circumstances, there is no longer any interconnection service being provided under the original interconnection customer's LGIA. Because surplus interconnection service is inherently derived from an original interconnection customer's interconnection service under its LGIA, retirement and permanent cessation of commercial operation of the original

[828] Energy Resource Interconnection Service:

shall mean an Interconnection Service that allows the Interconnection Customer to connect its Generating Facility to the Transmission Provider's Transmission System to be eligible to deliver the Generating Facility's electric output using the existing firm or nonfirm capacity of the Transmission Provider's Transmission System on an as available basis. Energy Resource Interconnection Service in and of itself does not convey transmission service.

Pro forma LGIP Section 1 (Definitions).

[829] Order No. 2003, FERC Stats. & Regs. ¶ 31,146 at P 752.

[830] Network Resource Interconnection Service:

shall mean an Interconnection Service that allows the Interconnection Customer to integrate its Large Generating Facility with the Transmission Provider's Transmission System (1) in a manner comparable to that in which the Transmission Provider integrates its generating facilities to serve native load customers; or (2) in an RTO or ISO with market based congestion management, in the same manner as all other Network Resources. Network Resource Interconnection Service in and of itself does not convey transmission service.

Pro forma LGIP Section 1 (Definitions).

[831] Order No. 2003, FERC Stats. & Regs. ¶ 31,146 at P 752.

[832] *Id.* P 753 (emphasis added).

[833] *Id.*

[834] *Id.* P 755 (emphasis added).

[835] This would include situations where existing generating facilities operate infrequently, such as peaker units, or operate often below their full generating facility capacity, such as variable generation.

[836] *Pro forma* LGIP Secction 1 (Definitions); *pro forma* LGIA Art. 1 (Definitions).

interconnection customer's generating facility would eliminate any potential surplus interconnection service that might otherwise have been available.

475. We note that this final action makes it possible for a surplus interconnection service customer to increase the total generating facility capacity at a point of interconnection, provided that the total combined generating output at the point of interconnection for both the original and surplus interconnection customer is limited to and shall not exceed the maximum level allowed under the original interconnection customer's LGIA.

476. Comments on the NOPR reveal substantial regional variation in the potential availability of surplus interconnection service and existing or prospective processes that would facilitate its use. To the extent that a transmission provider believes that it already complies with the surplus interconnection service requirements of this final action, it may include an explanation in its compliance filing in response to this final action.

477. We clarify that, for a process to be consistent with or superior to, or an independent entity variation from, the final action's surplus interconnection service requirements, the transmission provider must demonstrate, at a minimum, that its tariff: (1) Includes a definition of surplus interconnection service consistent with the final action; (2) provides an expedited interconnection process outside of the interconnection queue for surplus interconnection service, consistent with the final action; (3) allows affiliates of the original interconnection customers to use surplus interconnection service for another interconnecting generating facility consistent with the final action; (4) allows for the transfer of surplus interconnection service that the original interconnection customer or one of its affiliates does not intend to use; and (5) specifies what reliability-related studies and approvals are necessary to provide surplus interconnection service and to ensure the reliable use of surplus interconnection service.

478. As a threshold consideration, we respond to NYISO's concern regarding whether the NOPR proposal on surplus interconnection service is consistent with the principles of open access.

479. While open access principles are fundamental to the Commission's regulation of transmission in interstate commerce,[837] we find that, in light of the substantial potential benefits of and inherent practical limitations on the use of surplus interconnection service, open access requirements such as those the Commission previously imposed upon MISO's Net Zero Interconnection Service are not currently necessary to achieve the Commission's open access goals. This finding is consistent with the perspective that the Commission adopted in Order No. 807, where the Commission amended:

> its regulations to waive the Open Access Transmission Tariff (OATT) requirements of 18 CFR 35.28, the Open Access Same-Time Information System (OASIS) requirements of 18 CFR 37, and the Standards of Conduct requirements 18 CFR 358, under certain conditions, for the ownership, control, or operation of Interconnection Customer's Interconnection Facilities (ICIF).[838]

In Order No. 807, the Commission concluded that the waived requirements were not ''necessary to achieve the Commission's open access goals.'' [839] In coming to this conclusion, the Commission stated, among other things, that given the limited nature of the ICIF and practical benefits provided by Order No. 807, the waived requirements were not necessary to achieve open access. [840]

480. We find that policy considerations comparable to those that the Commission relied upon to support Order No. 807 are present here. Surplus interconnection service is not available to third parties absent some process for allowing the use or transfer of the surplus interconnection service to another interconnection customer. As described above, some original interconnection customers do not use the full generating facility capacity of their interconnection service due to the nature of their operations. In these circumstances, no other interconnection customer would be able to obtain interconnection service associated with the network upgrades funded by the original interconnection customer. Creation of a surplus interconnection service that allows another interconnection customer to make use of surplus interconnection service will enhance access to the transmission system at the point of interconnection.

481. The question is then how to align the process for determining which resources may access surplus interconnection service with the Commission's goals to promote transparent and nondiscriminatory practices. We are convinced, as we were in Order No. 807, that certain requirements and processes—in this instance, a competitive solicitation—are not necessary to achieve our overall open access goals. As a general matter, we note that surplus interconnection service is, by definition, limited in nature. This is because: (1) The total output of the original interconnection customer plus the surplus interconnection service customer behind the same point of interconnection shall be limited to the maximum total amount of interconnection service granted to the original interconnection customer; (2) the original interconnection customer must be able to stipulate the amount of surplus interconnection service that is available, to designate when that service is available, and to describe any other conditions under which surplus interconnection service at the point of interconnection may be used; and (3) surplus interconnection service shall only be available at the preexisting point of interconnection of the original interconnection customer.

482. Furthermore, we note that the Commission is making no changes to the open access nature of the generator interconnection process established by Order No. 2003. This final action requirement does not restrict a new interconnection customer's ability to submit an interconnection request for any requested point of interconnection directly with the transmission provider, rather than seeking surplus interconnection service with respect to an original interconnection customer's point of interconnection. Therefore, an original interconnection customer with surplus interconnection service shall not be capable of preventing a new interconnection customer from exercising its open access rights to the transmission grid.

483. In order to realize the benefits of an efficiently-used transmission system, the final action adopts the NOPR proposal to allow an original interconnection customer or its affiliate to use any surplus interconnection service. Additionally, we withdraw the NOPR proposal to require an open and transparent solicitation process if an original interconnection customer that has surplus interconnection service

[837] *See Promoting Wholesale Competition Through Open Access Non-Discriminatory Transmission Services by Public Utilities; Recovery of Stranded Costs by Public Utilities and Transmitting Utilities,* Order No. 888, FERC Stats. & Regs. ¶ 31,036 (1996), *order on reh'g,* Order No. 888–A, FERC Stats. & Regs. ¶ 31,048, *order on reh'g,* Order No. 888–B, 81 FERC ¶ 61,248 (1997), *order on reh'g,* Order No. 888–C, 82 FERC ¶ 61,046 (1998), *aff'd in relevant part sub nom. Transmission Access Policy Study Group* v. *FERC,* 225 F.3d 667 (D.C. Cir. 2000), *aff'd sub nom. New York* v. *FERC,* 535 U.S. 1 (2002).

[838] *Open Access and Priority Rights on Interconnection Customer's Interconnection Facilities,* Order No. 807, FERC Stats. & Regs. ¶ 31,367, at P 1 (Order No. 807), *order on reh'g,* Order No. 807–A, 153 FERC ¶ 61,047 (2015).

[839] *Id.* P 18.

[840] *Id.* PP 38, 55.

wishes to transfer this surplus interconnection service to a non-affiliated third party. Consequently, we will revise proposed *pro forma* section 3.3 as follows (deleting the bracketed text from, and adding the italicized text to, proposed language):

> Utilization of Surplus Interconnection Service. [The]Transmission Provider must provide a process that allows an Interconnection Customer to utilize or transfer Surplus Interconnection Service at an existing [Generating Facility] *Point of Interconnection.* The original Interconnection Customer or one of its affiliates shall have priority to utilize Surplus Interconnection Service. If the existing Interconnection Customer or one of its affiliates does not exercise its priority, then that service may be made available to other potential interconnection customers [through an open and transparent solicitation process].[841]

484. We acknowledge that the requirements adopted here reflect a change in Commission policy with respect to some of the requirements previously imposed on MISO's Net Zero Interconnection Service.[842] Because of the history of that service (namely the fact that only one party has sought MISO's Net Zero Interconnection Service), and in light of the record and discussion above, we find it appropriate to revisit and modify our position on the topic of surplus interconnection service.

c. Expedited Process

i. Comments

485. Commenters disagree on whether there should be an expedited process for transferring surplus interconnection capacity. For example, California Energy Storage Alliance supports a faster process that does not require additional interconnection studies.[843] Xcel and AWEA argue for a new process outside the LGIP that would handle all transfers of interconnection capacity.[844] On the other hand, some transmission providers oppose any expedited process that departs from the interconnection queue order. SoCal Edison states that, in order to properly identify required upgrades and define proper cost assignment, technical studies need to follow a rational order that must be predicated on relative queue position.[845] Southern opposes an expedited process that allows a new interconnection customer to ''jump up'' in the queue, as this would be unfair to others in the queue.[846]

ii. Commission Determination

486. As described earlier, we adopt the NOPR proposal to add a new definition for ''Surplus Interconnection Service'' to section 1 of the *pro forma* LGIP and to article 1 of the *pro forma* LGIA that requires transmission providers to provide an expedited process for interconnection customers to utilize or transfer surplus interconnection service at a particular point of interconnection. This process would be expedited in the sense that it would take place outside of the interconnection queue. Some commenters argue that this would result in inappropriate queue jumping.

487. In response to those comments, we clarify that the use or transfer of surplus interconnection service does not entail queue jumping because surplus interconnection service does not compete for the same potential network upgrades that may be at issue in the normal interconnection queue. Surplus interconnection service is more limited interconnection service because it can only be located at the original interconnection customer's previously studied and approved point of interconnection. The requirements for the use of surplus interconnection service: (1) Provide efficient use of the transmission system; (2) ensure that the use of surplus interconnection service is safe and reliable; and (3) help mitigate the possibility of unduly discriminatory treatment. Because the necessary studies for surplus interconnection service shall confirm that the combination of the surplus interconnection customer's generating facility with the original interconnection customer's generating facility does not result in a need for new network upgrades, it would be inefficient to put surplus interconnection customers into the interconnection queue.

488. Furthermore, transmission providers in some regions routinely conduct similar studies outside of the interconnection process. For example, MISO frequently conducts Quarterly Operating Limits studies, which are similar in nature to the studies required for surplus interconnection service, and the Commission is unaware of any delays to other customers related to the processing of these studies.[847] We also clarify that original interconnection customers are not required to make surplus interconnection service available to potential customers. If they do make it available, transmission providers are not required to execute an interconnection agreement for surplus interconnection service if arrangements do not meet the definition set forth in their tariff or if the customer does not agree to the terms of such service, including any requirements that may be identified by the transmission provider in the studies for surplus interconnection service. If the surplus interconnection service customer disputes an issue in the interconnection agreement for surplus interconnection service, the transmission provider must file the unexecuted surplus interconnection service agreement with the Commission if requested to do so by the surplus interconnection service customer.

d. Interconnection Capacity Hoarding or Squatting

i. Comments

489. SoCal Edison expresses concern that the proposal might encourage interconnection customers to request more interconnection capacity than they intend to use, in order to create a surplus that they might sell later.[848] Southern agrees and adds that this could create costs for later-queued customers that they otherwise would not have to pay.[849] Xcel expresses concerns that such practices could lead to capacity ''squatting (*i.e.,* hoarding).'' [850] However, Competitive Suppliers oppose these positions and state that reductions in interconnection service to eliminate surplus by transmission providers amounts to confiscation of the rights of the interconnection customers.[851]

ii. Commission Determination

490. As discussed earlier, the interconnection service provided under any LGIA is associated with interconnecting that interconnection customer's generating facility to the transmission provider's system, with a maximum level equal to the generating facility capacity. Accordingly, an interconnection customer cannot amass large excesses of interconnection service beyond its own needs. Furthermore, as discussed earlier, interconnection customers are free to seek interconnection service through the non-surplus interconnection process of the transmission provider. While an original interconnection customer could maintain control over a certain amount

[841] NOPR, FERC Stats. & Regs. ¶ 32,719 at P 209.

[842] *See, e.g., Midwest Indep. Transmission Sys. Operator,* 138 FERC ¶ 61,233 at P 302.

[843] California Energy Storage Alliance 2017 Comments at 7.

[844] Xcel 2017 Comments at 19; AWEA 2017 Comments at 59.

[845] SoCal Edison 2017 Comments at 2.

[846] Southern 2017 Comments at 31.

[847] *See, e.g.,* MISO, FERC Electric Tariff, Attachment X (76.0.0), Section 11.5.

[848] SoCal Edison 2017 Comments at 10.

[849] Southern 2017 Comments at 29–30.

[850] Xcel 2017 Comments at 21.

[851] Competitive Suppliers 2017 Comments at 8.

of interconnection service, that service will be limited to the original interconnection customer's generating facility capacity (which is based on the size of the generating facility it constructs and continues to operate). If the original interconnection customer does not construct the facility it has represented to the transmission provider, or retires that facility, the transmission provider may terminate the customer's LGIA in accordance with applicable provisions in its tariff. Accordingly, we see no significant concern with hoarding interconnection service.

e. Property Rights

i. Comments

491. As further described below, some commenters assert that the NOPR's surplus interconnection proposals treat interconnection service as a property right of the interconnection customer even though they may not have been so treated in the past. CAISO states that Commission precedent holds that the interconnection capacity does not confer a property right, and that where an interconnection customer builds less generating facility capacity than that for which it requested interconnection service, it does not retain that interconnection capacity indefinitely, and transmission providers like CAISO may subsequently remove it from their base case.[852] NYISO asserts that the NOPR would expand what is currently a contractual right, namely the right to a particular point of interconnection, into a property right by allowing a generator to transfer interconnection service to a third party.[853] SoCal Edison states that the NOPR assumes that interconnection capacity is a property right, but that in many cases the interconnection customer did not pay for the ''surplus.'' [854]

492. On the other hand, some interconnection customers assert that contracted interconnection service is indeed a property right. Generation Developers support recognizing that surplus capacity is a property right and asset of the existing interconnection customer.[855] Cogeneration Association argues that transfer of capacity cannot be done without the consent of the existing interconnection customer, and that the existing interconnection customer should be able to negotiate the terms and compensation for the transfer of capacity.[856]

ii. Commission Determination

493. We are, in this final action, adopting a requirement that transmission providers establish a process for the use or transfer of surplus interconnection service, and we do not view that policy as establishing a new property right to interconnection service. Rather, as NYISO contends, interconnection service is a contractual right provided by an LGIA. We also agree with CAISO that where the original interconnection customer, for example, reduces the generating facility capacity of its facility from what was originally proposed for interconnection, it would not retain rights indefinitely to any excess interconnection capacity thus created.

f. Original Interconnection Customer's Priority

i. Comments

494. Some commenters argue that the proposed priority for original interconnection customers and their affiliates should have a limited term. MidAmerican [857] and CAISO [858] support a limit of three years from when the original generation facility last produced energy. EDP proposes a minimum of five years. EDP cites compatibility with the five-year safe harbor granted to interconnection customer interconnection facilities in Order No. 807 as support for a five year priority here.[859] MISO TOs,[860] PJM,[861] and TDU Systems [862] support a time limit, either after the original commercial operations date if the interconnection customer has failed to achieve commercial operations, or for some period after it has ceased commercial operations, but do not specify a duration, preferring to leave each RTO or ISO with discretion to determine appropriate duration.

ii. Commission Determination

495. While the Commission sought comment in the NOPR on whether any limitations should be placed on the original interconnection customer's priority use of its interconnection service, we find that the original interconnection customer, through its LGIA, may use or transfer any surplus interconnection service until it retires the generating facility that is the subject of the LGIA. We see no reason to modify that ability. Accordingly, original interconnection customers will retain the ability to use, either for themselves, for an affiliate, or for sale to a third party of their choosing, any surplus interconnection service that may exist under their LGIAs, until their original generating facility retires. However, as described more fully in subsection (h) below, this right becomes more limited once the original interconnection customer schedules the retirement of its original generating facility.

g. Contractual Arrangements

i. Comments

496. Commenters that were responsive to the Commission's questions regarding contractual arrangements generally agree that contractual arrangements are necessary between the surplus interconnection customer and the original interconnection customer, as well as with the transmission owner.[863] Specifically, Cogeneration Association states that collateral agreements between the interconnection customers are necessary, as dealing with rights and obligations between the original interconnection customer and new interconnection customer may not be included in the LGIA.[864] Similarly, AWEA supports the idea of the original and new interconnection customers each having a separate LGIA.[865]

497. ITC argues that the Commission should specify in the *pro forma* LGIA that the original interconnection customer will serve as the single point of contact for operational directives and outage coordination by the transmission provider and/or transmission owner. According to ITC, transmission providers/owners should not be required to coordinate these operational issues with multiple, potentially-unaffiliated parties. Rather, ITC argues, it is appropriate that the original interconnection customer that elects to make surplus capacity available assume the obligation of coordinating with surplus customers.[866]

498. Generation Developers argue that the Commission should require a transmission provider to have a *pro forma* surplus interconnection agreement.[867] Duke agrees with the

[852] CAISO 2017 Comments at 32 (citing *CalWind Resources Inc.* v. *California Independent System Operator Corp.,* 146 FERC ¶ 61,121, at PP 33 *et seq.* (2014)).

[853] NYISO 2017 Comments at 41.

[854] SoCal Edison 2017 Comments at 9.

[855] Generation Developers 2017 Comments at 41.

[856] Cogeneration Association 2017 Comments at 3.

[857] MidAmerican 2017 Comments at 20.

[858] CAISO 2017 Comments at 33.

[859] EDP 2017 Comments at 8.

[860] MISO TOs 2017 Comments at 40.

[861] PJM 2017 Comments at 26.

[862] TDU Systems 2017 Comments at 29–30.

[863] Cogeneration Association 2017 Comments at 5; ITC 2017 Comments at 20; Generation Developers 2017 Comments at 41; Duke 2017 Comments at 22.

[864] Cogeneration Association 2017 Comments at 5.

[865] AWEA 2017 Comments at 59.

[866] ITC 2017 Comments at 20.

[867] Generation Developers 2017 Comments at 41.

NOPR proposal that a new interconnection agreement for surplus interconnection service must be executed, or filed unexecuted, by the transmission provider, transmission owner (as applicable), and the surplus interconnection service customer and suggests that the MISO LGIA template provides a framework for such agreements between the interconnection customers and transmission providers.[868]

ii. Commission Determination

499. We agree with commenters that agreements between the original interconnection customer, the surplus interconnection service customer (whether affiliated or not), and the transmission provider are necessary to establish conditions such as the term of operation, the interconnection service limit, and the mode of operation for energy production (*i.e.,* common or singular operation) and to establish the roles and responsibilities of the parties for maintaining the operation of the facility within the parameters of the surplus interconnection service agreement. Therefore, we require that the original interconnection customer, the surplus interconnection service customer, and the transmission provider enter into such agreements for surplus interconnection service and that they be filed by the transmission provider with the Commission, because any surplus interconnection service agreement will be an agreement under the transmission provider's OATT.

500. However, we decline to establish these agreements as part of the *pro forma* LGIA or prescribe their terms and conditions. This will give transmission providers flexibility to establish agreements appropriate for their region (*e.g.,* they may be different for RTO/ISO and non-RTO/ISO regions) and the unique conditions of each agreement for surplus interconnection service. It will also alleviate some potential burden by allowing transmission providers to either file *pro forma* versions of these agreements with the Commission, as was done in MISO, or execute them as needed and file them with the Commission on an *ad hoc* basis.

h. Retirement, Repowering and Continuation of Surplus Interconnection Service After the Original Interconnection Customer's Generating Facility Retires

i. Comments

501. Some commenters discuss the NOPR as it might relate to retirement of generators and replacement or repowering.[869] Xcel argues that the retention of rights by the interconnection customer or its affiliates may be helpful at the current time when many utilities are going through retirement and replacement or repowering.[870] Xcel argues that using this approach for repowering leads to efficiency because re-using brownfield sites is the most cost-effective approach to repowering, and suggests that the Commission should encourage this practice.[871] CAISO states that it allows repowering, and notes that, in some cases, this process has led to the replacement of conventional generation by electric storage.[872] PG&E supports the CAISO repowering process for allowing new generation on the grid while potentially minimizing interconnection and network upgrade costs.[873] ISO–NE states that its forward capacity market can accommodate repowering by maintaining the interconnection service while the interconnection customer builds a new generating facility that can take the place of a retiring unit.[874]

502. Other commenters discuss whether surplus interconnection service should terminate at the same time the original interconnection customer's generating facility retires. Cogeneration Association argues that this matter should be stated in the LGIA or collateral agreement, but that the default position should be that the termination of rights of the surplus interconnection customer should occur simultaneously with the termination of rights of the original interconnection customer.[875] Generation Developers argue for the survivorship of the surplus interconnection service when the original interconnection customer's generating facility retires, on the basis that the surplus interconnection customer would have paid the original interconnection customer for the interconnection rights.[876] Xcel supports survivorship because of greater commercial attractiveness and helping the new interconnection customers to get financing.[877]

ii. Commission Determination

503. The purpose of this reform is to enable the efficient use of any surplus interconnection service that may exist in connection with an original interconnection customer's use of its generating facility. The retirement or repowering of that original interconnection customer's generating facility would represent activities outside the normal use of that generating facility. Accordingly, we find that, with one exception discussed below, retirement and repowering issues are outside the scope of this rulemaking, and should instead be addressed elsewhere (*e.g.,* through the existing processes discussed by some commenters).

504. With respect to continuation of surplus interconnection service after the retirement of the original interconnection customer's generating facility, we find that surplus interconnection service is, by definition, tied to the continued existence of the original interconnection customer's interconnection service. There must be some existing interconnection service from which the ability to provide surplus interconnection service has been identified. As described above, once the original interconnection service terminates, there is no longer an original interconnection service from which the ability to provide surplus interconnection service could be identified. Therefore, surplus interconnection service shall not be available when the original interconnection customer retires and permanently ceases commercial operation.

505. However, we believe it is appropriate to permit a limited continuation of surplus interconnection service following the retirement and permanent cessation of commercial operation of the original interconnection customer's generating facility to ameliorate the business and financial risk to the surplus interconnection service customer if the original interconnection customer retires unexpectedly, when two conditions are met. First, the surplus service interconnection customer's generation facility must have been studied by the transmission provider for sole operation at the point of interconnection at the time of the interconnection of the surplus service interconnection customer. Second, the original interconnection customer (and now

[868] Duke 2017 Comments at 22.

[869] For purposes of this final action, we adopt CAISO's definition of ''repowering,'' which defines repowering as a modification of existing generating units that does not: (i) Increase the total capability of the plant; or (ii) substantially change its electrical characteristics such that original reliability studies would be affected. *See* Section 25.1.2 of the CAISO tariff; Section 12 of the business practice manuals for Generator Management, *https://bpmcm.caiso.com/Pages/BPMDetails.aspx?BPM=Generator%20Management.*

[870] Xcel 2017 Comments at 19.

[871] *Id.* at 20.

[872] CAISO 2017 Comments at 33.

[873] PG&E 2017 Comments at 9.

[874] ISO–NE 2017 Comments at 50.

[875] Cogeneration Association 2017 Comments at 5–6.

[876] Generation Developers 2017 Comments at 42.

[877] Xcel 2017 Comments at 21.

retiring) must have agreed in writing that the surplus interconnection service customer may continue to operate at either its limited share of the original interconnection customer's generating facility capacity in the original interconnection customer's LGIA, as reflected in its surplus interconnection service agreement, or at any level below such limit upon the retirement and permanent cessation of commercial operation of the original interconnection customer's generating facility.

506. If these conditions are met, then the transmission provider must permit the surplus interconnection service customer to continue the surplus interconnection service for a limited period not to exceed one year. To prevent gaming and abuse of the continuation of surplus interconnection service, such service shall be limited to no more than one year after the date of retirement and permanent cessation of commercial operation of the original interconnection customer. If these conditions are not met, then those agreements regarding the surplus interconnection service must be drafted to, and must, terminate simultaneously with the termination of the original interconnection agreement from which surplus interconnection service was provided.

507. We note again that interconnection customers are under no obligation to choose surplus interconnection service rather than seeking their own stand-alone interconnection service directly from the transmission provider. Therefore, any interconnection customers that require greater assurance up front that their interconnection service will not be affected by the retirement of another generating facility should carefully consider whether surplus interconnection service is the right match for their particular needs.

i. Relationship to MISO Net Zero Interconnection Service

i. Comments

508. MISO argues that, as a part of the final action, the Commission should allow MISO to remove certain restrictions on its existing Net Zero Interconnection Service that it argues exceed the restrictions proposed for the surplus interconnection service.[878]

ii. Commission Determination

509. We agree with MISO that this final action includes fewer restrictions on the use of surplus interconnection service than what the Commission imposed on MISO's Net Zero Interconnection Service, which has a similar goal. As noted above, the requirements we enact in this final action for surplus interconnection service depart in some respects from our precedent regarding MISO's Net Zero Interconnection Service. This final action reflects a shift in the Commission's view of these issues as described in earlier subsections of this final action. To the extent that MISO wishes to modify the procedures surrounding its Net Zero Interconnection Service, MISO may propose to do so on compliance in this proceeding, and the Commission will evaluate that proposal to determine if it complies with the requirements of the final action.

4. Material Modification and Incorporation of Advanced Technologies

a. NOPR Proposal

510. Under the *pro forma* LGIP, an interconnection customer can modify its interconnection request and still retain its queue position if the modifications are either explicitly allowed under the *pro forma* LGIP or if the transmission provider determines that the modifications are not material. The *pro forma* LGIA defines material modifications as ''those modifications that have a material impact on the cost or timing of any Interconnection Request with a later queue priority date.'' [879] Under the *pro forma* LGIP, an interconnection customer must submit to the transmission provider, in writing, modifications to any information provided in the interconnection request.[880] The *pro forma* LGIP directs transmission providers to commence any necessary additional studies related to the interconnection customer's modification request no later than 30 calendar days after receiving notice of the request.[881] If the transmission provider determines that the proposed modification is material, the interconnection customer can choose to abandon the proposed modification or proceed and lose its queue position.

511. In the NOPR, the Commission explained that the *pro forma* LGIP does not contain guidance regarding analysis and modeling for the incorporation of technological advancements into an existing interconnection request. The Commission preliminarily found that the discretion resulting from this lack of guidance can lead to unjust and unreasonable rates, terms, and conditions, and unduly discriminatory or preferential practices, especially for technological advancements.[882] The Commission thus proposed to require transmission providers to establish a technological change procedure in their LGIPs to assess and, if necessary, study whether they can accommodate a technological advancement without the change being considered material.[883] The Commission stated that such a procedure would allow an interconnection customer to provide an analysis of how its proposed technological advancement would result in electrical performance that is equal to or better than the electrical performance expected prior to the change.[884] Using such a procedure, a transmission provider would determine whether a technological advancement is a material modification. If it was not a material modification, the interconnection customer could incorporate the technological advancement without losing its queue position.

512. In the NOPR, the Commission also proposed to require transmission providers to develop a definition of permissible technological advancements that the interconnection process can accommodate without the change being considered a material modification.[885] Thus, pursuant to this proposal, a permissible technological advancement is a technological advancement that, by definition, does not constitute a material modification. Further, the Commission proposed that this definition should contemplate advancements that provide cost efficiency and/or electrical performance benefits.[886] The Commission proposed that in the scenario where a transmission provider requires a study for a proposed technological advancement to not be considered a material modification, the interconnection customer should tender an appropriate study deposit and provide the necessary modeling data that sufficiently models the behavior of the new equipment and any other required data about the technological advancement to the transmission provider.[887]

513. To implement the technological change procedure, the Commission also proposed to require transmission providers to define technological advancements in their LGIPs. The Commission stated that the definition should consider technological advancements to equipment that may

[878] MISO 2017 Comments at 36.

[879] *Pro forma* LGIA Art. 1.

[880] *See pro forma* LGIP Section 4.4.

[881] *See pro forma* LGIP Section 4.4.4.

[882] NOPR, FERC Stats. & Regs. ¶ 32,719 at P 216.

[883] *Id.* P 217.

[884] *Id.* PP 217–18.

[885] *Id.* P 217.

[886] *Id.* P 212.

[887] *Id.* P 219.

achieve cost and grid performance efficiencies.[888] Finally, the Commission proposed to permit interconnection customers to submit technological advancement requests for incorporation any time before the execution of the facilities study agreement.[889]

514. Accordingly, the Commission proposed to revise section 4.4.2 of the *pro forma* LGIP as follows (with proposed deletions in brackets and with proposed additions in italics):

4.4.2 Prior to the return of the executed Interconnection Facility Study Agreement to the Transmission Provider, the modifications permitted under this Section shall include specifically: (a) Additional 15 percent decrease in plant size (MW), [and] (b) Large Generating Facility technical parameters associated with modifications to Large Generating Facility technology and transformer impedances; provided, however, the incremental costs associated with those modifications are the responsibility of the requesting Interconnection Customer*; and (c) a technological advancement for the Large Generating Facility after the submission of the interconnection request. Section 4.4.4 specifies a separate Technological Change Procedure including the requisite information and process that will be followed to assess whether the Interconnection Customer's proposed technological advancement under Section 4.4.2(c) is a Material Modification. Section 1 contains a definition of Technological Advancement.*[890]

b. Technological Change Procedure

i. Comments

515. The majority of commenters support [891] or do not object [892] to the proposal. AFPA and ELCON cite the proposal's potential to lower interconnection costs and avoid costly delays in commercial operation.[893] AWEA comments that the proposal will provide transparency and certainty to both the transmission provider and the interconnection customer, and will remove a barrier to the use of the most modern, cost effective technology.[894] NextEra states that transmission providers are inconsistent in considering potential changes to the equipment being installed under an interconnection agreement.[895] Alliant asserts that the current definition of material modification is unclear and that more guidance is needed from the Commission in terms of what would trigger a material modification study.[896] Idaho Power agrees with the proposal provided that an interconnection customer will be responsible for any necessary network upgrades that are identified and for which the transmission provider committed expenses before the technological advancement request.[897] TDU Systems supports the flexibility built into the proposal and adds that, if technological advancements include changes to the equipment's electrical characteristics, then the models require modification, the simulations must be re-run, and the results require reevaluation.[898]

516. Multiple RTOs/ISOs support or do not oppose the NOPR's technological advancement proposal, while some do not necessarily believe that the NOPR proposal is necessary. For example, CAISO states that it supports the proposal.[899] MISO also supports the proposal, and comments that interconnection customers should not forfeit interconnection rights simply because the technology of their generating facility has become outdated.[900] ISO–NE and NEPOOL state that ISO–NE's 2016 revisions to its interconnection procedures already establish clear rules to consistently and expeditiously determine whether a proposed modification is material.[901] ISO–NE states that it developed its rules to respond to continuous requests for technical changes, which were one contributing factor to the Maine queue backlog.[902] ISO–NE states that its recent tariff changes have addressed these issues. NYISO asserts that it does not oppose the NOPR proposal if it is limited to assessing the materiality and consideration of whether the transmission provider can accommodate a modification to the specific technology type initially proposed (as opposed to changing from gas to wind, for example).[903] PJM states that it is not opposed to accounting for technological changes during the study process.[904] However, PJM cites to its current practice of incorporating technological changes and states that a separate ''technological change procedure'' is not necessary to determine whether such a modification is material.[905]

517. Other commenters do not support the NOPR proposal or believe that the proposed changes are unnecessary. For example, EEI and some public utility transmission providers outside the RTOs/ISOs comment that current material modification provisions are adequate.[906] EEI asserts that the Commission has not clearly explained the difference between a technological advancement and a material modification and that the proposal unreasonably limits a transmission provider's ability to evaluate reliability impacts.[907] EEI states that, if the Commission decides to establish more granular procedures for technological advancements, it should not duplicate the material modification requirements. Instead, EEI suggests that the Commission could require transmission providers to explain whenever a change that is not explicitly listed in the *pro forma* LGIP constitutes a material modification.[908] EEI also states that it is reasonable to leave significant discretion to sound engineering judgment in order to balance the need to implement technological advancements, improve performance and efficiencies, and to maintain safe, reliable service.[909] Southern adds that the concern should not be about developing types of advanced technologies, but how that

[888] *Id.* P 222.

[889] *Id.* P 223.

[890] With respect to this new provisions to the *pro forma* LGIP, we make minor clarifying edits to the *pro forma* tariff language originally proposed in the NOPR, as shown in Appendix B to Order No. 845. Specifically, the comma after section 4.4.2(a)(2) will be replaced with a semicolon, and *pro forma* section 4.4.2 will no longer capitalize ''Technological Change Procedure.'' Additionally, in the last sentence of *pro forma* section 4.4.2, ''technological advancement'' will now say ''Permissible Technological Advancement.'' Also, section 1 of the *pro forma* LGIP will contain a placeholder for the definition of ''Permissible Technological Advancement, and there is now a placeholder for each transmission provider's technological change procedure in *pro forma* LGIP section 4.4.4.

[891] Alliant 2017 Comments at 13; AFPA 2017 Comments at 16; AWEA 2017 Comments at 60; CAISO 2017 Comments at 35; Joint Renewable Parties 2017 Comments at 12; ELCON 2017 Comments at 7; Idaho Power 2017 Comments at 6; IECA Comments at 3; ISO–NE 2017 Comments at 51; MISO 2017 Comments at 5; NEPOOL 2017 Comments at 18; NextEra 2017 Comments at 52; TDU Systems 2017 Comments at 30–31; PJM 2017 Comments at 30.

[892] APPA/LPPC 2017 Comments at 26; NYISO 2017 Comments at 43; SEIA 2017 Comments at 21.

[893] AFPA 2017 Comments at 4; ELCON 2017 Comments at 7.

[894] AWEA 2017 Comments at 60.

[895] NextEra 2017 Comments at 52.

[896] Alliant 2017 Comments at 13.

[897] Idaho Power 2017 Comments at 6.

[898] TDU Systems 2017 Comments at 30–31.

[899] CAISO 2017 Comments at 35.

[900] MISO 2017 Comments at 5.

[901] ISO–NE 2017 Comments at 52; NEPOOL 2017 Comments at 18.

[902] ISO–NE 2017 Comments at 52–53. ISO–NE noted that the revisions were developed with stakeholders to address interconnection challenges that have led to a backlog of interconnection requests for 4,000 MW of primarily wind generation in Maine. *See ISO New England Inc. and Participating Transmission Owners Admin. Comm.,* 155 FERC ¶ 61,031, at P 2 (2016).

[903] NYISO 2017 Comments at 43.

[904] PJM 2017 Comments at 30.

[905] PJM 2017 Comments at 30.

[906] AES 2017 Comments at 8–9; Duke 2017 Comments at 24; EEI 2017 Comments at 67; PG&E 2017 Comments at 9 (citing CAISO Business Practice Manual for Generator Management Section 6); Southern 2017 Comments at 32; TVA 2017 Comments at 18; Xcel 2017 Comment at 22.

[907] EEI 2017 Comments at 5, 67, 68–69.

[908] *Id.* at 69, 73.

[909] *Id.* at 73.

technology impacts already queued requests.[910] TVA suggests that, rather than identifying specific pre-qualified technical advancements, interconnection customers should update their model data before starting the system impact study.[911] Xcel notes that the types and impacts of changes evolve as technology advances, and while it does not consider a *pro forma* LGIP change necessary, it encourages customers to provide studies and evidence that any change is immaterial.[912] Xcel also recommends that the Commission hold a technical conference or workshop to discuss material modification issues, which it anticipates will show the variation and difficulty involved in evaluating such modifications.[913]

ii. Commission Determination

518. We adopt the NOPR proposal subject to certain clarifications. We require transmission providers to include in their *pro forma* LGIP a technological change procedure. They must also assess, and if necessary, study whether proposed technological advancements can be incorporated into interconnection requests without triggering the material modification provisions of the *pro forma* LGIP. Furthermore, transmission providers must, consistent with the guidance provided in this final action, develop a definition of permissible technological advancement. Such permissible technological advancements would, by definition, not constitute material modifications.

519. The technological change procedure must specify what technological advancements can be incorporated at various stages of the interconnection process, and the procedure must clearly identify which requirements apply to the interconnection customer and which apply to the transmission provider. The procedure should state that, if an interconnection customer seeks to incorporate technological advancements into its generating facility, it should submit a technological advancement request. For the transmission provider to determine that a proposed technological advancement is not a material modification, the procedure must specify the information that the interconnection customer must submit as part of a technological advancement request. The procedure must also specify the conditions under which a study will or will not be necessary to determine whether a proposed technological advancement is a material modification.

520. For a transmission provider to be able to determine whether a proposed technological advancement is not a material modification, the interconnection customer's technological advancement request must demonstrate that the proposed incorporation of the technological advancement would result in electrical performance that is equal to or better than the electrical performance expected prior to the technology change and not cause any reliability concerns (*i.e.,* materially impact the transmission system with regard to short circuit capability limits, steady-state thermal and voltage limits, or dynamic system stability and response).[914]

521. The transmission provider must determine whether a requested technological advancement is a material modification and whether or not a study is necessary to complete the analysis of whether the technological advancement is a material modification. The procedure must state that, if a study is necessary to evaluate whether a particular technological advancement is a material modification, the transmission provider must clearly indicate to the interconnection customer the types of information and/or study inputs that the interconnection customer must provide to the transmission provider, including for example, study scenarios, modeling data, and any other assumptions. The procedure should also explain how the transmission provider will evaluate the technological advancement request to determine whether it is a material modification.

522. If the transmission provider cannot accommodate a proposed technological advancement without triggering the material modification provision of the *pro forma* LGIP, the transmission provider shall provide an explanation to the interconnection customer regarding why the technological advancement is a material modification.

523. We find that the current definition of material modification may create uncertainty about whether a transmission provider must consider a technological advancement to be a material modification, and we agree with commenters that the requirement that we adopt in this final action will increase transparency, create process efficiencies, and encourage technological innovation that could lower consumer costs.[915] We find that, contrary to the assertions that the existing material modification procedures are adequate, the proposed reforms are necessary to improve certainty and transparency.

524. Some transmission providers, such as PJM, believe that a technological change procedure is unnecessary because their tariffs already include a method to determine whether a change to an interconnection request is a material modification. In response to these comments, if a transmission provider believes its existing interconnection procedures regarding the incorporation of technological advancements would qualify for a variation from the final action requirements or that it already complies with the requirements adopted in this final action, it may provide such an explanation in its compliance filing.

525. EEI, Duke, Southern, TVA, and Xcel assert that the existing material modification procedures are adequate to incorporate technological advancements. However, they do not dispute our concern that transmission providers have significant discretion over what equipment changes constitute material modifications. EEI takes issue with the proposal for transmission providers to specify in the technological change procedure the conditions when a study is necessary.[916] EEI further asserts that the Commission has not clearly explained the difference between a technological advancement and a material modification and that the proposal unreasonably limits a transmission provider's ability to evaluate reliability impacts.[917] In response to these concerns, we note that the purpose of the technological change procedure is to allow for equipment changes resulting in electrical performance that is equal to or better than an interconnection request's previously projected electrical performance and not cause any reliability concerns.[918] We have designed the technological change procedure to allow transmission providers to evaluate whether equipment changes in an interconnection request should trigger

[910] Southern 2017 Comments at 32.

[911] TVA 2017 Comments at 18.

[912] Xcel 2017 Comment at 22.

[913] *Id.*

[914] In the next section, we respond to EEI's comment as to what was meant by ''performance that is equal or better than the electrical performance expected prior to the technology change.''

[915] *See* AFPA 2017 Comments at 16; AWEA 2017 Comments at 60–61; ELCON 2017 Comments at 7; NextEra 2017 Comments at 52.

[916] EEI 2017 Comments at 69–70.

[917] *Id.* at 5, 67, 68–69.

[918] For example, an interconnection customer may elect to incorporate a smart inverter that is capable of sensing and autonomously reacting to changes on the grid.

the material modification provisions. This new requirement increases transparency in the interconnection process and allows transmission providers to evaluate the impact of a proposed technological advancement to determine whether it qualifies as a material modification, and, thus will result in the interconnection customer losing its queue position.

526. Regarding Xcel's request for a technical conference, we believe our determination here is supported by the record evidence and therefore do not believe that a technical conference on this issue is necessary.

c. Definition of Permissible Technological Advancements

i. Comments

527. A handful of commenters offer suggestions regarding the definition of permissible technological advancements. Some caution against an overly prescriptive definition to account for the unpredictability of technology evolution.[919] Alliant and AWEA support an inclusive definition of technological advancement that accounts for changes that already exist.[920] Alliant states that while a ''loose'' definition of material modification creates uncertainty and additional risk associated with replacing equipment or completing normal unit maintenance, an overly rigid definition could burden generator owners with unnecessary costs and the system operator with a longer backlog or strained resources.[921] Other commenters assert that the rate of technological advancement makes it difficult to speculate which technologies to include.[922] MISO TOs request clearer Commission direction to develop clear material modification guidelines.[923] They also state that RTO/ISO guidelines should specify that a change that does not exceed the interconnection customer's interconnection rights or materially impact short circuit capability limits, steady-state thermal and voltage limits, or dynamic system stability and response is not a material modification.[924]

528. EDP argues that changes between wind and solar technologies should be treated as non-material modifications.[925] Other commenters disagree and request that the Commission make clear that permissible technological advancements exclude changes in generation technology type.[926] NextEra argues that an incremental change within the same technology class, *e.g.,* substituting a newer model of solar panel than originally planned, is not material.[927] NYISO states that it opposes any tariff changes that would consider changes ''to the technology type that would essentially constitute a new facility as non-material modifications—*e.g.,* the addition of a battery element to a wind project or the addition of a solar element to a wind project.'' [928] NextEra submits that transmission providers should be able to define a category of permissible technological advancements that will not need extensive studies.[929] EEI supports leaving the definition to the transmission provider's discretion.[930]

529. EEI requests further clarification of what is meant by ''performance that is equal or better than the electrical performance expected prior to the technology change.'' [931] EEI also states that some material considerations such as electrical characteristics (*e.g.,* reactive power), capacity factor, and time of use should be studied holistically.[932]

ii. Commission Determination

530. We adopt the NOPR proposal and require transmission providers to develop a definition of permissible technological advancements that the interconnection process can accommodate without triggering the material modification provision of the *pro forma* LGIP. We are providing transmission providers with the flexibility to propose a unique definition for permissible technological advancements in their compliance filings. Some commenters caution against an overly prescriptive definition to account for the unpredictability of technology evolution.[933] We agree that transmission providers should have the flexibility to account for the rapid pace of innovation when developing the definition. The definition must make clear what category of technological advancements can be accommodated that do not require extensive or additional studies to determine whether a proposed technological advancement is a material modification.[934] As noted in the NOPR, such permissible changes may include, for example, advancements to turbines, inverters, plant supervisory controls, or other technological advancements that may affect a generating facility's ability to provide ancillary services.[935] We clarify that the assessment of whether a technological advancement is permissible is limited to assessing the materiality of the change and consideration of whether the transmission provider can accommodate a modification to the specific technology type initially proposed in the interconnection request. Although some commenters argue that changes between wind and solar technologies should be treated as non-material modifications,[936] we disagree since such changes involve a change in the electrical characteristics of an interconnection request, and the transmission provider would likely need to evaluate the impacts of such changes. We also agree that the definition of permissible technological advancements must not include changes in generation technology or fuel type [937] (*e.g.,* from gas to wind) because they involve a change in the electrical characteristics of an interconnection request.

531. MISO TOs request clearer Commission direction to develop material modification guidelines. They state that RTO/ISO guidelines should clarify that a change that does not exceed the interconnection customer's interconnection rights or materially impact short circuit capability limits, steady-state thermal and voltage limits, or dynamic system stability and response, is not a material modification.[938] Responding to comments questioning whether certain technological advancements can be accommodated without materially affecting other interconnection customers in the queue as well as EEI's comment as to what was meant by ''performance that is equal or better than the electrical performance expected prior to the technology change,'' we find that a technological advancement that does not increase the interconnection customer's requested interconnection service or cause any reliability concerns

[919] AWEA 2017 Comments at 62; Alliant 2017 Comments at 13–14; Duke 2017 Comments at 25; EEI 2017 Comments at 6.

[920] Alliant 2017 Comments at 13–14; AWEA 2017 Comments at 62.

[921] Alliant 201 Comments at 13–14.

[922] Duke 2017 Comments at 25; EEI 2017 Comments at 69.

[923] MISO TOs 2017 Comments at 41.

[924] MISO TOs 2017 Comments at 42.

[925] EDP 2017 Comments at 9.

[926] EEI 2017 Comments at 71; NYISO Comments at 43.

[927] NextEra 2017 Comments at 52.

[928] NYISO 2017 Comments at 43.

[929] NextEra 2017 Comments at 52.

[930] EEI 2017 Comments at 70.

[931] *Id.*

[932] *Id.*

[933] AWEA 2017 Comments at 62; Alliant 2017 Comments at 13–14; Duke 2017 Comments at 25; EEI 2017 Comments at 6.

[934] *See e.g.,* NextEra 2017 Comments at 52.

[935] NOPR, FERC Stats. & Regs. ¶ 32,719 at P 212.

[936] *See e.g.,* EDP 2017 Comments at 9.

[937] EEI 2017 Comments at 71; NYISO Comments at 43.

[938] MISO TOs 2017 Comments at 42.

(*i.e.,* materially impact the transmission system with regard to short circuit capability limits, steady-state thermal and voltage limits, or dynamic system stability and response), is generally not a material modification. Further, we clarify that technological advancements that do not degrade the electrical characteristics of the generating equipment (*e.g.,* the ratings, impedances, efficiencies, capabilities, and performance of the equipment under steady state and dynamic conditions) qualify as performance that is ''equal to or better than the performance expected prior to the change.'' [939]

d. Timing and Deposits

i. Comments

532. With regard to timing, EEI supports a 30-day study result deadline from commencement and a deposit of at least $10,000 per material modification proposal and clarification that the interconnection customer is financially responsible for necessary additional studies.[940] NYISO supports only allowing modifications early in the interconnection study process.[941] EEI requests clarification on when an interconnection customer should be able to request the incorporation of advanced technology; it is unsure if the Commission proposes to allow different technological advancements to trigger the procedure at different points or a single set of technological advancements prior to the facilities study agreement's execution.[942] It further argues that technology changes without a change of queue position could result in additional studies and delays, particularly if the change is material or if the process to study the technological advancement negatively impacts the overall interconnection study process.[943] EEI states that any final action should provide the flexibility for a transmission provider to evaluate the impact of a proposed technological advancement, relative to allowing it in the current study or requiring the generator to reenter the queue.[944]

533. AWEA supports allowing technological advancements at any point including after an interconnection agreement is executed and a generating unit is online.[945] Generation Developers argue that transmission providers should have to respond to technological advancement analyses within 15 days.[946] Conversely, Bonneville opposes a specific study completion timeframe, and suggests that a transmission provider would meet its obligation if it uses reasonable efforts.[947]

ii. Commission Determination

534. We adopt the NOPR proposal to require the interconnection customer to tender a deposit if the transmission provider determines that additional studies are needed to evaluate whether a technological advancement is a material modification. We find that the amount of the deposit should be specified in the transmission provider's technological change procedure. Requiring such a deposit is just and reasonable because a deposit will reimburse the transmission provider for the time and effort needed to complete the technological advancement study as well as minimize the submission of frequent and/or frivolous technological advancement requests. The transmission provider shall describe for the interconnection customer any costs incurred to conduct any necessary additional studies, provide its costs to the interconnection customer, and either refund any overage or charge for any shortage for costs that exceed the deposit amount. We are setting the default deposit amount at $10,000. However, to the extent that a transmission provider considers a $10,000 deposit to be too high or low, it may propose a reasonable alternative amount in its compliance filing and include justification supporting this alternative amount. We agree with EEI that the interconnection customer should bear financial responsibility for any necessary additional studies that may need to be performed to determine whether a technological advancement is a material modification.[948]

535. Each transmission provider's technological change procedure must also include the timeframe for the transmission provider to perform the study it needs to determine whether the proposed technological advancement is a material modification and return the results to the interconnection customer. We note that some commenters suggested a 30-day study result deadline to determine whether a proposed technological advancement is material.[949] After consideration of comments and the record in this proceeding, we believe that it is appropriate to establish a 30-day study result deadline. Accordingly, transmission providers must perform and complete any necessary additional studies as soon as practicable, but no later than 30 days after the interconnection customer submits a formal technological advancement request to the transmission provider. Although Bonneville opposes a specific study completion timeframe, and suggests that a transmission provider would meets its obligation if it uses reasonable efforts,[950] we find that, given that the *pro forma* LGIP currently contains no requirement for such studies to be completed within a specified timeframe, a 30-day requirement to determine whether the proposed technological advancement is a material modification adds certainty to the interconnection process.

536. Regarding the question of when in the process the transmission provider is no longer required to accommodate technological advancements, we adopt the NOPR proposal to permit interconnection customers to submit requests to incorporate technological advancements prior to the execution of the interconnection facilities study agreement. In response to commenters that suggest that interconnection customers should be able to incorporate technological advancements at any point in the interconnection process without possible loss of queue position,[951] we disagree. We believe that we are establishing a reasonable cut-off point for allowing technological advancements that will not be considered material modifications given that changes requested during the facilities study could delay the transmission provider's ability to tender an interconnection service agreement and, consequently, delay other projects.[952] In addition, in response to EEI's concerns regarding whether the Commission envisions allowing different technological advancements to trigger the procedure at different points in the interconnection process, or if the Commission is proposing to allow one single set of technological advancements prior to the execution of the interconnection facilities study agreement, we clarify that interconnection customers must submit

[939] We note that TDU Systems argue for a similar interpretation of permissible technological advancement. TDU Systems 2017 Comments at 30–31.

[940] EEI 2017 Comments at 72–73.

[941] NYISO 2017 Comments at 44.

[942] EEI 2017 Comments at 71.

[943] *Id.* at 71–72.

[944] *Id.* at 72.

[945] AWEA 2017 Comments at 62.

[946] Generation Developers 2017 Comments at 44.

[947] Bonneville 2017 Comments at 11.

[948] *See* EEI 2017 Comments at 72–73.

[949] *See, e.g., id.*

[950] Bonneville 2017 Comments at 11.

[951] *See, e.g.,* AWEA 2017 Comments at 62 (stating that ''the technological change procedure should be allowed at any point in the interconnection process'').

[952] PJM 2017 Comments at 30.

a technological advancement request for any type of technological advancement in the interconnection process up until execution of the interconnection facilities study agreement. However, to the extent that a transmission provider believes that it is appropriate to establish rules that permit technological advancements only at a single point in its interconnection process (prior to the execution of the interconnection facilities study agreement), we permit transmission providers to propose such a practice in their compliance filings.

5. Modeling of Electric Storage Resources for Interconnection Studies

a. NOPR Proposal

537. The NOPR proposed to require that transmission providers evaluate their methods for modeling electric storage resources for interconnection studies, identify whether their current modeling and study practices adequately and efficiently account for the operational characteristics of electric storage resources, and explain why and how their existing practices are or are not sufficient. The Commission also sought comment on whether establishing a unified model for studying electric storage resources would expedite the study process and therefore reduce time and costs expended by transmission providers. The Commission also asked what information electric storage resources should provide when submitting interconnection requests that transmission providers do not already require.

b. Comments

538. Several commenters support the proposal to require transmission providers to evaluate their methods for modeling electric storage resources for interconnection studies.[953] MISO TOs state that MISO lacks clear standards for modeling electric storage, and ask that the Commission convene a workshop or technical conference to allow the industry to determine best practices.[954] NEPOOL argues that the NOPR proposal would improve modeling of storage and facilitate entry of storage resources into the markets.[955] Non-Profit Utility Trade Associations and PJM state that they do not object to the proposal.[956]

539. Other commenters support the proposal but ask the Commission to give transmission providers flexibility to address any necessary changes.[957] For example, Indicated NYTOs state that the evaluation of storage-related interconnection must be conducted in the context of each regional stakeholder process.[958] Duke and NYISO take a similar view. They oppose a unified model for studying electric storage resources because it could remove a transmission provider's flexibility to study the various use cases for storage.[959]

540. Public Interest Organizations ask the Commission not to require all electric storage resources, including electric storage resources that will serve as a transmission asset, to go through the formal large generator interconnection process.[960] Similarly, Schulte Associates suggests that an energy storage resource should be able to interconnect as a generator under the LGIP and LGIA and the electric storage resource should be able to also act as a transmission asset, if applicable.[961]

541. Other commenters, primarily the RTOs/ISOs, believe current modeling practices are adequate for the interconnection of electric storage resources.[962] ISO–NE and PJM state that their modeling practices are able to study storage resources when they are either charging or discharging energy.[963] NYISO adds that modeling electric storage resources can be challenging because it depends on the services the resource wants to provide, but that current modeling approaches are sufficient as long as the interconnection customer provides accurate modeling data and validation of such data.[964] CAISO states that its stakeholders support CAISO's modeling of electric storage resources' charging function as ''negative generation'' in lieu of conducting traditional firm load studies, which some participants and commenters identified as a best practice during the Commission's 2016 Technical Conference and in post-technical conference comments.[965] Idaho Power asks the Commission to elaborate on the size and capacity of electric storage resources to be evaluated.[966]

542. Schulte Associates suggests that electric storage resources should be able to propose consideration as a transmission asset under the *pro forma* LGIP and the *pro forma* LGIA and that this would require the RTOs/ISOs to consider the potential benefits and costs to the transmission system as part of its modeling methods going forward.[967] ESA, NextEra, TVA, and Xcel support modeling an electric storage resource based on its intended use,[968] and MISO and Duke provide examples of specific information interconnection customers should provide.[969]

543. Some commenters argue that there is a need for clear modeling guidelines for electric storage resources. MISO and ESA recommend that the Commission require a consistent means by which transmission providers and system operators model electric storage charging.[970] Several commenters support the ''negative generation'' approach employed in CAISO.[971]

c. Commission Determination

544. In consideration of the comments, we decline to move forward with any requirements for modeling electric storage resources in this final action. We agree with commenters that modeling electric storage resources as a single asset, as opposed to separate generation and load assets, and based on their intended use has merits. These approaches could streamline the interconnection of electric storage resources, save costs, and avoid modeling the charging of electric storage resources the same as other unpredictable, non-controllable load resources. However, given the limited experience interconnecting electric storage resources and the abundant desire for regional flexibility, we are not imposing any standard requirements at this time and instead continue to allow transmission providers to model electric

[953] AFPA 2017 Comments at 17; California Energy Storage Alliance 2017 Comments at 9–11; Joint Renewable Parties 2017 Comments at 12–13; MISO TOs 2017 Comments at 43; NEPOOL 2017 Comments at 18; NextEra 2017 Comments at 53; Public Interest Organizations 2017 Comments at 8–9; Indicated NYTOs 2017 Comments at 15.

[954] MISO TOs 2017 Comments at 43.

[955] NEPOOL 2017 Comments at 18.

[956] Non-Profit Utility Trade Associations 2017 Comments at 26; PJM 2017 Comments at 30.

[957] Indicated NYTOs 2017 Comments at 15; ITC 2017 Comments at 20–21; Bonneville 2017 Comments at 11–12.

[958] Indicated NYTOs 2017 Comments at 15.

[959] Duke 2017 Comments at 25; NYISO 2017 Comments at 45.

[960] Public Interest Organizations 2017 Comments at 8–9.

[961] Schulte Associates 2017 Comments at 4.

[962] CAISO 2017 Comments at 36–37; ISO–NE 2017 Comments at 55; MISO 2017 Comments at 39; NYISO 2017 Comments at 45; PJM 2017 Comments at 31; AVANGRID 2017 Comments at 25.

[963] ISO–NE 2017 Comments at 55; PJM 2017 Comments at 31.

[964] NYISO 2017 Comments at 45.

[965] CAISO 2017 Comments at 37.

[966] Idaho Power 2017 Comments at 7.

[967] Schulte Associates 2017 Comments at 4.

[968] ESA 2017 Comments at 17–18; NextEra 2017 Comments at 54; TVA 2017 Comments at 18–19; Xcel 2017 Comment at 23.

[969] Duke 2017 Comments at 26–27; MISO 2017 Comments at 39.

[970] MISO 2017 Comments at 39; ESA 2017 Comments at 16–17.

[971] *Id.* at 17; NextEra 2017 Comments at 53; PG&E 2017 Comments at 9.

storage resources in ways that are most appropriate in their respective regions. Additionally, in response to Schulte Associates, we are not requiring Transmission Providers to model electric storage resources serving as transmission assets under the *pro forma* LGIP and the *pro forma* LGIA at this time. Given the flexibility that we are providing, we find that gathering additional information on potential approaches for modeling electric storage resources is not necessary at this time, but we encourage transmission providers to continue to consider approaches to modeling electric storage resources that will save costs and improve the efficiency of the interconnection process.

D. Other Issues

1. Whether Proposed Reforms Should Be Applied to Small Generation

a. Comments

545. In response to the Commission's question in the NOPR,[972] several commenters suggest that new proposals accepted for the LGIP and LGIA should also apply to the SGIP and SGIA.[973] Joint Renewable Parties also contend that improved transparency would assist small generators in locating their facilities and moving through the interconnection process efficiently and cost-effectively.[974] ESA supports extending the proposals regarding interconnection service below facility capacity, surplus interconnection service, provisional interconnection service, and electric storage modeling to apply to the *pro forma* SGIA and SGIP.[975] California Energy Storage Alliance also suggests that the Commission consider simplified procedures for interconnecting distributed electric storage resources that desire to participate in wholesale markets, either as a standalone resources or as part of an aggregation.[976] TVA states that the small generator interconnection process could benefit from the proposed reforms and discussions involving affected system studies and any guidelines for modeling and evaluating electric storage resources.[977]

546. Others argue that the proposed reforms should not apply to small generating facilities.[978] Duke, for instance, argues that the SGIP and SGIA processes are designed to be streamlined and that states use the processes as the bases for state small generator interconnection processes.[979] Modesto asserts that, if the Commission believes it should make comparable revisions to the SGIP and SGIA, such revisions should be subject to appropriate notice and comment rulemaking procedures.[980] Xcel states that if the Commission wishes to pursue this possibility, it should initiate a notice of inquiry.[981]

547. PG&E and SoCal Edison ask the Commission to confirm that the NOPR does not require changes to PG&E's wholesale distribution access tariff and GIPs, which primarily concern SGIAs.[982] PG&E states that the administrative burden and costs of doing so outweighs the benefits.[983] PG&E states that, as explained in section 2.13 of the wholesale distribution access tariff, such interconnection facilities are considered distribution facilities for purposes of the wholesale distribution access tariff.[984]

b. Commission Determination

548. We decline to make the new requirements from this final action applicable to the *pro forma* SGIP and the *pro forma* SGIA. Although the Commission sought comment on whether any of the proposed reforms should be applied to small generating facilities and implemented in the *pro forma* SGIP and *pro forma* SGIA, the Commission did not make any specific proposals as to the *pro forma* SGIP or *pro forma* SGIA. We also note that the majority of responsive commenters oppose such a change.[985]

549. In response to the parties that support adopting the final action reforms for small generators, we find that, while some of these reforms have the potential to aid small generator interconnection, the differences between the large and small interconnection processes are significant enough to prevent us from acting in this proceeding.

2. Issues Not Raised in the NOPR

a. Comments

550. Multiple commenters have commented on issues not raised in the NOPR. For instance, Joint Renewable Partners argue that the Commission has allowed the states to continue to administer Qualifying Facility (QF) interconnections where the QF sells the entire net output to the interconnecting utility, which has resulted in less favorable interconnection practices for QFs.[986] Additionally, IECA urges the Commission to alter the QF minimum export threshold to be based on ''total energy'' exported to the grid and not on net system capacity because the current system discriminates against combined heat and power and waste heat recovery facilities in favor of other types of facilities.[987]

Forecasting Coalition states that rates for interconnection service will decrease, and reliability will increase, if LGIPs require transmission providers to consider non-transmission alternatives, including dynamic line ratings.[988] First Solar states that there is also significant misalignment in CAISO's deliverability allocation procedures where upgrade cost caps deprive generators of the ability to deliver a plant's full output, which can prevent interconnection customers from competing in solicitations or force them to withdraw from the queue.[989] Invenergy argues that the Commission should update *pro forma* LGIA article 5.17 to incorporate recent changes in the Internal Revenue Service safe harbor rules.[990] CAISO, Xcel, and Southern express views that the Commission move away from a first-come, first-served standard to a first-ready, first-served standard.[991]

b. Commission Determination

551. We consider the comments summarized in the above section to be outside the scope of this proceeding. The NOPR proposed a number of specific reforms, to which commenters have reacted. The comments discussed in the above section have raised issues unrelated to the NOPR's proposed reforms. Even if we were inclined to agree with the proposals made in these comments, we would not adopt them

[972] NOPR, FERC Stats. & Regs. ¶ 32,719 at P 11.

[973] California Energy Storage Alliance 2017 Comments at 11; Joint Renewable Parties 2017 Comments at 3; ISO–NE 2017 Comments at 56.

[974] Joint Renewable Parties 2017 Comments at 11.

[975] ESA 2017 Comments at 18.

[976] California Energy Storage Alliance 2017 Comments at 11–13.

[977] TVA 2017 Comments at 19.

[978] Duke 2017 Comments at 3–4; Modesto 2017 Comments at 22; SoCal Edison 2017 Comments at 2; Xcel 2017 Comments at 5; *see also* Imperial 2017 Comments 20–21.

[979] Duke 2017 Comments at 3–4.

[980] Modesto April 2017 Comments at 22; Xcel 2017 Comments at 5.

[981] *Id.*

[982] PG&E 2017 Comments at 2; SoCal Edison 2017 Comments at 1–2.

[983] PG&E 2017 Comments at 2.

[984] *Id.* (citing *Pac. Gas & Elec. Co.,* 77 FERC ¶ 61,077 (1996); *see also* SoCal Edison 2017 Comments at 1–2.

[985] Duke 2017 Comments at 3–4; Modesto 2017 Comments at 22; SoCal Edison 2017 Comments at 2; Xcel 2017 Comments at 5; *see also* Imperial 2017 Comments 20–21.

[986] Joint Renewable Parties 2017 Comments at 13–15.

[987] IECA 2017 Comments at 3.

[988] Forecasting Coalition 2017 Comments at 1.

[989] First Solar 2017 Comments at 1.

[990] Invenergy 2017 comments at 16.

[991] CAISO 2017 Comments at 38–39; Xcel 2017 Comments at 6–7; Southern 2017 Comments at 6.

here given the inadequacy of the record on such proposals.

3. Process Considerations

a. Comments

552. Duke recommends that any new information required to be posted on OASIS be permitted to be posted without requiring new templates to be created through the NAESB process.[992] OATI states that if the final action requires new informational postings by transmission providers, the Commission should direct the nature and standards for those postings to NAESB.[993] OATI states that access to any additional postings made on a transmission provider's OASIS site requires secure and controlled access. OATI asks the Commission to assess the impact of new information on OASIS to decide if OASIS is the appropriate location for additional information and, if so, determine how currently available information on OASIS is accessed, and what would be necessary to post additional information.[994]

b. Commission Determination

553. We decline to specifically require that transmission providers work through NAESB for the development of templates or standards for any OASIS postings they make in compliance with this final action. Transmission providers may coordinate as they determine appropriate to implement the Commission's requirements and to develop relevant posting protocols. Additionally, we note that, in this final action, we adopt OASIS requirements for the ''Transparency Regarding Study Models and Assumptions'' and ''Interconnection Study Deadlines'' sections. Additionally, in the ''Transparency Regarding Study Models and Assumptions'' and ''Interconnection Study Deadlines'' adopted requirements, we allow transmission providers to only include a link on OASIS to the information required if it is posted on the transmission provider's website.

4. Compliance and Implementation

a. Comments

554. EEI, Duke, ITC, MISO TOs, and Xcel request that the Commission allow 180 days for compliance with any final action.[995] Duke and ITC also request a date of one year after the final action for implementation of the revised OATTs included in the compliance filings.[996]

b. Commission Determination

555. Section 35.28(f)(1) of the Commission's regulations requires every public utility with a non-discriminatory OATT on file to also have on file the *pro forma* LGIP and *pro forma* LGIA ''required by Commission rulemaking proceedings promulgating and amending'' such agreements. Despite the comments described above, we see no reason to delay the effective date or extend the compliance deadline of this final action. Therefore, the Commission is requiring all public utility transmission providers to submit compliance filings to adopt the requirements of this final action as revisions to the LGIP and LGIA in their OATTs no later than 90 days after the issuance of this final action in the **Federal Register**.[997]

556. Some public utility transmission providers may have provisions in their existing LGIPs or LGIAs subject to the Commission's jurisdiction that the Commission has deemed to be consistent with or superior to the *pro forma* LGIP or *pro forma* LGIA or permissible under the independent entity variation standard or regional reliability standard.[998] Where these provisions are modified by this final action, public utility transmission providers must either comply with this final action or demonstrate that these previously-approved variations continue to be consistent with or superior to the *pro forma* LGIP and *pro forma* LGIA as modified by this final action or continue to be permissible under the independent entity variation standard or regional reliability standard.[999] We also find that transmission providers that are not public utilities must adopt the requirements of this final action as a condition of maintaining the status of their safe harbor tariff or otherwise satisfying the reciprocity requirement of Order No. 888.[1000]

V. Information Collection Statement

557. The collection of information contained in this final action is being submitted to the Office of Management and Budget (OMB) for review under section 3507(d) of the Paperwork Reduction Act of 1995.[1001] OMB's regulations,[1002] in turn, require approval of certain information collection requirements imposed by agency rules. Upon approval of a collection(s) of information, OMB will assign an OMB control number and an expiration date. Respondents subject to the filing requirements of a rule will not be penalized for failing to respond to the collection of information unless the collection of information displays a valid OMB control number.

558. The reforms adopted in this final action revise the Commission's *pro forma* LGIP and *pro forma* LGIA. This final action requires each public utility transmission provider to amend its LGIP and LGIA to: (1) Remove the limitation that interconnection customers may only exercise the option to build transmission provider's interconnection facilities and stand alone network upgrades in instances when the transmission owner cannot meet the dates proposed by the interconnection customer; (2) require that transmission providers establish interconnection dispute resolution procedures that would allow a disputing party to unilaterally seek non-binding dispute resolution; (3) require transmission providers to outline and make public a method for determining contingent facilities; (4) require transmission providers to list the specific study processes and assumptions for forming the network models used for interconnection studies; (5) revise the definition of ''Generating Facility'' to explicitly include electric storage resources; (6) establish reporting requirements for aggregate interconnection study performance; (7) allow interconnection customers to request a level of interconnection service that is lower than their generating facility capacity; (8) require transmission providers to allow for provisional interconnection agreements that provide for limited operation prior to completion of the full interconnection process; (9) require transmission providers to create a process for interconnection customers to use surplus interconnection service at existing points of interconnection; and (10) require transmission providers to set forth a procedure to allow transmission providers to assess and, if necessary, study an interconnection customer's technology changes without affecting the interconnection customer's queued position. The reforms adopted in this final action require revised filings of LGIPs and LGIAs with the

[992] Duke 2017 Comments at 28.

[993] OATI 2017 Comments at 1–2.

[994] *Id.* at 7.

[995] EEI 2017 Comments at 77; Duke 2017 Comments at 28; ITC 2017 Comments at 21; MISO TOs 2017 Comments at 44; Xcel 2017 Comments at 23.

[996] Duke 2017 Comments at 28; ITC 2017 Comments at 21.

[997] NOPR, FERC Stats. & Regs. ¶ 32,719 at P 231.

[998] *See* Order No. 792, 145 FERC ¶ 61,159 at P 270.

[999] *See* 18 CFR 35.28(f)(1)(i) (2017).

[1000] Order No. 888, FERC Stats. & Regs. ¶ 31,036 at 31,760–63.

[1001] *See* 44 U.S.C. 3507(d) (2012).

[1002] 5 CFR part 1320 (2017).

Commission. The Commission anticipates the revisions required by this final action, once implemented, will not significantly change currently existing burdens on an ongoing basis. With regard to those public utility transmission providers that believe they already comply with the revisions adopted in this final action, they can demonstrate their compliance in the filing required 90 days after the issuance of this final action in the **Federal Register**. The Commission will submit the proposed reporting requirements to OMB for its review and approval under section 3507(d) of the Paperwork Reduction Act.[1003]

559. While the Commission expects the revisions adopted in this final action will provide significant benefits, the Commission understands that implementation can be a complex and costly endeavor. The Commission solicited comments on the accuracy of the provided burden and cost estimates and any suggest methods for minimizing the respondents' burdens. The Commission did not receive any comments concerning its burden or cost estimates. However, the Commission has made changes to its NOPR proposals that are adopted in this final action. First, the Commission has withdrawn the proposals regarding scheduled periodic restudies, self-funding by the transmission owner, and modeling of electric storage resources. Second, the Commission has modified the dispute resolution requirements so that they will apply both inside and outside RTOs/ISOs. Therefore, we have adjusted the burden estimate accordingly.

Burden Estimate and Information Collection Costs: The Commission believes that the burden estimates below are representative of the average burden on respondents. The estimated burden and cost [1004] for the requirements contained in this final action follow.

FERC 516F

	Number of applicable registered entities	Annual number of responses per respondent	Total number of responses	Average burden (hours) & costs per response	Total annual burden hours & total annual cost
	(1)	(2)	(1) * (2) = (3)	(4)	(3) * (4) = (5)
Issue A1—Scheduled periodic restudies [1005].	126	N/A	N/A	N/A	N/A.
	6	N/A	N/A	N/A	N/A.
Issue A2—Interconnection customer's option to build (Non-RTO/ISO).	126	1 (Year 1); 0 (Ongoing) [1006]	126 (Year 1); 0 (Ongoing)	4 hrs. (Year 1); $308 0 hrs. (Ongoing); $0	504 hrs. (Year 1); $38,808. 0 hrs. (Ongoing); $0.
Issue A2—Interconnection customer's option to build (RTO/ISO).	6	1 (Year 1); 0 (Ongoing)	6 (Year 1); 0 (Ongoing)	4 hrs. (Year 1); $308 0 hrs. (Ongoing); $0	24 hrs. (Year 1); $1,848. 0 (Ongoing); $0
Issue A3—Self-funding by the transmission owner [1007] (Non-RTO/ISO).	126	N/A	N/A	N/A	N/A.
Issue A3—Self-funding by the transmission owner (RTO/ISO).	6	N/A	N/A	N/A	N/A.
Issue A4—RTO/ISO dispute resolution (Non-RTO/ISO).	126	1 (Year 1); 0 (Ongoing)	126 (Year 1); 0 (Ongoing)	4 hrs. (Year 1); $308 0 hrs. (Ongoing)	504 hrs. (Year 1); $38,808. 0 hrs. (Ongoing); $0.
Issue A4—RTO/ISO dispute resolution (RTO/ISO).	6	1 (Year 1); 0 (Ongoing)	6 (Year 1); 0 (Ongoing)	4 hrs. (Year 1); $308 0 hrs. (Ongoing)	24 hrs. (Year 1); $1,848. 0 (Ongoing) $0.
Issue A5—Capping costs for network upgrades [1008] (Non-RTO/ISO).	126	N/A	N/A	N/A	N/A.
Issue A5—Capping costs for network upgrades (RTO/ISO).	6	N/A	N/A	N/A	N/A.
Issue B1—Identification and definition of contingent facilities (Non-RTO/ISO).	126	1 (Year 1); 0 (Ongoing)	126 (Year 1); 0 (Ongoing)	80 hrs. (Year 1); $6,160. 0 hrs.; (Ongoing); $0	10,080 hrs. (Year 1); $776,160. 0 hrs. (Ongoing); $0.
Issue B1—Identification and definition of contingent facilities (RTO/ISO).	6	1 (Year 1); 0 (Ongoing)	6 (Year 1); 0 (Ongoing)	80 hrs. (Year 1); $6,160. 0 hrs.; (Ongoing); $0	480 hrs. (Year 1); $36,960. 0 hrs. (Ongoing); $0.
Issue B2—Transparency in the interconnection process (Non-RTO/ISO).	126	1 (Year 1); 0 (Ongoing)	126 (Year 1); 0 (Ongoing)	80 hrs. (Year 1); $6,160. 0 hrs.; (Ongoing); $0	10,080 hrs. (Year 1); $776,160. 0 hrs. (Ongoing); $0.
Issue B2—Transparency in the interconnection process (RTO/ISO).	6	1 (Year 1) 0 (Ongoing)	6 (Year 1); 0 (Ongoing)	80 hrs. (Year 1); $6,160. 0 hrs.; (Ongoing); $0	480 hrs. (Year 1); $36,960. 0 hrs. (Ongoing); $0.
Issue B3—Curtailment concerns (Non-RTO/ISO).	126	N/A	N/A	N/A	N/A.
Issue B3—Curtailment concerns (RTO/ISO).	6	N/A	N/A	N/A	N/A.
Issue B4—Definition of generating facility (non-RTO/ISO).	126	1 (Year 1); 0 (Ongoing)	126 (Year 1); 0 (Ongoing)	80 hrs. (Year 1); $6,160. 0 hrs.; (Ongoing); $0	10,080 hrs. (Year 1); $776,160. 0 hrs. (Ongoing); $0.
Issue B4—Definition of generating facility (RTO/ISO).	6	1 (Year 1) 0 (Ongoing)	6 (Year 1); 0 (Ongoing)	80 hrs. (Year 1); $6,160. 0 hrs.; (Ongoing); $0	480 hrs. (Year 1); $36,960. 0 hrs. (Ongoing); $0.

[1003] 44 U.S.C. 3507(d) (2012).

[1004] The estimated hourly cost (salary plus benefits) provided in this section is based on the salary figures for May 2016 posted by the Bureau of Labor Statistics for the Utilities sector (available at *http://www.bls.gov/oes/current/naics2_22.htm#13-0000*) and scaled to reflect benefits using the relative importance of employer costs in employee compensation from June 2016 (available at *https://www.bls.gov/oes/current/naics2_22.htm*). The hourly estimates for salary plus benefits are:

Auditing and accounting (code 13–2011), $53.00.

Computer and Information Systems Manager (code 11–3021), $100.68.

Computer and mathematical (code 15–0000), $60.70.

Economist (code 19–3011), $77.96.

Electrical Engineer (code 17–2071), $68.12.

Information and record clerk (code 43–4199), $39.14.

Information Security Analyst (code 15–1122), $66.34.

Legal (code 23–0000), $143.68.

Management (code 11–0000), $81.52.

The average hourly cost (salary plus benefits), weighting all of these skill sets evenly, is $76.79. The Commission rounds it to $77 per hour.

FERC 516F—Continued

	Number of applicable registered entities (1)	Annual number of responses per respondent (2)	Total number of responses (1) * (2) = (3)	Average burden (hours) & costs per response (4)	Total annual burden hours & total annual cost (3) * (4) = (5)
Issue B5—Interconnection study deadlines (non-RTO/ISO).	126	1 (Year 1); 4 (Ongoing)	126 (Year 1); 504 (Ongoing).	4 hrs. (Year 1); $308 4 hrs. (Ongoing) $308	504 hrs. (Year 1); $38,808. 2,016 hrs. (Ongoing); $155,232.
Issue B5—Interconnection study deadlines (RTO/ISO).	6	1 (Year 1) 4 (Ongoing)	6 (Year 1); 24 (Ongoing)	4 hrs. (Year 1); $308 4 hrs. (Ongoing); $308.	24 hrs. (Year 1); $1,848. 96 hrs. (Ongoing); 7,392.
Issue B6—Improving Coordination of Affected Systems [1009] (non-RTO/ISO).	126	N/A	N/A	N/A	N/A.
Issue B6—Improving Coordination of Affected Systems (RTO/ISO).	6	N/A	N/A	N/A	N/A.
Issue C1—Requesting interconnection service below generating facility capacity (Non-RTO/ISO).	126	1 (Year 1) 0 (Ongoing)	126 (Year 1); 0 (Ongoing)	80 hrs. (Year 1); $6,160. 0 hrs.; (Ongoing); $0	10,080 hrs. (Year 1); $776,160. 0 hrs. (Ongoing); $0.
Issue C1—Requesting interconnection service below generating facility capacity (RTO/ISO).	6	1 (Year 1) 0 (Ongoing)	6 (Year 1); 0 (Ongoing) ...	80 hrs. (Year 1); $6,160. 0 hrs.; (Ongoing); $0	480 hrs. (Year 1); $36,960. 0 hrs. (Ongoing); $0.
Issue C2—Provisional agreements (non-RTO/ISO).	126	1 (Year 1) 0 (Ongoing)	126 (Year 1); 0 (Ongoing)	80 hrs. (Year 1); $6,160. 0 hrs.; (Ongoing); $0	10,080 hrs. (Year 1); $776,160. 0 hrs. (Ongoing); $0.
Issue C2—Provisional agreements (RTO/ISO).	6	1 (Year 1) 0 (Ongoing)	6 (Year 1); 0 (Ongoing) ...	80 hrs. (Year 1); $6,160. 0 hrs.; (Ongoing); $0	480 hrs. (Year 1); $36,960. 0 hrs. (Ongoing); $0.
Issue C3—Utilization of surplus interconnection service (non-RTO/ISO).	126	1 (Year 1) 0 (Ongoing)	126 (Year 1); 0 (Ongoing)	4 hrs. (Year 1); $308 0 hrs. (Ongoing) $0 ..	504 hrs. (Year 1); $38,808. 0 hrs. (Ongoing); $0.
Issue C3—Utilization of surplus interconnection service (RTO/ISO).	6	1 (Year 1) 0 (Ongoing)	6 (Year 1); 0 (Ongoing) ...	4 hrs. (Year 1); $308 0 hrs. (Ongoing) $0 ..	24 hrs. (Year 1); $1,848. 0 (Ongoing) $0.
Issue C4—Material modification and incorporation of advanced technologies (non-RTO/ISO).	126	1 (Year 1) 0 (Ongoing)	126 (Year 1); 0 (Ongoing)	80 hrs. (Year 1); $6,160. 0 hrs.; (Ongoing); $0	10,080 hrs. (Year 1); $776,160. 0 hrs. (Ongoing); $0.
Issue C4—Material modification and incorporation of advanced technologies (RTO/ISO).	6	1 (Year 1) 0 (Ongoing)	6 (Year 1); 0 (Ongoing) ...	80 hrs. (Year 1); $6,160. 0 hrs.; (Ongoing); $0	480 hrs. (Year 1); $36,960. 0 hrs. (Ongoing); $0.
Issue C5—Modeling of electric storage resources [1010] (non-RTO/ISO).	126	N/A	N/A	N/A	N/A.
Issue C5—Modeling of electric storage resources (RTO/ISO).	6	N/A	N/A	N/A	N/A.
Total	Non-RTO/ISO, Year 1 Non-RTO/ISO, Ongoing RTO/ISO, Year 1 RTO/ISO, Ongoing		1,260 ..... 504 ..... 60 ..... 24	62,244 hrs.; $4,792,788 2,016 hrs.; $155,232 2,976 hrs.; $229,152 96 hrs.; $7,392	

Cost to Comply: The Commission has projected the cost of compliance as follows:

- Year 1: $5,021,940
- Ongoing: $162,624

Year 1 costs reflect costs to comply with the final action. Year 2 represents ongoing costs that the transmission provider will face on an ongoing basis to fulfill the directives of this final action. The reforms adopted in this final action, once implemented, would not significantly change existing burdens on an ongoing basis.

The one-time burden of 65,220 hours will be averaged over three years (65,220 ÷ 3 = 21,740 hours/year over three years).

The ongoing burden of 2,112 hours applies to only Year 2 and beyond.

The number of responses is also averaged over three years (1,320 responses (one-time) + 528 responses (Year 2) + 528 responses (Year 3)) ÷ 3 = 792 responses/year.

The responses and burden for Years 1–3 will total respectively as follows:

Year 1: 792 responses; 21,740 hours.

Year 2: 792 responses; 21,740 hours + 2,112 hours + 2,112 hours = 25,964 hours.

Year 3: 792 responses; 21,740 hours + 2,112 hours + 2,112 hours = 25,964 hours.

Title: FERC–516F, Electric Rate Schedules and Tariff Filings.

Action: Proposed information collection.

OMB Control No.: TBD.

Respondents for Proposal: Businesses or other for profit and/or not-for-profit institutions.

Frequency of Information: One-time during Year 1. Multiple times during subsequent years.

Necessity of Information: The Commission issues this final action to address interconnection practices that may be resulting in unjust and unreasonable or unduly discriminatory or preferential rates, terms, and conditions. The reforms are designed to improve certainty in the interconnection process, to promote more informed

[1005] There are no estimates for this section, because the Commission has withdrawn the NOPR proposal.

[1006] Ongoing refers to Year 2 and ongoing.

[1007] There are no estimates for this section, because the Commission has withdrawn the NOPR proposal.

[1008] There are no estimates for this issue, because the NOPR did not propose, and the final action did adopt, any requirements for this issue.

[1009] There are no estimates for this issue, because the NOPR did not propose, and the final action did adopt, any requirements for this issue.

[1010] There are no estimates for this section, because the Commission has withdrawn the NOPR proposal.

interconnection decisions by interconnection customers, and to enhance interconnection processes.

Internal Review: The Commission has reviewed the proposed changes and has determined that such changes are necessary. These requirements conform to the Commission's need for efficient information collection, communication, and management within the energy industry. The Commission has specific, objective support for the burden estimates associated with the information collection requirements.

560. Interested persons may obtain information on the reporting requirements by contacting the following: Federal Energy Regulatory Commission, 888 First Street NE, Washington, DC 20426 [Attention: Ellen Brown, Office of the Executive Director], email: *DataClearance@ferc.gov,* phone: (202) 502–8663, fax: (202) 273–0873.

561. Comments concerning the collection of information and the associated burden estimate(s) in the final action should be sent to the Commission in this docket and may also be sent to the Office of Information and Regulatory Affairs, Office of Management and Budget, 725 17th Street NW, Washington, DC 20503 [Attention: Desk Officer for the Federal Energy Regulatory Commission].

562. Due to security concerns, comments should be sent electronically to the following email address: *oira_submission@omb.eop.gov.* Comments submitted to OMB should refer to FERC–516F and OMB Control No. to be determined.

VI. Environmental Analysis

563. The Commission is required to prepare an Environmental Assessment or an Environmental Impact Statement for any action that may have a significant adverse effect on the human environment.[1011] The Commission concludes that neither an Environmental Assessment nor an Environmental Impact Statement is required for this final action under § 380.4(a)(15) of the Commission's regulations, which provides a categorical exemption for approval of actions under sections 205 and 206 of the FPA relating to the filing of schedules containing all rates and charges for the transmission or sale of electric energy subject to the Commission's jurisdiction, plus the classification, practices, contracts, and regulations that affect rates, charges, classification, and services.[1012]

VII. Regulatory Flexibility Act

564. The Regulatory Flexibility Act of 1980 (RFA) [1013] generally requires a description and analysis of rules that will have significant economic impact on a substantial number of small entities. The RFA mandates consideration of regulatory alternatives that accomplish the stated objectives of a rule and that minimize any significant economic impact on a substantial number of small entities. The Small Business Administration's (SBA) Office of Size Standards develops the numerical definition of a small business.[1014] The small business size standards are provided in 13 CFR 121.201.

565. The Commission estimates that the total number of public utility transmission providers that would have to modify the LGIPs and LGIAs within their currently effective OATTs is 132. Of these, the Commission estimates that approximately 43 percent are small entities (approximately 57 entities). The Commission estimates the average total cost to each of these entities will require on average 494 hours or $38,045 in Year 1,[1015] and 16 hours or $1,232 in subsequent years.[1016] According to SBA guidance, the determination of significance of impact ''should be seen as relative to the size of the business, the size of the competitor's business, and the impact the regulation has on larger competitors.'' [1017] The Commission does not consider the estimated burden to be a significant economic impact. As a result, the Commission certifies that the revisions adopted in this final action will not have a significant economic impact on a substantial number of small entities.

VIII. Document Availability

566. In addition to publishing the full text of this document in the **Federal Register**, the Commission provides all interested persons an opportunity to view and/or print the contents of this document via the internet through the Commission's Home Page (*http://www.ferc.gov*) and in the Commission's Public Reference Room during normal business hours (8:30 a.m. to 5:00 p.m. Eastern time) at 888 First Street NE, Room 2A, Washington, DC 20426.

567. From the Commission's Home Page on the internet, this information is available on eLibrary. The full text of this document is available on eLibrary in PDF and Microsoft Word format for viewing, printing, and/or downloading. To access this document in eLibrary, type the docket number of this document, excluding the last three digits, in the docket number field.

568. User assistance is available for eLibrary and the Commission's website during normal business hours from the Commission's Online Support at (202) 502–6652 (toll free at 1–866–208–3676) or email at *ferconlinesupport@ferc.gov,* or the Public Reference Room at (202) 502–8371, TTY (202) 502–8659. Email the Public Reference Room at *public.referenceroom@ferc.gov.*

IX. Effective Date and Congressional Notification

569. The final action is effective July 23, 2018. The Commission has determined with the concurrence of the Administrator of the Office of Information and Regulatory Affairs of OMB that this action is not a ''major rule'' as defined in section 351 of the Small Business Regulatory Enforcement Fairness Act of 1996. This final action is being submitted to the U.S. Senate, the U.S. House of Representatives, and the U.S. Government Accountability Office.

List of Subjects in 18 CFR Part 37

Conflicts of interest, Electric power plants, Electric utilities, Reporting and recordkeeping requirements.

By the Commission.

Issued: April 19, 2018.

Nathaniel J. Davis, Sr.,

Deputy Secretary.

[FR Doc. 2018–08659 Filed 5–8–18; 8:45 am]

BILLING CODE 6717–01–P

[1011] *Regulation Implementing National Environmental Policy Act of 1969,* Order No. 486, FERC Stats. & Regs. ¶ 30,783 (1987).

[1012] 18 CFR 380.4(a)(15) (2017).

[1013] 5 U.S.C. 601–12 (2012).

[1014] 13 CFR 121.101 (2017) Sector 22 (Utilities), NAICS code 22121 (Electric Power Transmission and Control).

[1015] 65,220 hours ÷ 132 = 494 hours/respondent; $5,021,940 ÷ 132 = $38,045/respondent.

[1016] 2,112 hours ÷ 132 = 16 hours/respondent; $162,624 ÷ 132 = $1,232/respondent.

[1017] U.S. Small Business Administration, *A Guide for Government Agencies: How to Comply with the Regulatory Flexibility Act,* at 18 (August 2017), *https://www.sba.gov/sites/default/files/advocacy/How-to-Comply-with-the-RFA-WEB.pdf.*