157 FERC ¶ 61,212
UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

18 CFR Parts 35 and 37

[Docket No. RM17-8-000]

Reform of Generator Interconnection Procedures and Agreements

(December 15, 2016)

AGENCY: Federal Energy Regulatory Commission.

ACTION: Notice of Proposed Rulemaking.

SUMMARY: The Federal Energy Regulatory Commission (Commission) is proposing to revise its regulations and the *pro forma* Large Generator Interconnection Procedures and *pro forma* Large Generator Interconnection Agreement. The Commission proposes reforms designed to improve certainty, promote more informed interconnection, and enhance interconnection processes. The proposed reforms are intended to ensure that the generator interconnection process is just and reasonable and not unduly discriminatory or preferential.

DATES: Comments are due 60 days after publication in the Federal Register.

ADDRESSES: Comments, identified by docket number, may be filed in the following ways:

- Electronic Filing through http://www.ferc.gov. Documents created electronically using word processing software should be filed in native applications or print-to-PDF format and not in a scanned format.

- Mail/Hand Delivery: Those unable to file electronically may mail or hand-deliver comments to: Federal Energy Regulatory Commission, Secretary of the Commission, 888 First Street, NE, Washington, DC 20426.

Instructions: For detailed instructions on submitting comments and additional information on the rulemaking process, see the Comment Procedures section of this document.

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SUPPLEMENTARY INFORMATION:

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NOTICE OF PROPOSED RULEMAKING

(December 15, 2016)

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NOTICE OF PROPOSED RULEMAKING

(December 15, 2016)

I. Introduction

1. In this Notice of Proposed Rulemaking (Proposed Rule), the Commission is proposing to revise its regulations and the *pro forma* Large Generator Interconnection Procedures (LGIP) and *pro forma* Large Generator Interconnection Agreement (LGIA).[1] The Commission proposes reforms designed to improve certainty, promote more informed interconnection, and enhance interconnection processes. The proposed reforms are intended to ensure that the generator interconnection process is just and reasonable and not unduly discriminatory or preferential.[2]

[1] *Standardization of Generator Interconnection Agreements and Procedures*, Order No. 2003, FERC Stats. & Regs. ¶ 31,146 (2003) (Order No. 2003), *order on reh'g*, Order No. 2003-A, FERC Stats. & Regs. ¶ 31,160 (Order No. 2003-A), *order on reh'g*, Order No. 2003-B, FERC Stats. & Regs. ¶ 31,171 (2004) (Order No. 2003-B), *order on reh'g*, Order No. 2003-C, FERC Stats. & Regs. ¶ 31,190 (2005) (Order No. 2003-C), *aff'd sub nom. Nat'l Ass'n of Regulatory Util. Comm'rs v. FERC*, 475 F.3d 1277 (D.C. Cir. 2007), *cert. denied*, 552 U.S. 1230 (2008).

[2] In this proceeding, the Commission refers to comments and filings in Docket Nos. RM15-21-000 and RM16-12-000. A list of commenters in those proceedings and the abbreviated names used in this Proposed Rule appears in Appendix A. Any comments to this Proposed Rule should be filed in this proceeding, Docket No. RM17-8-000.

2. The *pro forma* LGIP and LGIA establish the terms and conditions under which public utilities[3] must provide interconnection service to Large Generating Facilities.[4] While Order No. 2003 was a significant step to reduce undue discrimination in the generator interconnection process, interconnection customers have continued to express concerns with systemic inefficiencies and discriminatory practices that affect them.[5] In addition, there have been a number of developments that impact generator interconnection, including the changing resource mix, the emergence of new technologies, and state and federal policies that have impacted the resource mix. 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 have little chance of reaching commercial operation. Upon consideration of these issues, the Commission finds that it is appropriate to propose reforms to the interconnection processes.

3. In 2015, the American Wind Energy Association (AWEA) filed a Petition for Rulemaking (Petition) requesting changes to the Commission's interconnection rules and

[3] 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* Order No. 2003-A, FERC Stats. & Regs. ¶ 31,160 at P 773.

[4] A large generating facility is "a Generating Facility having a Generating Facility Capacity of more than 20 MW." *Pro forma* LGIA Art. 1.

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

procedures.[6] The Commission sought and received comments on the Petition. In May 2016, a technical conference was convened to further explore these issues (2016 Technical Conference). Comments were requested and received both prior to the technical conference and after the technical conference.

4. Based, in part, on that input, the Commission has identified proposed reforms that could remedy potential shortcomings in the existing interconnection processes. The Commission believes the proposed reforms will benefit interconnection customers through more timely and cost-effective interconnection and will benefit transmission providers by mitigating the potential for serial re-studies associated with late-stage interconnection request withdrawals. Specifically, the Commission believes that the provision of more timely and accurate information could increase certainty for interconnection customers and assist them in earlier evaluation and quicker development, as well as assist in earlier, less disruptive withdrawals from the interconnection queue. The Commission also believes that more thorough and transparent information presented for the interconnection customer could enable more informed decisions earlier in the interconnection process, which could reduce late-stage interconnection request withdrawals and result in fewer restudies and delays. More timely and accurate information regarding an interconnection request, as well as greater transparency, will also reduce the incentive for interconnection customers to submit multiple interconnection requests when they only intend to see one to commercial operation.

[6] American Wind Energy Association, Petition for Rulemaking to Revise Generator Interconnection Rules and Procedures, Docket No. RM15-21-000 (filed June 19, 2015).

The Commission has also identified a set of reforms that enhance the interconnection process by, for example, addressing interconnection issues experienced most acutely by new technologies. The Commission believes there are ways to allow flexibility in the interconnection process to accommodate innovation.

5. Specifically, the Commission preliminarily finds that certain interconnection practices may not be just and reasonable and may be unduly discriminatory or preferential and proposes several potential reforms. The Commission is proposing fourteen reforms that focus on improving aspects of the *pro forma* LGIP and LGIA, the *pro forma* Open Access Transmission Tariff, and the Commission's regulations. The proposed reforms fall into three broad categories and are intended to: (1) improve certainty in the interconnection process; (2) improve transparency by providing more information to interconnection customers; and (3) enhance interconnection processes.

6. First, the Commission proposes four reforms to improve certainty by affording interconnection customers more predictability in the interconnection process. To accomplish this goal, the Commission proposes 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 owner 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 the Regional Transmission Organizations (RTO) and Independent System Operators (ISO) establish dispute resolution procedures for interconnection disputes. The Commission also seeks 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.

7. Second, the Commission proposes five reforms to improve transparency by providing improved information for the benefit of all participants in the interconnection process. These reforms would provide a fuller picture of the considerations involved in interconnecting a new large generating facility. The Commission proposes 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 Proposed Rule; (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 LGIA to explicitly include electric storage resources; and (5) create a system of reporting requirements for aggregate interconnection study performance. The Commission also seeks 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.

8. Third, the Commission proposes 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 proposes 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.

9. The Commission seeks comments on these proposed reforms and areas for further comment within 60 days after publication of this Proposed Rule in the *Federal Register*.

10. The purpose of these proposals is to ensure that the processing of generator interconnection requests will be just and reasonable and not unduly discriminatory or preferential consistent with Federal Power Act (FPA) sections 205 and 206. These proposed reforms could help improve the efficiency of processing interconnection requests for both transmission providers and interconnection customers, maintain reliability, increase energy

supply, balance the needs of interconnection customers and transmission owners and remove barriers to needed resource development.[7]

11. Unless otherwise noted, the proposed reforms described below would result in changes to the *pro forma* LGIP and *pro forma* LGIA and regulations that affect transmission provider LGIPs and LGIAs. The Commission also seeks comment, however, on whether any of these proposed reforms should be applied to small generating facilities and implemented in the *pro forma* Small Generator Interconnection Procedures (SGIP) and Small Generator Interconnection Agreement (SGIA).[8]

II. Background

A. Order No. 2003

12. In 1996, the Commission issued Order No. 888,[9] which "established the foundation necessary to develop competitive bulk power markets in the United States: nondiscriminatory open access transmission services by public utilities and stranded cost

[7] 16 U.S.C. 824d and 824e (2012).

[8] The Commission adopted these documents in Order No. 2006. *Standardization of Small Generator Interconnection Agreements and Procedures*, Order No. 2006, FERC Stats. & Regs. ¶ 31,180, *order on reh'g*, Order No. 2006-A, FERC Stats. & Regs. ¶ 31,196 (2005), *order granting clarification*, Order No. 2006-B, FERC Stats. & Regs. ¶ 31,221 (2006).

[9] *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).

recovery rules to provide a fair transition to competitive markets."[10] In Order No. 888, the Commission did not, however, address generator interconnection issues. In *Tennessee Power Company*, the Commission encouraged, but did not require, transmission providers to revise their OATTs to include interconnection procedures, including a standard interconnection agreement and specific criteria, procedures, milestones, and timelines for evaluating interconnection requests.[11]

13. 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."[12] Prior to the issuance of Order No. 2003, the Commission addressed interconnection issues on a case-by-case basis through, for example, applications under FPA section 205.

14. In Order No. 2003, the Commission asserted 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."[13] The Commission found that a standard set of procedures would "minimize opportunities for undue discrimination and

[10] Order No. 2003, FERC Stats. & Regs. ¶ 31,146 at P 8.

[11] *Tenn. Power Co.*, 90 FERC ¶ 61,238 (*Tennessee*).

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

[13] Order No. 2003, FERC Stats. & Regs. ¶ 31,146 at P 9 (citing *Tennessee*, 90 FERC ¶ 61,238).

expedite the development of new generation, while protecting reliability and ensuring that rates are just and reasonable."[14]

15. 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 LGIA and required all public utilities subject to Order No. 2003 to modify their OATTs to incorporate the *pro forma* LGIP and LGIA.

B. 2008 Order on Interconnection Queueing Practices

16. The Commission held a technical conference on December 17, 2007 and issued a notice inviting further comments in response to concerns raised about the effectiveness of queue management practices.[15] Comments revealed that some transmission providers were not processing their interconnection queues with the timelines envisioned in Order No. 2003. Commenters pointed to surges in the volume of new generation development in some regions, particularly for renewable resources, as taxing interconnection queues. Commenters also noted that some regions had developed capacity markets after the issuance of Order No. 2003 and struggled with accommodating these new markets.[16]

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

[15] *Interconnection Queuing Practices*, Docket No. AD08-2-000, November 2, 2007 Notice of Technical Conference.

[16] *Interconnection Queuing Practices*, 122 FERC ¶ 61,252, at P 3 (2008) (2008 Order). With regard to capacity markets, commenters noted that in regions that had

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17. On March 20, 2008, the Commission issued an order addressing interconnection queue issues (2008 Order). The Commission acknowledged that delays in processing interconnection queues were more pronounced in RTOs/ISOs that were attracting significant new entry.

18. 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.[17] The Commission further stated that, while it "may need to [impose solutions] if the RTOs and ISOs do not act themselves," each region would be provided an opportunity to propose its own solutions through "consensus proposals."[18] Following the 2008 Order, RTOs/ISOs submitted multiple queue reform proposals to the Commission, generally moving their interconnection queuing practices from a "first-come, first-served" approach to a "first-ready, first-served" approach.

C. 2015 American Wind Energy Association Petition

19. On June 19, 2015, AWEA filed the Petition in Docket No. RM15-21-000 requesting that the Commission revise the *pro forma* LGIP and *pro forma* LGIA. AWEA asserts that the current interconnection process has "imbedded unjust and unreasonable and unduly

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established capacity markets, interconnection queue delays could prevent least cost resources from being available in new capacity market auctions. *Id.* P 5.

[17] 2008 Order, 122 FERC ¶ 61,252 at PP 16-18.

[18] 2008 Order, 122 FERC ¶ 61,252 at P 8.

discriminatory delays, costs, rates, terms and conditions" and "imposes barriers to the development of needed new generation resources."[19] AWEA states that while transmission providers have modified their LGIPs in ways that "occasionally [provide] limited benefits. . . . [they] have not solved, and have even exacerbated, problems encountered by interconnection customers."[20] AWEA contends that, consequently, the interconnection process often results in "complex, time consuming technical disputes about . . . interconnection feasibility, cost, and cost responsibility" with delays that "undermine the ability of new generators to compete."[21]

20. AWEA proposes multiple reforms to improve: (1) certainty in the interconnection study/restudy process; (2) transparency in the interconnection process; (3) certainty with respect to network upgrade costs; and (4) accountability.[22]

21. On July 7, 2015, the Commission issued a Notice of Petition for Rulemaking in Docket No. RM15-21-000 to seek public comment on the Petition. The Commission received thirty-five comments and three answers and reply comments.[23]

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[19] Petition at 2.

[20] Petition at 3.

[21] Petition at 3.

[22] Petition at 4-5.

[23] *See* Appendix A**:** List of Short Names of Commenters on the AWEA Petition (Docket No. RM15-21-000) and the 2016 Technical Conference (Docket No. RM16-12-000).

D. 2016 Technical Conference

22. On May 13, 2016, Commission staff convened the 2016 Technical Conference at Commission headquarters. 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, non-independent transmission providers, transmission owners within RTOs/ISOs, renewable generation developers, and other stakeholders.

23. On June 3, 2016, the Commission issued a Notice Inviting Post-Technical Conference Comments. The Commission received 24 post-technical conference comments.

III. Need for Reform of the Interconnection Process

24. Since the issuance of Order No. 2003, the electric power industry has undergone numerous changes. For example, the nation's resource mix has undergone significant change. In many regions, the resource mix now includes increasing amounts of generation powered by wind,[24] natural gas, solar, and most recently, electric storage resources.[25] These

[24] In 2015, for example, wind, natural gas, and solar power were the largest classes of new entrants. *See Wind Adds the Most Electric Generation Capacity in 2015, Followed by Natural Gas and Solar* (Mar. 23, 2016) https://www.eia.gov/todayinenergy/detail.php?id=25492.

[25] *See* U.S. Energy Information Administration, *Natural Gas Expected to Surpass Coal in Mix of Fuel Used for U.S. Power Generation in 2016* (Mar. 16, 2016), http://www.eia.gov/todayinenergy/detail.cfm?id=25392; *see also* Energy Storage Association, *US Surpasses 100 MW of Storage Deployments through Q3 2015, Already Best*

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changes are the result of a multitude of factors, such as the economics of new power generation largely driven by sustained low natural gas prices, technology advances, and federal and state policies, including federal environmental regulations and state-level mandates for renewable capacity. The changing resource mix has impacted the Commission's interconnection policies.

25. The increasing penetration of variables energy resources and emerging technologies has implications for the interconnection process, for both interconnection customers and transmission providers.[26] For example, wind generation is limited geographically because it is concentrated in locations where there are dependable windy conditions that are sufficient to generate electricity. Additionally, a lengthy interconnection process affects all resources attempting to interconnect and can have a disproportionate effect on resources that can be built more quickly than traditional resources. Further, interconnection processes should consider the evolving capabilities of electric storage resources, which may involve different considerations than the interconnection of more traditional generation resources. These

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Year Ever (Dec. 3, 2015, 11:13 AM), http://energystorage.org/resources/us-surpasses-100-mw-storage-deployments-through-q3-2015-already-best-year-ever. The Commission defines an electric storage resource as a facility that can receive electric energy from the grid and store it for later injection of electricity back to the grid. This includes all types of electric storage technologies, regardless of their size or storage medium (e.g., batteries, flywheels, compressed air, pumped-hydro, etc.). *See Midcontinent Indep. Sys. Operator, Inc.*, 155 FERC ¶ 61,211, at n.7 (2016).

[26] *See, e.g.*, Monitoring Analytics, PJM State of the Market at Table 12-17, http://monitoringanalytics.com/reports/PJM_State_of_the_Market/2016/2016q2-som-pjm-sec12.pdf.

factors suggest a need for the Commission to reevaluate its interconnection policies to ensure that they are just and reasonable and not unduly discriminatory or preferential.

26. As described above, beginning with Order No. 2003, the Commission has sought to improve the interconnection process by minimizing opportunities for undue discrimination and expediting the development of new generation while protecting system reliability and ensuring just and reasonable rates. However, at present, many interconnection customers experience delays, and interconnection queues have significant backlogs and long timelines.[27] According to interconnection customers and transmission providers, a recurring problem is that late-stage interconnection request withdrawals lead to interconnection study restudies and consequent delays for lower-queued interconnection customers.[28] Interconnection request withdrawals can also lead to increased network upgrade cost responsibility for lower-queued interconnection customers, which could, in turn, result in further cascading withdrawals. Further, a lack of cost and timing certainty can hinder interconnection customers from obtaining financing. Cost uncertainty in particular presents a significant obstacle, as some interconnection customers are less able to absorb unexpected and potentially higher costs.

27. Consistent with the 2008 Order, where the Commission allowed RTOs/ISOs to develop and propose their own solutions to interconnection timing issues, most RTOs/ISOs

[27] *See, e.g.*, 2016 Technical Conference Tr. 210: 1-10 (discussion of delays up to a year).

[28] *See, e.g.*, 2016 Technical Conference Tr. 20:15-23 (discussion regarding MISO's experiencing 50 percent withdrawal rates in many parts of the queue).

have implemented different procedures to alleviate queue delays. MISO, in particular, has proposed four different queue reforms, each of which have been designed to improve and expedite the interconnection process.[29] SPP has implemented two queue reforms, for similar reasons.[30] CAISO has employed network upgrade cost caps and periodic, scheduled restudies in order to provide certainty to the interconnection customer.[31] Despite these efforts, delays, backlogs, and long queue times continue to affect interconnection customers.[32]

28. The Petition highlighted some of the issues affecting the interconnection process and encouraged the Commission to consider these and other interconnection issues as well as the overall state of interconnection queues. In light of these issues, the Commission in this proceeding reviewed current interconnection processes and proposes reforms to ensure that these processes continue to "minimize opportunities for undue discrimination and expedite the development of new generation, while protecting reliability and ensuring that rates are

[29] *See Midwest Indep. Transmission Sys. Operator, Inc.*, 124 FERC ¶ 61,183 (2008), *order on reh'g*, 127 FERC ¶ 61,294 (2009); *Midwest Indep. Transmission Sys. Operator, Inc.*, 129 FERC ¶ 61,301 (2009); *Midwest Indep. Transmission Sys. Operator, Inc.*, 138 FERC ¶ 61,233, *order on reh'g and compliance*, 139 FERC ¶ 61,253 (2012); Docket No. ER17-156-000.

[30] *See Sw. Power Pool, Inc.*, 128 FERC ¶ 61,114, *order on compliance*, 129 FERC ¶ 61,226 (2009), *order on compliance*, 133 FERC ¶ 61,139 (2010); *Sw. Power Pool, Inc.*, 147 FERC ¶ 61,201 (2014), *order on reh'g and compliance*, 151 FERC ¶ 61,235 (2015).

[31] *See California Indep. Sys. Operator Corp.*, 124 FERC ¶ 61,292 (2008).

[32] *See* Petition at 8-11.

just and reasonable."[33] The Commission conducted this review and developed proposals based on information provided in the 2016 Technical Conference and comments submitted in that proceeding.

29. The Commission preliminarily finds that aspects of 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. The current interconnection process can create uncertainty for interconnection customers regarding both costs and timing. A lack of transparency in the interconnection process can result in interconnection customers submitting interconnection requests to the queue that may be speculative or unlikely to reach commercial operation, which can affect other interconnection customers and create difficulties for transmission providers and owners. Increasing transparency will allow for interconnection customers to better evaluate the viability of an interconnection request prior to entering the queue, which could result in fewer interconnection requests dropping out of the queue. A lack of timely and clear information can also affect an interconnection customer's decisions regarding whether and where to build a generating facility or other resource and can also affect the viability of an interconnection request after it enters the interconnection queue. Finally, the current interconnection process can involve unnecessary obstacles to the interconnection of new technologies and as such, the Commission has proposed reforms to address these issues.

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

30. The Commission also preliminarily finds that the process for a transmission provider to conduct interconnection studies may result in uncertainty and inaccurate information. The current interconnection study process is meant to allow for refinements in the study estimates of interconnection costs as an interconnection request moves through each of the interconnection study phases.[34] However, uncertainty in study results and a lack of transparency may hamper generation development. Cost uncertainty presents a particularly significant obstacle as some interconnection customers are less able to absorb unexpected and potentially higher costs for interconnection facilities and network upgrades that may occur either in the normal course of refined estimates or as a result of restudy. Moreover, if an interconnection customer does not obtain timely studies or is assessed previously unanticipated network upgrade costs, this could affect a number of development aspects, including the interconnection customer's land lease agreements required to support unanticipated network upgrades, additional project financing required for increased network upgrade costs, and/or ability to obtain a power purchase agreement in the face of a potential delay.

31. Additionally, the Commission preliminarily finds that the potential for discriminatory interconnection processes exists as new technologies enter the power generation sphere. New technologies may be hampered in the study process as study conductors come up to speed on how to evaluate the incorporation of these technologies onto the system.

[34] *See* Order No. 2003, FERC Stats. & Regs. ¶ 31,146 at PP 195, 217-34.

Interconnection customers involving new technologies may be affected more by process and information uncertainty than incumbents experienced with the interconnection process in certain regions.

IV. Proposed Reforms

32. The Commission is proposing to reform certain aspects of the Commission's regulations and the *pro forma* LGIP and *pro forma* LGIA that affect the interconnection process to ensure that they are just and reasonable and not unduly discriminatory or preferential.

33. The provision of more timely and accurate information could increase certainty for interconnection customers and assist them in earlier project evaluation and quicker project development, as well as assist in earlier, less disruptive withdrawals from the interconnection queue. Interconnection customers and transmission providers alike have frequently expressed frustration at the need for repeated restudies and prolonged queue times resulting from the withdrawal of higher-queued interconnection requests.[35] With improvements in certainty and the quality of information conveyed at an earlier stage in the interconnection process, some of these withdrawals could be eliminated, and the queue could proceed more quickly. At the same time, fewer withdrawals would benefit transmission providers by reducing the burden of processing requests that are unlikely to reach commercial operation.

[35] *See, e.g.*, 2016 Technical Conference Tr. 20:15-23.

34. The Commission also believes that providing interconnection customers with access to more detailed information could enable the interconnection customer to make more informed decisions earlier in the interconnection process. For example, increased knowledge of the assumptions used in interconnection studies could assist an interconnection customer with identifying optimal points of interconnection as well as allow it to better anticipate the duration of the interconnection process and better understand issues that may arise as the result of study outcomes. Interconnection customers may also benefit from a more complete up front understanding of the network upgrades, contingencies, and risks of curtailment that their interconnection requests may face, which could reduce late-stage interconnection request withdrawals and result in fewer restudies and delays. More timely and accurate information regarding an interconnection request, as well as greater transparency of the study process and of congestion, will reduce the incentive for interconnection customers to submit multiple interconnection requests when expecting to interconnect a large generating facility. While interconnection customers may still submit multiple requests, the Commission anticipates that they would submit fewer requests with better information and that the interconnection customer would terminate a non-viable interconnection request earlier.

35. The Commission also proposes reforms that could enhance interconnection processes. The Commission believes that new technologies will drive grid innovation, as well as offer other facility efficiencies and advances. These innovations may reach the market after an interconnection customer has initiated or completed an interconnection request. However, in some circumstances, there are likely ways to inject efficiencies in the

traditional interconnection process or to preempt the need for a transmission provider to construct new, unnecessary interconnection facilities and network upgrades. Additionally, the Commission believes there are ways to allow flexibility in the interconnection process to incorporate innovation or developments that transpire while an interconnection request is in the queue.

36. At this time, the Commission does not propose reforms to generator interconnection processes and agreements other than those described herein. This limitation includes any reforms proposed by AWEA in its Petition that are not included in this Proposed Reforms section.

A. Improving Certainty for Interconnection Customers

37. The reforms proposed below would 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 grid. Increasing certainty for interconnection customers—particularly cost certainty—may decrease the number of late-stage interconnection request withdrawals from the interconnection queue, which could meaningfully ameliorate the cycle of repeated, cascading restudies. In addition to the proposed reforms, the Commission seeks comment on the extent to which capping interconnection customer cost responsibility for actual network upgrade costs to some margin above estimated network upgrade costs can mitigate the potential for serial restudies without inappropriately shifting cost responsibility.

1. Scheduled Periodic Restudies

38. As discussed below, the Commission proposes to revise the *pro forma* LGIP to require transmission providers that conduct cluster studies to establish a schedule for conducting periodic restudies.

a. Current Provisions and Background

39. The current *pro forma* LGIP requires the transmission provider to make reasonable efforts[36] to provide: (i) feasibility study results within 45 days after receipt of a signed feasibility agreement; (ii) system impact study results within 90 days after receipt of a signed system impact study agreement or after the cluster window closes; and (iii) facilities study results either within 90 days after receipt of a signed facilities study agreement or 180 days after receipt of a signed facilities study agreement, depending on the accuracy margin provided.[37] For the purpose of conducting the system impact study, the current *pro forma* LGIP allows transmission providers the option to process interconnection requests on a serial basis or in groups using clusters.[38]

40. A transmission provider may require a restudy of an interconnection customer's study results if a higher-queued interconnection request drops out of the queue or an

[36] 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 Sec. 1 (Definitions).

[37] *See Pro forma* LGIP Sec. 6.3, 7.4 and 8.3.

[38] *See Pro forma* LGIP Sec. 4.2.

interconnection customer modifies its interconnection request.[39] A transmission provider may also require restudy if either the feasibility or system impact studies uncover any unexpected result not contemplated during the scoping meeting that will require re-designation of the point of interconnection. According to the *pro forma* LGIP, restudy of an interconnection feasibility study shall take no longer than 45 days from the date the transmission provider provides notice that such restudy is required. Restudy of an interconnection system impact study or interconnection facilities study shall not take longer than 60 days from the date the transmission provider provides notice to the interconnection customer that such restudy is required.[40] While the current *pro forma* language establishes timeframes in which to complete restudies after an interconnection customer is notified, it does not provide guidance on the frequency at which such restudies should occur for clustered or grouped interconnection requests.

b. AWEA Petition and Comments

41. In its Petition, AWEA recognizes that restudies are often necessary, but it states that, in certain regions, restudies are conducted on an *ad hoc* basis as the need arises.[41] AWEA argues that repeated restudies conducted at irregular intervals may increase or prolong uncertainty for interconnection customers.

[39] *See Pro forma* LGIP Sec. 6.4, 7.6, and 8.5.

[40] *See Pro forma* LGIP Sec. 6.4, 7.6 and 8.5.

[41] Petition at 22.

42. AWEA further explains that, under the current *pro forma* LGIP, the withdrawal of a higher-queued interconnection request may necessitate a restudy, which may then change the assumptions for other queued interconnection requests within a cluster, necessitating further restudies in a cascading effect. AWEA contends that these cascading restudies prolong cost uncertainty, cause delays in finalizing interconnection study results, and delay the execution of LGIAs. As a potential solution, AWEA proposes an annual or periodic restudy process for interconnection requests within a cluster, in which the transmission provider would consider all relevant system condition changes, including higher-queued interconnection requests that withdraw from the queue. AWEA contends that such a restudy process provides certainty because each restudy would be completed according to a schedule, rather than conducted on an *ad hoc* basis due to intervening events.[42]

43. However, AWEA also asserts that when an unplanned restudy becomes necessary outside of the scheduled restudy process, it is of critical importance that the restudy be processed in as timely a manner as possible. AWEA adds that the transmission provider should, if necessary, hire additional consultants or staff to ensure proper resources to process the restudy in a consistent and timely manner.[43]

44. Several commenters, including a number of entities that have been interconnection customers for wind generation such as NRG, EDF, and NextEra, support a scheduled restudy process and offer suggestions for how transmission providers should conduct this

[42] Petition at 22-25.

[43] AWEA 2016 Comments at 30.

process.[44] MISO also acknowledges that the withdrawal of higher-queued interconnection requests creates the need for cascading restudies of lower-queued interconnection requests and that scheduled restudies may alleviate the need for multiple *ad hoc* restudies.[45] NextEra states that, under an annual restudy process, the transmission provider should consider all relevant system condition changes, as well as all higher-queued interconnection requests that dropped out of the queue, in one restudy for the applicable interconnection requests in a cluster or sub-region. Although it believes there may be some efficiency in a group restudy, EDF cautions that, if the restudy were to include different interconnection requests from different clusters, it could result in as many issues and inefficiencies as are produced by the current process.[46]

45. Some commenters oppose scheduled, periodic restudies. ISO-NE, Xcel, and ITC express the belief that an annual, group restudy would not be useful. These commenters assert that the primary cause for restudies — namely, the withdrawal of higher-queued interconnection requests — is out of the transmission provider's control and can occur at any time. These commenters contend that limiting restudies to once a year could force viable generation interconnection requests to wait longer than necessary for restudy

[44] NRG 2015 Comments at 4; EDF 2016 Comments at 31; NextEra 2015 Comments at 8-9.

[45] MISO 2016 Comments at 13.

[46] EDP 2016 Comments at 17.

results.[47] The ISO/RTO Council states that this proposal is inapplicable to NYISO due to its "non-serial" interconnection queue approach, in which an interconnection request is only included in the base case for restudy when it has satisfied certain requirements. The ISO/RTO Council also notes that ISO-NE's interconnection process is merged with the Forward Capacity Market. Thus, the ISO/RTO Council argues, AWEA's proposals for the restudy process could be disruptive.[48]

c. Proposal

46. The Commission proposes to revise the *pro forma* LGIP to require transmission providers that conduct cluster studies 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). The Commission proposes to require transmission providers to update their LGIPs to specify the frequency of restudies for interconnection customers in a cluster study and post the dates of these restudies on the transmission provider's OASIS.

47. A scheduled, periodic restudy process could enhance the efficiency and certainty of the study process for all parties by mitigating the problem of cascading restudies. This reform could achieve this result because it creates some milestones that can serve as decision points for interconnection customers and allows transmission providers to further revise their interconnection processes as necessary to incorporate scheduled restudies.

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[47] ISO-NE 2016 Comments at 24; Xcel 2016 Comments at 13; ITC 2016 Comments at 8.

[48] ISO/RTO Council 2015 Comments at 5-7.

Further, the Commission notes that it is not proposing that all transmission providers establish the same restudy schedule; rather, the Commission proposes to give transmission providers flexibility in establishing the frequency of restudies to best accommodate the needs of interconnection customers and transmission providers.

48. Accordingly, the Commission proposes to require each transmission provider that conducts cluster studies to revise sections 6.4 and 7.6 of the *pro forma* LGIP as follows (*proposing to delete italicized text*):

> If Re-Study of the [insert appropriate study] Study is required due to a higher queued project dropping out of the queue, or a modification of a higher queued project subject to Section 4.4, or re-designation of the Point of Interconnection pursuant to Section [insert appropriate section] Transmission Provider shall notify Interconnection Customer in writing. Serially processed Re-Studies *Such Re-Study* shall take no longer than [forty-five (45)/ sixty (60)] Calendar Days from the date of the notice. Any cost of Re-Study shall be borne by the Interconnection Customer being re-studied.
>
> If a Transmission Provider that conducts cluster studies identifies a need for restudies, it will conduct periodic Re-Studies for each cluster [placeholder for time frame proposed by each Transmission Provider]. Re-Study dates for each cluster will also be posted on the Transmission Provider's OASIS. Re-Study shall take no longer than [forty-five (45)/ sixty (60)] Calendar Days from the commencement date of the Re-Study. Any cost of Re-Study shall be borne by the Interconnection Customer being re-studied.

49. Likewise, the Commission proposes to require each transmission provider that conducts cluster studies to revise section 8.5 of the *pro forma* LGIP as follows (*proposing to delete italicized text*):

> If Re-Study of the Interconnection Facilities Study is required due to a higher queued project dropping out of the queue or a modification of a higher queued project pursuant to Section 4.4, Transmission Provider shall so notify Interconnection Customer in writing. Serially processed Re-Studies *Such Re-Study*-shall take no longer than sixty (60) Calendar Days from the date of the

notice. Any cost of Re-Study shall be borne by the Interconnection Customer being re-studied.

A Transmission Provider that conducts cluster studies will conduct periodic Re-studies for each cluster [placeholder for time frame proposed by each Transmission Provider]. Re-Study dates for each cluster will also be posted on the Transmission Provider's OASIS. Re-Study of the cluster shall take no longer than sixty (60) Calendar Days from the commencement date of the Re-Study.

50. The Commission acknowledges the concern held by some stakeholders that a scheduled, periodic restudy process could force viable interconnection requests to wait longer than necessary to progress through the interconnection process. The Commission seeks comment on whether regions that conduct cluster studies and move to periodic re-studies should retain some discretion to conduct restudies outside of the established schedule at the request of interconnection customers or under specific circumstances that deem such deviations necessary. The Commission seeks comments on when this discretion should be restricted and the circumstances under which such deviations should be allowed.

51. Additionally, some commenters allege that transmission provider tariffs generally provide insufficient transparency regarding the type of triggers that would require restudy for projects processed through serial or cluster studies; they also contend that transmission providers do not apply such triggers consistently.[49] In contrast, some transmission providers assert that their tariffs sufficiently detail restudy triggers.[50] We believe that the

[49] *E.g.*, AWEA 2016 Comments at 30; Invenergy 2016 Comments at 19-20; EDPR NA 2016 Comments at 16-17.

[50] MISO 2016 Comments at 15; ISO-NE 2016 Comments at 23.

Commission's proposal above to require scheduled, periodic restudies could help address these concerns for interconnection requests processed through cluster studies. However, the Commission also seeks comment on (1) whether the Commission should further revise the *pro forma* LGIP to improve the transparency and application of restudy triggers generally, and (2) if so, what reforms are needed.

2. The Interconnection Customer's Option to Build

52. The Commission proposes to allow the interconnection customer to exercise the option to build unilaterally; that is, the Commission proposes that the interconnection customer's option to assume responsibility for construction of the transmission provider's interconnection facilities and stand alone network upgrades is not contingent on the transmission provider notifying the interconnection customer that it cannot complete such facilities on the schedule proposed by the interconnection customer.

a. Current Provisions and Background

53. Under the current *pro forma* LGIA, the interconnection customer's option to build is contingent on the transmission provider's notification that the transmission provider cannot complete the facilities on schedule. Specifically, under the *pro forma* LGIA, the interconnection customer selects the "In-Service Date, Initial Synchronization Date, and Commercial Date"[51] and "either the Standard Option or Alternative Option" unless mutually

[51] 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." *Pro forma* LGIA Art. 1. 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

(continued…)

agreed to between the parties to the agreement.[52] Under the standard option, the transmission provider "shall construct the Transmission Provider's Interconnection Facilities[53] and Network Upgrades using Reasonable Efforts to complete the construction by the dates designated by the Interconnection Customer."[54] Under the alternate option, "Transmission Provider shall construct the Transmission Provider's Interconnection Facilities and Network Upgrades according to the construction completion dates established by the Interconnection Customer, and if it fails to meet those dates, it may be liable for liquidated damages," although the transmission provider may decline this option "within 30 Calendar Days of executing the LGIA."[55]

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.*

[52] *Pro forma* LGIA Sec. 5.1.

[53] 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.

[54] Order No. 2003, FERC Stats. & Regs. ¶ 31,146 at P 351.

[55] Order No. 2003, FERC Stats. & Regs. ¶ 31,146 at P 352.

54. Under the current OATT, there are two other options, which are available if the transmission provider informs the interconnection customer that it cannot meet the proposed dates: the "Option to Build" and the "Negotiated Option."[56] The "Option to Build," which the *pro forma* LGIA describes in section 5.1.3, provides an interconnection customer with the option to build the transmission provider's interconnection facilities and stand alone network upgrades, but limits that option to circumstances where the transmission provider cannot meet the dates proposed by the interconnection customer. That is, an interconnection customer may "assume responsibility for the design, procurement and construction of Transmission Provider's Interconnection Facilities and Stand Alone Network Upgrades."[57] However, the interconnection customer may only exercise this option if the transmission provider notifies the interconnection customer that the transmission provider cannot meet the interconnection customer's preferred construction completion dates.[58]

55. The "Negotiated Option" applies "if the Transmission Provider notifies the Interconnection Customer that it cannot meet the dates established by the Interconnection Customer, and the Interconnection Customer does not want to assume responsibility for construction."[59] Under this option, the "Interconnection Customer may decide that the Parties shall negotiate in good faith to revise the construction completion dates and other

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[56] Order No. 2003, FERC Stats. & Regs. ¶ 31,146 at P 353.

[57] *Pro forma* LGIA Sec. 5.1.3.

[58] *See, e.g.*, *ISO New England Inc.*, 149 FERC ¶ 61,274, at P 18 (2014).

[59] Order No. 2003, FERC Stats. & Regs. ¶ 31,146 at P 354.

provisions under which the Transmission Provider is responsible for the construction."[60] If the parties are unable to reach an agreement during these negotiations, the transmission provider assumes responsibility "for construction of the Transmission Provider's Interconnection Facilities and Network Upgrades in accordance with the Standard Option."[61]

b. Comments

56. Multiple parties that have experience as interconnection customers at the 2016 Technical Conference expressed support for reforms that would allow them to build some interconnection facilities and network upgrades, explaining that they are often able to build more rapidly and at lower cost than transmission owners.[62] Several commenters advocate expanding the option to build to circumstances beyond those described in current section 5.1.3 of the LGIA.[63] They contend that the Commission should not condition the usage of the option to build on timing but should instead allow for an absolute right for interconnection customers to build interconnection facilities and stand alone upgrades.

[60] Order No. 2003, FERC Stats. & Regs. ¶ 31,146 at P 354.

[61] Order No. 2003, FERC Stats. & Regs. ¶ 31,146 at P 354.

[62] 2016 Technical Conference Tr. 121: 1-22.

[63] *E.g.*, E.ON 2016 Comments at 15; Xcel 2016 Comments at 16; Invenergy 2016 Comments at 26; EDP 2016 Comments at 19; EDF 2016 Comments at 40.

57. Other commenters oppose expansion of the circumstances under which an interconnection customer may exercise the option to build.[64] For instance, ITC suggests that removing the limitation on when the option to build can be exercised would threaten system reliability.[65] Additionally, MISO TOs states that in Order No. 2003-A, the Commission clarified that the transmission provider has no obligation to cede ownership of stand alone network upgrades or the transmission provider's interconnection facilities to the interconnection customer.[66] Some commenters that support expanding the option to build acknowledge that usage of this option should still require that reliability standards be maintained.[67]

c. Proposal

58. The Commission preliminarily finds that limiting the option to build only to circumstances where the transmission provider cannot meet the interconnection customer's requested dates may not be just and reasonable and may be unduly discriminatory or preferential. The limitation may restrict an interconnection customer's ability to efficiently build the transmission provider's interconnection facilities and the interconnection

[64] ISO-NE 2016 Comments at 27.

[65] ITC 2016 Comments at 10.

[66] MISO TOs 2016 Comments at 21.

[67] *See* AES 2016 Comments at 9.

customer's stand alone network upgrades in a cost-effective manner.[68] As a result, an interconnection customer may pay more for the transmission provider's interconnection facilities and standalone upgrades. Furthermore, removing the limitation may provide interconnection customers more control and certainty during the design and construction phase of the interconnection process.

59. The Commission proposes to modify the *pro forma* LGIA to allow an interconnection customer to exercise the option to build regardless of whether the transmission provider can meet the requested construction dates. More specifically, the Commission proposes to modify the *pro forma* LGIA to allow an interconnection customer to design, procure, and construct the transmission provider's interconnection facilities and stand alone network upgrades – even if the transmission provider can meet the requested construction dates – where the interconnection customer and transmission provider (and transmission owner, if applicable) are in agreement as to the transmission provider's interconnection facilities and stand alone network upgrades that would be built, including the design and construction details. Existing responsibilities and protections, including

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[68] The *pro forma* LGIA states that:

> 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.

Pro forma LGIA Art. 1.

reliability considerations, in section 5.2 of the *pro forma* LGIP under "General Conditions Applicable to Option to Build" would continue to apply.

60. The Commission is *not* proposing changes with respect to how transmission provider's interconnection facilities and stand-alone network upgrades are designed or approved, which standards or practices must be followed, or the ownership of transmission provider's interconnection facilities and stand-alone network upgrades that are built under the option to build.[69] Nor is the Commission proposing to expand the types of stand-alone facilities that interconnection customers may construct under the option to build beyond transmission provider's interconnection facilities and stand-alone network upgrades. The proposal instead removes the limitation on when the interconnection customer can exercise the option to build such that an interconnection customer may opt to build in an effort to reduce its costs or improve the timeline for construction. Specifically, the Commission proposes to modify the language in section 5.1 of the *pro forma* LGIA as follows (*proposing to delete italicized text*):

> **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 section 5.1.3 below. If the dates designated by Interconnection Customer are not acceptable to Transmission Provider, Transmission Provider shall so notify

[69] *Pro forma* LGIA Sec. 5.2.

> 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.

61. The Commission also proposes to modify the language in article 5.1.3 of the *pro forma* LGIA as follows (*proposing to delete italicized text*):

> **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 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.

62. Given the changes proposed above, revisions to the negotiated option are necessary because the current version of the negotiated option references the current limitations on the option to build. For this reason, it is necessary to remove these references in the negotiated option and to address scenarios in which an interconnection customer exercises the option to build and still wishes to negotiate completion times for other facilities, including network upgrades that are not stand alone network upgrades, as well as circumstances in which the interconnection customer does not wish to exercise the option to build. 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 negotiated option must also contemplate the possibility that the

transmission provider does not agree to the interconnection customer's proposed dates as to other facilities not covered by the option to build (i.e., other than transmission provider's interconnection facilities and stand-alone network upgrades). 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 the interconnection facilities and network upgrades other than transmission provider's interconnection facilities and stand-alone network upgrades. The option to build does not grant any right to the interconnection customer to construct network upgrades that are not stand-alone upgrades. Furthermore, both the transmission provider and the interconnection customer must agree on which facilities are the stand-alone network upgrades and identify them in Appendix A to the LGIA.[70]

63. The Commission therefore proposes to modify the language in article 5.1.4 of the *pro forma* LGIA as follows (*proposing to delete italicized text*):

> **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*

[70] Order No. 2003, FERC Stats. & Regs. ¶ 31,146 at P 353.

> *Provider's Interconnection Facilities and Network Upgrades*. If the Parties are unable to reach agreement on such terms and conditions, then, pursuant to 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 5.1.1, Standard Option*.

3. Self-Funding by the Transmission Owner

64. The Commission proposes 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.

a. Existing Provisions and Background

65. Order No. 2003 laid out a pricing policy with regard to the costs of interconnection. There, the Commission stated that, where the transmission provider is not an RTO/ISO, it is appropriate for the interconnection customer to "be solely responsible for the costs of Interconnection Facilities"[71] and for network upgrades[72] to be "funded initially by the

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[71] Interconnection Facilities refer to:

> shall mean the Transmission Provider's Interconnection Facilities and the Interconnection Customer's Interconnection Facilities. Collectively, Interconnection Facilities include all facilities and equipment between the Generating Facility and the Point of Interconnection, including any modification, additions or upgrades that are necessary to physically and electrically interconnect the Generating Facility to the Transmission Provider's Transmission System. Interconnection Facilities are sole use facilities and shall not include Distribution Upgrades, Stand Alone Network Upgrades or Network Upgrades.

Pro forma LGIA Art. 1.

interconnection customer unless the Transmission Provider elects to fund them."[73] If the interconnection customer funds the network upgrades, then the interconnection customer is "entitled to a cash equivalent refund . . . equal to the total amount paid for the Network Upgrades " paid "as credits against the Interconnection Customer's payments for transmission services, with the full amount to be refunded . . . within five years of the date the Network Upgrades are placed in service."[74] This upfront payment from the interconnection customer "serves not as a rate for interconnection or transmission service, but simply as a financing mechanism that is designed to facilitate the efficient construction of Network Upgrades."[75] In Order No. 2003, the Commission explained that, while it is appropriate for the interconnection customer to pay the initial full cost for network upgrades that "would not be needed but for the interconnection," the interconnection customer must receive transmission service credits in return to ensure that it "will not have to pay both

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[72] Network upgrades refer to:

> the additions, modifications, and upgrades to the Transmission Provider's Transmission System required at or beyond the point at which the Interconnection Facilities connect to the Transmission Provider's Transmission System to accommodate the interconnection of the Large Generating Facility to the Transmission Provider's Transmission System.

Pro forma LGIA Art. 1.

[73] Order No. 2003, FERC Stats. & Regs. ¶ 31,146 at PP 693-694, 676.

[74] Order No. 2003, FERC Stats. & Regs. ¶ 31,146 at P 676.

[75] Order No. 2003-A, FERC Stats. & Regs. ¶ 31,160 at P 612.

incremental costs and an average embedded cost rate for the use of the Transmission System."[76] The Commission further stated that this policy helps ensure that every interconnection "is treated comparably to the interconnections that a non-independent Transmission Provider completes for its own Generating Facilities."[77] The Commission further explained that the costs of network upgrades for a transmission provider's own generation are traditionally rolled into the transmission provider's transmission rates. The Commission allows some pricing flexibility for transmission providers that are part of an RTO/ISO and independent of market participants, as these transmission providers have "no incentive to use the cost determination and allocation process to unfairly advantage [their] own generation."[78]

66. Currently, article 11.3 of the *pro forma* LGIA states that:

> Network Upgrades and Distribution Upgrades. 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, they shall be solely funded by Interconnection Customer.

[76] Order No. 2003, FERC Stats. & Regs. ¶ 31,146 at P 694.

[77] Order No. 2003, FERC Stats. & Regs. ¶ 31,146 at P 694.

[78] Order No. 2003, FERC Stats. & Regs. ¶ 31,146 at P 694; Order No. 2003-A, FERC Stats. & Regs. ¶ 31,160 at P 587.

The option for the transmission owner or provider to fund the cost for network upgrades is termed the "self-fund option." Under Order No. 2003, a transmission owner or provider electing the self-fund option provides the up-front funding for the capital cost of the network upgrades and then recovers the costs of those upgrades through its rolled-in transmission rates charged to transmission customers.[79]

67. In 2009, the Commission accepted a MISO proposal to increase the cost responsibility of an interconnection customer to 100 percent of the costs of network upgrades with a possible 10 percent reimbursement for network upgrades that are 345 kV or above.[80] This approach reflects a departure from the *pro forma* LGIA interconnection pricing policy provided in Order No. 2003. In 2013, MISO proposed to allow a transmission owner to elect to initially fund network upgrades and to directly assign those costs to the interconnection customer under MISO's interconnection customer funding policy.[81] In that proceeding, the Commission accepted MISO's proposal for a transmission owner that elects to initially fund network upgrades under MISO's *pro forma* GIA to

[79] *See* Order No. 2003, FERC Stats. & Regs. ¶ 31,146 at P 676. Order No. 2003, however, allows independent entities to depart from the *pro forma* LGIA approach. *See Interstate Power and Light Co. v. ITC Midwest, LLC*, 144 FERC ¶ 61,052, at P 38 (2013).

[80] *Midwest Indep. Transmission Sys. Operator, Inc.*, 129 FERC ¶ 61,060, at P 8 (2009).

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

recover the capital costs for network upgrades through a network upgrade charge assessed to the interconnection customer.[82]

68. Recently, another transmission owner in MISO sought to unilaterally elect the self-fund option for network upgrades.[83] The Commission found that article 11.3 of MISO's *pro forma* GIA may be unjust, unreasonable, unduly discriminatory or preferential because it allows the transmission owner the discretion to elect to initially fund the upgrades and subsequently assess the interconnection customer a network upgrade charge that is not later reimbursed through the provision of credits. The Commission found that this practice could result in discriminatory treatment by the transmission owner of different interconnection customers.[84] The Commission additionally found that, by *unilaterally* electing to initially fund network upgrades for which the interconnection customer is ultimately financially responsible and does not receive credits for those costs, the affected system operator or transmission owner may deprive the interconnection customer of more favorable network upgrade financing options. For instance, the Commission found that the transmission owner's unilateral election to initially fund network upgrades may increase costs of interconnection service by assigning increased capital costs and a security requirement to

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

[83] *See Otter Tail Power Co. v. Midcontinent Indep. Sys. Operator, Inc.*, 153 FERC ¶ 61,352 (2015).

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

the interconnection customer with no corresponding increase in service.[85] As a result, the Commission directed MISO to revise article 11.3 of its GIA to require mutual agreement with the interconnection customer for the transmission owner to elect to initially fund network upgrades.[86]

b. AWEA Petition and Comments

69. In its Petition, AWEA argues that, where the Commission has granted independent entity variations that do not credit back network upgrade costs to the interconnection customer, transmission owners or providers should not have exclusive decision-making authority with respect to the self-fund option. AWEA specifically raises concerns that the self-fund option hinders competition and provides an opportunity for undue discrimination and affiliate abuse. In support, AWEA argues that the self-fund option allows transmission owners or providers to levy large upgrade costs onto the interconnection customer. AWEA requests that the Commission allow the transmission owner or provider to self-fund network upgrades only if the interconnection customer agrees.[87]

70. Some commenters oppose requiring mutual agreement for self-funding in all regions. MISO TOs view the proposal as eliminating a transmission owner's right to self-fund network upgrades, arguing that this could preclude the transmission owner from the ability

[85] *Otter Tail Power Co. v. Midcontinent Indep. Sys. Operator, Inc.*, 153 FERC ¶ 61,352 at P 9.

[86] *Midcontinent Indep. Sys. Operator, Inc.*, 151 FERC ¶ 61,220 at P 53.

[87] RENEW and Wind on the Wires support this request. RENEW 2015 Comments at 6; Wind on the Wires 2015 Comments at 3.

to earn a return on its investment.[88] ITC agrees, arguing that it is just and reasonable for transmission owners to earn a fair rate of return on constructed network upgrades.[89] EEI argues that the Commission has long permitted transmission owners to self-fund upgrades while collecting the capital costs for such upgrades, further asserting that self-funding is an important aspect of the Commission's interconnection pricing policy. EEI notes that the Commission has clarified that the self-fund option should not include the recovery of costs other than the return of and on the capital costs of the network upgrades.[90] Additionally, several commenters state that self-funding is a regional issue; thus, a generic rulemaking is not needed.[91]

c. Proposal

71. The Commission proposes to revise the *pro forma* LGIA to require mutual agreement between the interconnection customer and the transmission owner or provider for the transmission owner or provider to elect to fund the capital for network upgrades. Specifically, the Commission proposes to revise section 11.3 of the *pro forma* LGIA to include the requirements established in the *Otter Tail Proceedings*. To which, the Otter Tail

[88] MISO TOs 2015 Comments at 18.

[89] ITC 2015 Comments at 12 (citing, *e.g.*, *Ameren Energy Resource Generating Co. v. Midcontinent Indep. Sys. Operator, Inc.*, 148 FERC ¶ 61,057, at P 38 (2014)).

[90] EEI 2015 Comments at 44-45 (citing *Hoopeston*, 145 FERC ¶ 61,111 at P 42).

[91] MISO TOs 2015 Comments at 18; MISO 2015 Comments at 21.

Proceedings resulted in the changes as indicated below to article 3.2.1 of MISO's Attachment X to read:

> Transmission Owner shall provide Transmission Provider and Interconnection Customer with written notice pursuant to Article 15 that Transmission Owner elects to fund the capital for the Network Upgrades and Transmission Owner's System Protection Facilities, which election shall only be available upon mutual agreement of Interconnection Customer and Transmission Owner; otherwise, such facilities, if any, shall be solely funded by Interconnection Customer.

As such, the Commission proposes to modify the language in article 11.3 of the *pro forma* LGIA as follows:

> 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, <u>which election shall only be available upon mutual agreement of Interconnection Customer and Transmission Owner or Transmission Provider,</u> they shall be solely funded by Interconnection Customer.

72. The Commission preliminarily finds that allowing the unilateral option to self-fund to continue for any transmission owner or transmission provider may be unjust, unreasonable, unduly discriminatory, or preferential. The Commission affirmed in the *Otter Tail Proceedings* that the unilateral election to self-fund created the same condition that was of concern in *E.ON Climate & Renewables North America, LLC v. Midwest Indep. Transmission Sys. Operator, Inc.*, namely "unacceptable opportunities for undue discrimination by affording a transmission owner the discretion to increase the costs of

interconnection service by assigning both increased capital costs, as well as non-capital costs . . . to particular interconnecting generators, but not others."[92] The Commission further added that the unilateral election for the transmission owner to provide initial funding for network upgrades may deprive the interconnection customer of other options to finance the cost of the network upgrades that may provide more favorable terms and rates.[93]

73. The Commission proposes this reform to balance the interconnection customer's ability to manage the cost of interconnection with the transmission owner's or provider's desire to earn a return on any network upgrades. The Commission recognizes that interconnection customers may have internal reasons for funding their own network upgrades and that doing so may enhance the interconnection customer's ability to manage the cost of interconnection. The Commission, in addition, does not believe that requiring mutual agreement in order for the transmission provider or owner to initially fund network upgrades in regions that follow the *pro forma* LGIA crediting approach would harm the transmission provider or owner. To the extent an interconnection customer does not withhold agreement to allow the transmission owner or provider to pay the upfront cost of network upgrades, the transmission provider or owner will be able to earn a return. The Commission invites comment on benefits the interconnection customer may realize by

[92] *E.ON Climate & Renewables North America, LLC v. Midwest Indep. Transmission Sys. Operator, Inc.*, 137 FERC ¶ 61,076, at P 37 (2011), *order on reh'g*, 142 FERC ¶ 61,048, at P 21 (2013).

[93] *Midcontinent Indep. Sys. Operator, Inc.*, 151 FERC ¶ 61,220 at P 49 (citing *E.ON*, 137 FERC ¶ 61,076 at P 37).

forgoing its opportunity to fund network upgrades and thereby allowing the transmission owner or provider to initially fund the network upgrades. The Commission is similarly interested in the comments regarding the benefits an interconnection customer may realize by funding network upgrades itself. Finally, the Commission seeks further comment on whether extending the requirement for mutual agreement for the transmission owner or provider to initially fund the network upgrades would result in circumstances that could harm an interconnection customer.

74. While the concern motivating this proposed change may typically be more salient in regions where transmission credits are not provided for the costs paid by interconnection customers, there may occasionally be reasons that interconnection customers in regions where transmission credits are provided may want to require mutual agreement with the transmission owner or provider before it could self-fund. Accordingly, the Commission proposes that all transmission providers revise article 11.3 in their *pro forma* LGIA to require mutual agreement between the interconnection customer and transmission owner or provider before the transmission owner or provider can choose to self-fund, but seeks comment as to whether the proposal should apply to all regions, as proposed, or be limited to RTOs/ISOs or regions that do not provide transmission credits.

75. The Commission preliminarily disagrees with MISO TOs and ITC that requiring mutual agreement is akin to removing the option to self-fund. In regions where transmission credits are not provided, transmission owners or providers may still exercise the self-funding option, as long as there is mutual agreement between the interconnection customer and the transmission owner or provider.

76. The Commission agrees that self-funding is an important aspect of the Commission's interconnection pricing policy and that transmission owners or providers opting to self-fund in regions where transmission credits are not provided, pursuant to mutual agreement with the interconnection customer, may recover the return of and on their capital costs. Further, the Commission believes that requiring mutual agreement between the transmission owner or provider and the interconnection customer should not affect the costs recovered by the transmission owner or provider when the self-fund option is utilized.

77. As stated above, the Commission's proposal will clarify article 11.3 of the existing *pro forma* LGIA to require mutual agreement between the transmission owner or provider and interconnection customer before the transmission owner or provider may elect to initially fund network upgrades. The Commission also seeks comment on whether this proposal, if adopted, should apply to all regions as proposed or be limited to RTOs/ISOs or regions that do not provide transmission credits.

4. RTO/ISO Dispute Resolution

78. The Commission proposes that RTOs/ISOs establish interconnection dispute resolution procedures that allow a disputing party to unilaterally seek dispute resolution in RTO/ISO regions. Commenters have not raised dispute resolution procedures outside of RTO/ISO regions as an issue, so the Commission has not proposed changes to non-RTO/ISO dispute resolution procedures in this Proposed Rule. However, as discussed below, the Commission invites comments regarding the adequacy of dispute resolution processes outside of RTO/ISO regions.

a. Current Provisions and Background

79. The current interconnection dispute resolution process is described in article 13.5 of the *pro forma* LGIP. This article states that, if a dispute "arises out of or in connection with" the LGIA, LGIP, or either party's performance thereunder, a disputing party provides written notice of dispute to the other party outlining the dispute's terms.[94] If the parties have not resolved the dispute within thirty days, one party may, "upon mutual consent," submit the dispute for external arbitration procedures.[95] If the parties fail to agree upon a single arbitrator within ten days, they may each select an arbitrator, and both arbitrators will have twenty days to select a third arbitrator. Each arbitrator must be knowledgeable "in electric utility matters, including electric transmission and bulk power issues, and shall not have any current or past substantial business or financial relationships with any party to the arbitration."[96] Unless otherwise agreed, the arbitrator(s) must render a decision within ninety days, and the parties must pay their own costs and the costs of the arbitrators.[97]

[94] *Pro forma* LGIP Sec. 13.5.1.

[95] *Pro forma* LGIP Sec. 13.5.1.

[96] *Pro forma* LGIP Sec. 13.5.2.

[97] *Pro forma* LGIP Sec. 13.5.3, 13.5.4. Under section 13.5.4, each party must pay (1) the cost of the arbitrator chosen by the party to sit on the three member panel and one half of the cost of the third arbitrator chosen; or (2) one half the cost of the single arbitrator jointly chosen by the parties.

80. Some RTOs/ISOs have adopted interconnection dispute resolution procedures similar to those laid out in the *pro forma* LGIP;[98] others direct parties to their general dispute resolution procedures.[99]

b. AWEA Petition and Comments

81. Interconnection customers can have disputes with transmission owners about a number of issues, including costs, construction schedules, and the design of interconnection facilities and network upgrades.[100] Multiple renewable interconnection customers state that they consider current RTO/ISO dispute resolution procedures inadequate and argue that the filing of a complaint pursuant to FPA section 206 is not a serviceable substitute for dispute resolution because the complaint process is too expensive and time-consuming, given the time sensitivity of the interconnection process.[101] Nonetheless, commenters disagree about how to improve RTO/ISO dispute resolution procedures. EDP contends that RTOs/ISOs are

[98] ISO-NE, Transmission, Markets and Services Tariff, Section II, Schedule 22 (9.0.0), Section 13.5; NYISO, NYISO Tariffs, OATT Section 30.13 (2.0.0) (Miscellaneous); CAISO, eTariff, FERC Electric Tariff, OATT, app. DD, Section 15 (1.0.0) (Miscellaneous); SPP, OATT, Attachment V, Section 1.5 (2.0.0).

[99] MISO, FERC Electric Tariff, Attachment X (49.0.0), art. 11.5 (Disputes); *PJM Interconnection, L.L.C.*, 123 FERC ¶ 61,163, at n. 41 (2008) ("dispute resolution procedures in section 12 [PJM, Intra-PJM Tariffs, OATT, Section 12 (0.0.0)] are applicable to disputes arising regarding the interconnection process"). PJM's general dispute resolution procedures are similar to those laid out in section 13.5 of the *pro forma* LGIP.

[100] 2016 Technical Conference Tr. 131: 4-17; 133: 18-21.

[101] Invenergy 2016 Comments at 2, 3, 26; EDF 2016 Comments at 40-41; EDP 2016 Comments at 20; NextEra 2016 Comments at 9-10.

often in the best position to mediate such discussions and disputes.[102] NextEra asserts, however, that on occasion, RTOs refuse to be a party to dispute resolution and tell the parties to resolve the issues themselves.[103] Furthermore, EDP argues that there is some question about RTO/ISO independence because RTOs/ISOs "often lean on" the transmission owner for assistance in modeling or design information.[104] Similarly, EDF argues that the interconnection customer "almost always loses" because issues are judged by the RTO/ISO and fellow transmission owners and transmission providers.[105]

82. Because of its unease with RTOs/ISOs, NextEra states that the Commission is the "ideal adjudicator" of such conflicts and asks the Commission to devise an expeditious interconnection dispute adjudication process.[106] NextEra states that this process could involve more formal predictable procedures through the Commission's hotline or some other method to quickly respond to the facts presented.[107] Similarly, Invenergy and AWEA propose that each RTO/ISO establish an in-house ombudsman that can reach out to

[102] EDP 2016 Comments at 20.

[103] 2016 Technical Conference Tr. 141:11-16.

[104] EDP 2016 Comments at 20.

[105] EDF 2016 Comments at 40.

[106] NextEra 2016 Comments at 9-10.

[107] NextEra 2016 Comments at 10.

designated Commission staff to intervene as needed.[108] EDP also voices the need for an independent arbiter to assist in resolving these disputes without relying on the RTO/ISO.[109]

83. Not all commenters argue that the current available procedures are defective or that dispute resolution reform is necessary. For instance, MISO argues that parties rarely take advantage of its dispute resolution process for interconnection issues.[110] Similarly, CAISO and ISO-NE state that issues that require dispute resolution seldom arise.[111] These commenters and others consider the available dispute resolution procedures adequate.[112]

c. Proposal

84. The Commission preliminarily finds that RTO/ISO generator interconnection dispute resolution procedures may not be just and reasonable or may be unduly discriminatory or preferential. The current processes allow a disputing party to pursue a streamlined dispute resolution process only if the other party to the dispute agrees to this process. As a result, disputing parties may have little recourse. Multiple commenters have suggested that the Commission, rather than the RTO/ISO, is in the best position to resolve interconnection

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[108] Invenergy 2016 Comments at 2, 3, 26; 2016 Technical Conference Tr. 63:11-18; AWEA 2016 Comments at 38.

[109] EDP 2016 Comments at 40-41.

[110] MISO 2016 Comments at 21.

[111] 2016 Technical Conference Tr. 135: 13-15; 137: 6-9; ISO-NE 2016 Comments at 27.

[112] ISO-NE 2016 Comments at 27; NYISO 2016 Comments at 26; AVANGRID 2016 Comments at 12; MISO 2016 Comments at 21; Modesto Irrigation District at 11-12.

disputes. It is not clear whether such commenters are suggesting that the Commission adopt the dispute resolution provisions of the *pro forma* SGIP, which allow disputing parties to contact the Commission's Dispute Resolution Service to assist in either resolving a dispute or in selecting an appropriate dispute resolution venue.[113] Regardless, because RTOs/ISOs are more familiar with the details regarding their respective systems and interconnection processes, the Commission proposes to require that RTOs/ISOs serve as the neutral decision-makers to interconnection disputes. While several commenters have expressed concern about the RTOs'/ISOs' neutrality, independence of market participants was, and is, a foundational requirement of the RTOs/ISOs.[114] The Commission proposes that RTOs/ISOs provide staff member(s) or utilize subcontractor(s) to preside over such dispute resolution (e.g., as mediators or arbitrators) and that such staff member(s) or subcontractor(s) be independent of the influence of transmission owners and interconnection customers and can thus serve as neutral decision-makers. To establish this neutrality, the Commission proposes that the selected staff member(s) or subcontractor(s) shall not have any current or past substantial business or financial relationships with any party to the dispute.[115] This standard is identical to the one provided in section 13.5.2 of the *pro forma*

[113] *Pro forma* SGIP Sections 4.2.2 & 4.2.4.

[114] *See Regional Transmission Organizations*, Order No. 2000, FERC Stats. & Regs. ¶ 31,089, at PP 193-94 (1999), *order on reh'g*, Order No. 2000-A, FERC Stats. & Regs. ¶ 31,092 (2000), *aff'd sub nom. Pub. Util. Dist. No. 1 v. FERC*, 272 F.3d 607 (D.C. Cir. 2001).

[115] *See Pro Forma* LGIP Sec. 13.5.2.

LGIP. Additionally, the RTO/ISO-devised procedures must account for the time sensitivity of the generator interconnection process.

85. The Commission also proposes that RTOs/ISOs eliminate the requirement that a dispute resolution process only be available "upon the mutual agreement of the Parties."[116] While no commenter has suggested that the arbitration process embodied in section 13.5 of the *pro forma* LGIP lacks neutrality, this process is effectively unavailable to the interconnection customer if a transmission provider or a transmission owner opposes this arbitration process. The Commission also proposes that each Commission-approved RTO/ISO amend its generator interconnection procedures to provide dispute resolution procedures (e.g., mediation or arbitration) that are tailored to address interconnection process disputes.

86. The comments received regarding dispute resolution procedures only express concerns about dispute resolution within RTOs/ISOs. Accordingly, the Commission has preliminarily concluded that interconnection customers and non-RTO/ISO transmission providers are satisfied with the dispute resolution procedures outside of RTOs/ISOs. In any case, the Commission does not propose to change section 13.5 (Disputes) of the *pro forma* LGIP at this time. Additionally, at this time, the Commission does not propose to adopt procedures in the *pro forma* LGIP similar to those adopted in section 4.2 (Disputes) of the *pro forma* SGIP, which directs disputing parties to address their issues through the Commission's Dispute Resolution Service. The Commission seeks comment, however, on

[116] *Pro forma* LGIP Sec. 13.5.1.

the need for reform to generator interconnection dispute procedures outside of the RTOs/ISOs and the appropriateness of adopting procedures similar to those outlined in the *pro forma* SGIP.

87. To effectuate this proposal, the Commission proposes to revise section 35.28(g)(9) of the Code of Federal Regulations by adding the following:

> (9) *Generator Interconnection Dispute Resolution Procedures*. 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.

5. Capping Costs for Network Upgrades

a. Existing Provisions and Background

88. 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.[117] 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.[118] After

[117] *See, e.g., pro forma* LGIP Sec. 6.2 and 7.3.

[118] *Pro forma* LGIP Sec. 8.3.

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.[119]

89. In Order No. 2003-A, the Commission also clarified that the cost of network upgrades originally assigned to a higher-queued interconnection customer that has withdrawn its interconnection request could fall to a lower-queued interconnection customer, if the network upgrades are still necessary to support the interconnection of the lower-queued interconnection customer's generating facility. The Commission acknowledged that this business risk creates uncertainty for the interconnection customer. However, the Commission found that such costs shifts were just and reasonable, as the lower-queued interconnection customer would need the network upgrades to support the interconnection of its generating facility.[120]

90. The Commission has approved an independent entity variation from this Commission policy in the CAISO region.[121] CAISO caps cost responsibility for reliability and local

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

[120] Order No. 2003-A, FERC Stats. & Regs. ¶ 31,160 at P 320.

[121] *California Indep. Sys. Operator Corp.*, 124 FERC ¶ 61,292.

delivery network upgrades[122] at the lower of its Phase I and Phase II study report amounts. Transmission owners are responsible for additional reliability network upgrade and local delivery network upgrade costs beyond the cap, unless they are due to interconnection

[122] The CAISO Tariff defines the term "Reliability Network Upgrade" as:

> The transmission facilities at or beyond the Point of Interconnection identified in the Interconnection Studies as necessary to interconnect one or more Generating Facility(ies) safely and reliably to the CAISO Controlled Grid, which would not have been necessary but for the interconnection of one or more Generating Facility(ies), including Network Upgrades necessary to remedy short circuit or stability problems, or thermal overloads. Reliability Network Upgrades shall only be deemed necessary for system operating limits, occurring under any system condition, which system operating limits cannot be adequately mitigated through Congestion Management, Operating Procedures, or Special Protection Systems based on the characteristics of the Generating Facilities included in the Interconnection Studies, limitations on market models, systems, or information, or other factors specifically identified in the Interconnection Studies. Reliability Network Upgrades also include, consistent with [Western Electricity Coordinating Council] practice, the facilities necessary to mitigate any adverse impact the Generating Facility's interconnection may have on a path's [Western Electricity Coordinating Council] rating." CAISO Tariff, Appendix A, Definition—Reliability Network Upgrade.

The CAISO Tariff defines "Local Deliverability Network Upgrade" as:

> "A transmission upgrade or addition identified by the CAISO in the [Generator Interconnection and Deliverability Allocation Procedures] interconnection study process to relieve a Local Deliverability Constraint." CAISO Tariff, Appendix A, Definition—Local Delivery Network Upgrade.

customer errors or changes.[123] Transmission owners, in turn, reflect these costs in their transmission service rates, which ultimately shifts these costs onto load.[124]

b. AWEA Petition and Comments

91. In its Petition, AWEA claims that interconnection customers frequently pay costs that exceed the higher bound of a transmission provider's cost estimates and that significant excess costs can disrupt an interconnection customer's business model. AWEA asserts that it is just and reasonable to protect interconnection customers from excessive cost overruns. AWEA contends that the transmission provider should be obligated to pay the portion of any final cost beyond the estimated cost accuracy margin for interconnection studies, excluding demonstrated, extraordinary costs beyond its control. AWEA asserts that it is unjust and unreasonable to shift the consequences of a transmission provider's inaccurate cost estimates onto the interconnection customer. It argues that the transmission provider should assume such risk because it has control over the interconnection process. AWEA points to CAISO's phased study approach as an example of a cost cap mechanism that would provide more cost certainty.[125] Several commenters support AWEA's request to cap costs at the higher bound of a stated accuracy margin, absent demonstrated, extraordinary

[123] CAISO Tariff, Appendix DD, Sec. 10.

[124] 2016 Technical Conference Tr. 161: 7-23.

[125] AWEA Petition at 47-48.

circumstances beyond a transmission provider's control.[126] Six Cities supports establishing maximum cost responsibility for network upgrades but opposes a cap on interconnection facility costs, contending that interconnection customers should bear all cost responsibility for interconnection facilities.[127] CAISO states that its phased study approach, coupled with a cost cap, has helped reduce the need for restudies in its region and provided more certainty to interconnection customers earlier in the study process.[128]

92. Other commenters oppose AWEA's proposal to impose caps on interconnection cost estimates.[129] These commenters argue that this proposal would achieve little because the most significant contributors to cost overruns, such as the withdrawal of higher-queued interconnection requests and inaccurate cost estimates provided by transmission owners, are outside the transmission provider's control.[130] Additionally, commenters express concerns that implementing a cost cap will result in inappropriate cost shifts, particularly to load, that

[126] RENEW 2015 Comments at 6; Wind Coalition 2015 Comments at 3; Wind on the Wires 2015 Comments at 3.

[127] Six Cities 2015 Comments at 8.

[128] 2016 Technical Conference Tr. 83: 17-25, 84: 1-25, 85: 1-4.

[129] CMUA 2015 Comments at 4-6; EEI 2015 Comments at 23-24; KCP&L 2015 Comments at 18; MISO 2015 Comments at 20; MISO TOs 2015 Comments at 10-13; Modesto Irrigation District 2015 Comments at 7-12; NYTOs 2015 Comments at 7; PSEG 2015 Comments at 8.

[130] CMUA 2015 Comments at 5-6; MISO 2015 Comments at 20; MISO TOs 2015 Comments at 12; Modesto Irrigation District 2015 Comments at 7-8; PSEG 2015 Comments at 8.

violate traditional cost causation principles.[131] Several commenters also express concern that AWEA's proposal would be problematic in regions in which the Commission has approved cost allocation variations from the *pro forma* GIA. MISO asserts that, because CAISO is a single-state RTO, any cost overruns are ultimately shifted to load, which will eventually benefit from any generation resulting from the interconnection. MISO argues, however, that capping costs, whether in aggregate or per unit, and socializing the cost of overruns is not necessarily embraced by regulators in multistate RTOs/ISOs that require generator costs to be more specifically borne by the beneficiaries of the power from the resource.[132] ISO-NE concurs, contending that implementing a cost cap would shift costs to ratepayers that the interconnection customer should bear. That shift, argues ISO-NE, is not an option under its "but for" cost allocation design.[133]

c. Request for Comments

93. Several of the proposed reforms in this Proposed Rule seek to provide more certainty to interconnection customers during the interconnection study process, such as the proposal to schedule the frequency of restudies. As noted above, increasing certainty for interconnection customers—particularly cost certainty—may decrease the number of late-stage interconnection request withdrawals from the interconnection queue, which could meaningfully ameliorate the cycle of repeated, cascading restudies. Capping costs at a

[131] EEI 2015 Comments at 23; MISO TOs 2015 Comments at 11.

[132] MISO 2016 Comments at 2-3.

[133] ISO-NE 2016 Comments at 24.

certain variance above estimates could provide interconnection customers with business certainty useful to more efficiently develop an interconnection request. A cost cap could also discipline the study process to produce more accurate cost estimates. The Commission acknowledges, however, that a cost cap could incentivize transmission providers to overestimate network upgrade costs in order to minimize potential cost shifts.

94. The Commission also recognizes that the prospect of implementing a cost cap raises difficult issues. Several RTO/ISO regions have reached consensus on cost allocation policies under the independent entity variation that differ from the pricing policy laid out in Order No. 2003. These cost allocation policies, in turn, have become embedded in these RTO/ISO regions and have supported other cost allocation strategies, which are not easily disturbed. Implementing a cost cap would diverge from the Commission's "but for" cost allocation policy with respect to network upgrades because it would reallocate costs that would not have been necessary but for a particular interconnection request. The Commission appreciates insights into balancing the benefits of increasing cost certainty to interconnection customers against the potential drawbacks of shifting costs to other parties, particularly load.

95. The Commission seeks comment on whether it should revise the *pro forma* LGIP and 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. The cost cap could also specify which party or parties would assume network upgrade costs in excess of the cap. The Commission seeks comment on how to minimize potential cost shifts to other parties if such a cost cap is imposed. The Commission also seeks comments on alternative proposals, or additional steps that the Commission could take, to provide more cost certainty to interconnection customers during the interconnection study process.

B. Promoting More Informed Interconnection

96. The five reforms in this section would improve transparency regarding the interconnection process and provide improved information to the benefit of all participants in the interconnection process. These benefits have the potential to lead to efficiencies in the development process and a reduction in participation disagreements or uncertainty. Additionally, these reforms may address aspects of the interconnection process that may not be just and reasonable or that may be unduly discriminatory or preferential. In addition to the proposed reforms, the Commission seeks 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

97. The Commission proposes to revise the *pro forma* LGIP to require transmission providers to detail the method they use to determine contingent facilities. The Commission proposes to define contingent facilities as those unbuilt interconnection facilities and network upgrades upon which the interconnection request's costs, timing, and study

findings are dependent, and if not built, could cause a need for restudies of the interconnection request or a reassessment of network upgrades and/or costs and timing.

a. Existing Provisions

98. The Commission currently requires transmission providers to identify for interconnection customers contingencies potentially affecting interconnection studies[134] and list applicable contingent facilities in interconnection agreements.[135]

b. AWEA Petition and Comments

99. In its Petition, AWEA asserts that interconnection customers rely on the detailed list of contingent facilities that are listed in studies and their interconnection agreements in order to assess future risk.[136] AWEA states that transmission providers are not consistently providing full and accurate lists of contingent facilities within interconnection studies and interconnection agreements. Moreover, AWEA asserts that transmission providers and transmission owners may add more contingent facilities after the interconnection agreement has been signed or filed with the Commission.[137] AWEA also states that some, but not all, LGIPs or related business practices manuals acknowledge the need to study contingent

[134] *Pro forma* LGIP Section 2.3.

[135] 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").

[136] Petition at 25-26.

[137] Petition at 26.

facilities. AWEA asserts that there is often neither a clear definition of contingent facilities in LGIPs or in business practice manuals, nor an affirmative obligation in the LGIPs to apprise the interconnection customer of such contingencies in the facilities study and interconnection agreement. AWEA further asserts that in some cases, the appendices to an interconnection agreement may contain a long list of contingencies, including higher-queued generators throughout the RTO and numerous transmission upgrades; however, no showing has been made regarding whether these interconnection requests and facilities will impact a particular interconnection request.[138] AWEA supports MISO's practice of listing, in the interconnection agreement, contingent facilities that have a five percent or greater distribution factor impact on an interconnection request. AWEA notes that this practice has resulted in a reduction in the number of contingent facilities listed in interconnection agreements by focusing on those that are electrically-impacted by the proposed interconnection request.[139] In particular, AWEA states that MISO's five percent threshold has resulted in an 85 percent reduction in contingent facilities listed in interconnection agreements.[140]

100. Several commenters assert that there is little clarity on how a transmission provider identifies contingent facilities and request that the Commission require transmission

[138] Petition at 27.

[139] Petition at 27.

[140] Petition at 27.

providers to specify the method they use to identify contingent facilities.[141] Invenergy states that the number of contingent facilities can change dramatically from the system impact study phase to the interconnection agreement phase, which can result in disputes between stakeholders regarding the study assumptions that resulted in addition or removal of certain contingent facilities from the list.[142] NextEra encourages the Commission to identify additional best practices that can be implemented in all regions.[143]

101. Some commenters note the potential difficulties in creating a generic methodology for determining the list of contingent facilities or note that a generic methodology may not be applicable to a given region. For example, EEI asserts that providing additional information, in line with MISO's five percent threshold, may increase the time and cost for preparing interconnection studies, cautioning that the five percent threshold might not work outside of MISO.[144] Indicated NYTOs note that developing a contingent facilities method is not applicable to NYISO because of NYISO's Class Year Study process.[145] MISO states that it is currently reviewing "how to identify the network upgrades [that] a generation

[141] EDF 2016 Comments at 38-39; AWEA 2016 Comments at 36-37; Invenergy 2016 Comments at 23-24; NextEra 2015 Comments at 7.

[142] Invenergy 2016 Comments at 23-24.

[143] NextEra 2015 Comments at 7.

[144] EEI 2015 Comments at 25.

[145] Indicated NYTOs 2015 Comments at 4.

interconnection would be contingent upon."[146] ISO-NE states that contingent facilities are identified in the system impact study and are memorialized in the interconnection agreement, and the interconnection customer learns about these contingent facilities through the study of its interconnection request.[147]

c. Proposal

102. As noted above, the Commission requires transmission providers to list applicable contingent facilities in interconnection agreements.[148] However, the existing requirements do not specify how transmission providers should determine the list of contingent facilities, and this omission could result in uncertainty for interconnection customers. The Commission preliminarily finds that some practices with regard to these contingent facilities may not be just and reasonable or may be unduly discriminatory or preferential. Therefore, the method for determining contingent facilities must be described in *pro forma* LGIPs, rather than the business practices manuals.

103. The Commission proposes to require transmission providers to detail in the *pro forma* LGIP the method that transmission providers will use to determine the list of contingent facilities in evaluating an interconnection request. The Commission proposes that the transmission provider's method be transparent and sufficiently detailed to determine why a specific contingent facility was included on the list and how it impacts the

[146] MISO 2016 Comments at 19.

[147] ISO-NE 2016 Comments at 26.

[148] Order No. 2003, FERC Stats. & Regs. ¶ 31,146 at P 409.

interconnection request. The Commission also proposes for transmission providers to provide the list of contingent facilities to interconnection customers at the conclusion of the system impact study.

104. The transmission provider should also 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 not commercially sensitive. The Commission believes that such information will inform the interconnection customer about the potential impacts of a contingent facility on an interconnection request.

105. The Commission is considering whether the method for determining contingent facilities used by transmission providers should be harmonized among regions as much as possible. To this end, the Commission seeks comment on how transmission providers currently identify contingent facilities and what improvements to the existing approach(es) would be recommended by interconnection customers or others to determine whether there are identifiable best practices. The Commission also seeks comment on how the process for identifying contingent facilities could be standardized. For example, the Commission seeks 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 5 percent distribution factor as referenced by AWEA). The Commission also seeks comment on whether there are alternative methodologies besides a distribution factor analysis that could

be used to identify contingent facilities, and that may be better suited for standardization across transmission providers and included in the *pro forma* LGIP.

106. The Commission proposes to add the following new definition to Section 1 of the *pro forma* LGIP:

> **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 restudies of the interconnection request or a reassessment of the network upgrades and/or costs and timing.

107. The Commission proposes to add a new section 3.8 to the *pro forma* LGIP:

> **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.

108. The Commission seeks comment on the proposed reforms to the *pro forma* LGIP for transmission providers to include a method to identify contingent facilities and to provide the list of contingent facilities to interconnection customers at the conclusion of the system impact study. The Commission also seeks comment on whether estimates of the costs and timing of higher-queued contingent facilities are helpful to the interconnection customer and can be provided to the interconnection customer without disclosing commercially sensitive information.

2. Transparency Regarding Study Models and Assumptions

109. As discussed in the previous section, increasing the transparency of the network models and underlying assumptions used for interconnection studies, including shift factors and dispatch information, is a key improvement that could be made to the interconnection process. To increase transparency with regard to the interconnection study processes for interconnection customers and to ensure consistency in the analysis of interconnection requests, the Commission proposes a general requirement that transmission providers list all the network models and underlying assumptions used for interconnection studies in their *pro forma* LGIPs and on their OASIS sites. The Commission believes this information will benefit both interconnection customers in the queue as well as those developing interconnection requests by potentially helping them avoid entering the queue with non-viable interconnection requests. The Commission also proposes that transmission providers include non-confidential supporting data on OASIS.

a. Existing Provisions and Background

110. Section 2.3 of the *pro forma* LGIP requires the transmission provider to provide base power flow, short circuit, and stability databases, including all underlying assumptions, and a contingency list upon request, subject to confidentiality provisions in section 13.1 of the *pro forma* LGIP. A transmission provider may require that an interconnection customer sign a confidentiality agreement before the release of commercially sensitive information or Critical Energy Infrastructure Information (CEII) in the base case data.[149]

[149] *Pro forma* LGIP Sec. 2.3.

111. In Attachment A to the individual interconnection study agreements in the *pro forma* LGIP, the interconnection customer and the transmission provider list the assumptions under which the individual studies are to be performed. However, the general assumptions used to form the network models are not universally listed or posted for interconnection customers to examine prior to entering the queue.

112. While some regions allow their network models to be accessed prior to an interconnection customer submitting an interconnection request in order to facilitate development decisions, such access is not consistent across regions. At times, information that would be relevant for prospective interconnection customers to plan interconnection requests is contained within business practice manuals and may not be consolidated in one location or easily found.

b. AWEA Petition and Comments

113. It its Petition, AWEA claims that the study processes and assumptions for forming network models used in interconnection studies are not always transparent. AWEA claims that some transmission providers inconsistently apply certain assumptions, such as shift factors, which can lead to vastly different study results for similar interconnection requests participating in the same market.[150] In its post-technical conference comments about the use of non-disclosure agreements to facilitate the study process, AWEA contends that, once a non-disclosure agreement is provided by the interconnection customer, the transmission

[150] AWEA Petition at 33-35.

provider or transmission owner should not deny or delay providing models or other requested information.[151]

114. Several commenters, such as Wind on the Wires, agree with AWEA that further transparency is necessary with respect to interconnection studies and study assumptions.[152] Additionally, the Wind Coalition asserts that transmission providers should make clear to all stakeholders how they model interconnections.[153] EDF states that study assumptions have a direct effect on generator interconnection study results that determine available capacity and whether network upgrades are necessary to accommodate the level of requested interconnection service. According to EDF, a key study assumption is generation dispatch, i.e., the assumed levels of dispatch during peak and off-peak periods assigned to an interconnection request. EDF claims that it has seen significant variation in study assumptions from RTO to RTO and also within an RTO.[154] EDF also states that interconnection customers need access to models before deciding to enter the interconnection queue and that these models need to take into account up-to-date power flow data.[155]

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[151] AWEA 2016 Comments at 32.

[152] Wind on the Wires 2015 Comments at 3.

[153] Wind Coalition 2015 Comments at 2.

[154] EDF 2015 Comments at 21-23.

[155] EDF 2016 Comments at 31.

115. Some commenters do not think it is appropriate for the Commission to require transmission providers to be more transparent about interconnection study assumptions. ISO-NE states that it already provides extensive information about assumptions underlying its interconnection studies.[156] TVA contends that transmission providers may be able to provide more detailed information regarding study process practices, inputs, and results, but certain information cannot be made public and can be provided to customers only under a non-disclosure agreement.[157]

116. While some transmission providers might already provide sufficient information regarding their study assumptions, some commenters do not consider all transmission providers to be sufficiently transparent in this regard.[158]

c. Proposal

117. The Commission believes that stakeholders benefit from increased transparency. The Commission preliminarily finds that clear network model assumptions, made available early in the interconnection process, will provide interconnection customers with data that will allow them to better plan interconnection requests and lead to a more efficient interconnection process. Additionally, the Commission preliminarily finds that interconnection customers' ability to obtain study assumptions will reduce the need for protracted study discussions.

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[156] ISO-NE 2015 Comments at 44.

[157] TVA 2015 Comments at 8.

[158] *See, e.g.*, EDF 2015 Comments at 21-23; Wind Coalition 2015 Comments at 2.

118. The Commission proposes to require transmission providers to make more transparent the assumptions underlying the network models used in conducting interconnection studies. The Commission proposes that transmission providers detail the network model assumptions used during the feasibility study in Attachment A to Appendix 2 of the *pro forma* LGIP. The Commission also proposes that transmission providers detail the network model assumptions used during the system impact study in Attachment A to Appendix 3 of the *pro forma* LGIP.

119. Additionally, because interconnection customers would benefit from an understanding of network models and their underlying assumptions before submitting interconnection requests, the Commission proposes that transmission providers be required to provide network model details on their OASIS sites, including, but not limited to, shift factors, dispatch assumptions, load power factors, and power flows. The Commission proposes modifying section 2.3 of the *pro forma* LGIP:

> 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.

120. The Commission seeks comment on whether there are other specific network model details and underlying assumptions that transmission providers should post on their OASIS

site and should describe in the *pro forma* LGIP. The Commission seeks 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.

121. The Commission appreciates that transmission providers have confidentiality and data security concerns associated with providing certain information and system access, e.g., business sensitive information and cybersecurity-related information. However, the Commission believes there are likely safeguards that can be put in place to satisfactorily address these concerns. The Commission seeks comment on any confidentiality or security concerns regarding the posting of specific model assumptions on OASIS or describing them in the *pro forma* LGIP. Commenters should also specify any data elements that should be subject to confidentiality or non-disclosure agreements.

3. Congestion and Curtailment Information

122. The Commission proposes to require transmission providers to post congestion and curtailment information and seeks comment regarding the location of such posting and the level of disaggregation (or granularity) of the information posted. This information can be particularly important for interconnection customers that are considering Energy Resource Interconnection Service (ERIS),[159] as the interconnection customer may interconnect to the

[159] 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

(continued…)

transmission system and be eligible to deliver its output using the existing firm or non-firm capacity of that transmission system on an "as available" basis.[160] An important consideration for such a customer is the degree to which the customer will be curtailed. Historic congestion and curtailment information can inform the interconnection customer's assessment. This information could also be relevant for any interconnection customer in determining where on the system to request interconnection. For instance, knowledge that a particular location experiences frequent congestion or curtailment may suggest that any "as-available" service at such a location will likely be frequently unavailable or may require extensive network upgrades to enable interconnection.

a. Existing Provisions and Background

123. Currently, transmission providers are not required to provide consistent and transparent congestion information to interconnection customers. The level of disaggregation and availability of this data varies per transmission provider. Additionally, how and where this data is posted may be inconsistent from transmission provider to transmission provider.

b. AWEA Petition and Comments

124. In its Petition, AWEA asserts that interconnection studies do not provide system information showing the extent of potential curtailments. AWEA argues that

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Provider's Transmission System on an as available basis. Energy Resource Interconnection Service in and of itself does not convey transmission service. *See* Standard Large Generator Interconnection Procedures, Section 1, Definitions.

[160] Order No. 2003, FERC Stats. & Regs. ¶ 31,146 at PP 752–753.

interconnection customers cannot make informed business decisions regarding the financial viability of their interconnection requests and cannot accurately assess the extent of energy deliverability unless they have a reasonable expectation of their curtailment risk. AWEA requests that the Commission require transmission providers to provide curtailment risk information on their websites and in interconnection studies. AWEA contends that requiring transmission providers to provide curtailment information on a monthly basis, as well as provide more detailed information on all interfaces, including local interfaces, could improve the deliverability of energy from new generation and improve interconnection customers' ability to optimally site generating facilities.[161]

125. Several commenters concur with AWEA that more information on curtailment and congestion provided by transmission providers would benefit interconnection customers. NRG asserts that accurate reporting of congestion and curtailment information, and having access to congestion and operational data, could play a crucial role in siting generating facilities and lowering the amount of required network upgrades needed to interconnect.[162] E.ON contends that transmission providers have the tools to determine the extent to which historical congestion on local transmission elements may impact an interconnection request, but they do not share this information with interconnection customers.[163]

[161] Petition at 40.

[162] NRG 2015 Comments at 4-5.

[163] E.ON 2016 Comments at 11.

126. Several commenters make specific suggestions on the types of information they would like transmission providers to share.[164] For example, AWEA requests that the Commission require that transmission providers post, on a monthly basis, information on congested transmission facilities and interfaces covering the previous three years, including flow duration curves, the number of hours of curtailments due to congestion on those facilities and interfaces, and the cause(s) of congestion. AWEA also requests that the Commission require transmission providers to include, in interconnection studies, information on existing usage and congestion on the transmission facilities that are electrically significant to the interconnection request based on system conditions known at the time.[165]

127. ISO-NE and MISO argue that their processes to share curtailment and congestion data are sufficient.[166] ISO-NE notes that it frequently informs stakeholders of areas where curtailment is likely to occur, and MISO states that it posts real-time information on constraints. MISO argues that interconnection customers can hire consultants to investigate curtailment risks, rather than requiring RTOs/ISOs to do this research for them.[167] ISO-NE

[164] EDF 2016 Comments at 3; E.ON 2016 Comments at 11.

[165] Petition at 43–44.

[166] MISO 2015 Comments at 17-18. MISO states that it does post in real-time information on constraints according to its Business Practice Manuals. ISO-NE states that assumptions underlying planning are already shared according to its Planning Procedures and Planning Guides, and base case data can be requested according to section 2.3 of Schedule 22 of its LGIP.

[167] MISO 2015 Comments at 17-18.

also argues that system impact studies are discrete testing programs and cannot capture the full range of real-time load and outages. MISO and EEI argue that AWEA's request for more curtailment information would result in administrative burden and further queue delays. Additionally, ISO-NE asserts that AWEA inaccurately implies that ISO-NE's minimum interconnection service grants new generators rights to avoid curtailment risks,[168] arguing that all interconnection customer of new assets face curtailment risk stemming from a competitive market design. Similarly, MISO TOs interpret AWEA's request as a complaint about the lack of certainty associated with ERIS, which by definition is an as-available service.[169] They argue that a customer with ERIS assumes the risk of potentially intermittent service and could choose to pay for Network Resource Interconnection Service (NRIS).[170] Six Cities argues that interconnection customers may misinterpret information on expected congestion as a commitment to future availability of service when interconnecting under ERIS or Energy-Only Deliverability Status procedures.[171]

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[168] ISO-NE 2015 Comments at 46.

[169] MISO TOs 2015 Comments at 16 (citing Order No. 2003, FERC Stats. & Regs. ¶ 31,146 at P 752; *pro forma* LGIA at Art. 1 (definition of ERIS) and Sec. 4.1.1; MISO, FERC Electric Tariff, Attachment X, Sec. 3.2.1.1 (49.0.0)).

[170] If an interconnection customer chooses NRIS, Order No. 2003 requires the transmission provider to conduct interconnection studies similar to how the transmission provider would integrate its own generators to serve load. This approach assumes a portion of the capacity of existing network resources is displaced by the output of the facility seeking to interconnect. Order No. 2003, FERC Stats. & Regs. ¶ 31,146 at PP 754-55.

[171] Six Cities 2015 Comments at 4.

c. Proposal

128. The Commission preliminarily finds that improving access to congestion and curtailment data may allow interconnection customers to more accurately assess curtailment risks at different locations on the system. As a result, interconnection customers may be better able to assess the value of requesting ERIS relative to NRIS and may be better able to choose where to site their generating facilities. Such better informed decision-making could result in a more efficient use of the transmission system. In addition, improving access to congestion and curtailment data could mitigate the risk of interconnection customers exiting at later stages of the interconnection process, thereby reducing the need for restudies, given that interconnection customers would be better informed on grid conditions through more transparent access to congestion and curtailment data. The Commission proposes revising section 37.6 of its regulations to require that transmission providers post congestion information and curtailment information in one location on their OASIS sites so that interconnection customers can more easily assess information that may aid in their decision-making. The Commission also seeks comment on whether there is congestion and curtailment information that is specific to an interconnection request and whether transmission providers should be required to provide this information to interconnection customers through the interconnection study process.

129. Improving access to curtailment and congestion data could reduce uncertainties associated with as-available service, as well as better inform interconnection customers of the risks surrounding as-available transmission service. With regard to whether interconnection customers may misinterpret information and make assumptions about the

availability of service, the Commission finds that this is a reasonable risk of doing business, and it is the interconnection customers' responsibility to make certain decisions based on the best data available.

130. In addition, the Commission proposes to require transmission providers to post disaggregated, or more granular (e.g., hourly and locational data), congestion and curtailment information that is more specific than the information currently provided by some transmission providers.[172] The Commission proposes that the transmission provider must post on OASIS information on 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. The Commission proposes that this data shall be posted on a monthly basis by the 15th day of the following month in one location on the OASIS, and maintained for a minimum of three years. This proposed reform aims to increase transparency regarding congestion and curtailment risks at various points in the transmission system that could help interconnection customers identify

[172] AWEA requests that the Commission require that transmission providers post, on a monthly basis, information on congested transmission facilities and interfaces covering the previous three years, including flow duration curves, the number of hours of curtailments due to congestion on those facilities and interfaces, and the cause(s) of congestion. AWEA also requests that the Commission require transmission providers to include, in interconnection studies, information on existing usage and congestion on the transmission facilities that are electrically significant to the interconnection request based on system conditions known at the time. Petition at 43-44.

interconnection locations in less congested areas. To effectuate this proposal, the Commission proposes to revise section 37.6 of the Code of Federal Regulations to add new section (l) as follows:

> (l) *Posting of congestion and curtailment data.* 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.

131. The Commission seeks comments 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. The Commission further seeks comment on the value to interconnection customers of requiring transmission providers to post on OASIS flow duration curves on the major transmission interfaces, based on hourly flow data. The Commission also seeks comment on whether there is detailed, interconnection request-specific congestion and curtailment information that would be more appropriately provided to the interconnection customer through the interconnection study process (e.g., at the scoping meeting).

132. With regard to the sharing of more detailed congestion and curtailment data, several parties raise concerns that this level of detail could expose market sensitive information, such as CEII data, and give interconnection customers a market advantage over other market

participants.[173] The Commission does not find these arguments credible. The Commission believes that the posting of more detailed congestion and curtailment data will not give undue advantage to interconnection customers over other market participants, as all market participants will have access to this data, and none of the data should include proprietary marginal costs. With regard to concerns that the provision of congestion and curtailment information unnecessarily burdens transmission providers, the Commission notes that the proposal merely requires the posting of congestion and curtailment information in one location on OASIS, which should improve interconnection customers' ability to conduct their own research on which to base their decisions. The Commission seeks comments on the level of detail appropriate for congestion and curtailment information, the frequency of reporting, the length of time reported data should cover, and whether there is interconnection-request-specific congestion and curtailment information that could be provided to interconnection customers as part of the interconnection study process.

133. The Commission seeks comment on further changes to Section 3.3.4 of the LGIP requiring transmission providers and/or transmission owners to provide curtailment and congestion information at the scoping meeting between the transmission provider, transmission owner, and interconnection customer. For example, the Commission could revise Section 3.3.4 of the LGIP to read:

> 3.3.4 Scoping Meeting. Within ten (10) Business Days after receipt of a valid Interconnection Request, Transmission Provider shall establish a date agreeable to Interconnection Customer for the Scoping Meeting, and such date shall be no later

[173] EEI 2015 Comments at 38-39; MISO 2015 Comments at 18.

than thirty (30) Calendar Days from receipt of the valid Interconnection Request, unless otherwise mutually agreed upon by the Parties. The purpose of the Scoping Meeting shall be to discuss alternative interconnection options, to exchange information including any transmission data, including any curtailment and/or congestion information, that would reasonably be expected to impact such interconnection options, to analyze such information and to determine the potential feasible Points of Interconnection. Transmission Provider and Interconnection Customer will bring to the meeting such technical data, including, but not limited to: (i) general facility loadings, (ii) general instability issues, (iii) general short circuit issues, (iv) general voltage issues, and (v) general reliability issues as may be reasonably required to accomplish the purpose of the meeting. Transmission Provider and Interconnection Customer will also bring to the meeting personnel and other resources as may be reasonably required to accomplish the purpose of the meeting in the time allocated for the meeting. On the basis of the meeting, Interconnection Customer shall designate its Point of Interconnection, pursuant to Section 6.1, and one or more available alternative Point(s) of Interconnection. The duration of the meeting shall be sufficient to accomplish its purpose.

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

134. The Commission proposes to revise the definition of a "Generating Facility" in the *pro forma* LGIP/LGIA to include electric storage resources.

a. Existing Provisions and Background

135. While the Commission includes electric storage resources in the definition of a generating facility in the *pro forma* SGIP/SGIA,[174] the Commission has not explicitly set forth a similar definition in the *pro forma* LGIP/LGIA. Although some transmission providers have extended the clarification for electric storage resources to large generating facilities, doing so consistently may ensure that all transmission providers have

[174] *Small Generator Interconnection Agreement and Procedures*, 78 FR 73,240 (Nov. 22, 2013), Order No. 792, 145 FERC ¶ 61,159 at P 227, *clarifying*, Order 792-A, 146 FERC ¶ 61,214 (2014).

interconnection procedures and agreements that are applicable to FERC-jurisdictional electric storage resources, regardless of size.

b. Proposal

136. The Commission preliminarily finds that the failure to include electric storage resources in the definition of "Generating Facility" in the *pro forma* LGIA/LGIP may pose a barrier to the development of large electric storage resources, which may not be just and reasonable or may be unduly discriminatory or preferential. In Order No. 792, the Commission revised the definition of "Small Generating Facility" in the *pro forma* SGIP/SGIA to: "[t]he 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."[175]

137. Given the existing precedent for small generators, the inconsistency between the *pro forma* definitions of small generating facilities and large generating facilities, and the potential that development of electric storage resources larger than 20 MW will increase,[176] the Commission proposes a conforming change to the definition of "Generating Facility" in the *pro forma* LGIP/LGIA.

[175] Order No. 792, 145 FERC ¶ 61,159 at P 228 (emphasis in original).

[176] Slaughter, Andrew, "Electricity Storage Technologies, impacts, and prospects," Deloitte Center for Energy Solutions, 2015 at 7; https://www2.deloitte.com/content/dam/Deloitte/us/Documents/energy-resources/us-er-electric-storage-paper.pdf.

138. In consideration of the foregoing, the Commission proposes to amend the definition of Generating Facility in the *pro forma* LGIP/LGIA to:

> **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.

139. This revised definition is also reflected in the proposed revisions to section 1 of the *pro forma* LGIP and the proposed revisions to article 1 of the *pro forma* LGIA.

5. Interconnection Study Deadlines

140. The Commission proposes that transmission providers report on their completion of interconnection studies within established timeframes, in order to improve transparency and to provide greater insight into the causes of processing delays.

a. Existing Provisions and Background

141. Currently in the *pro forma* LGIP, transmission providers must use "Reasonable Efforts"[177] to complete feasibility studies in 45 days, system impact studies in 90 days, and the facility studies within 90 or 180 days.[178] While independent entities may propose variations to these study completion timeframes, they must use reasonable efforts to complete interconnection studies within such timeframes. The Commission currently

[177] As noted above, 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 Sec. 1 (Definitions).

[178] *Pro forma* LGIP at Sec. 6.3, 7.4, and 8.3.

requires transmission providers to post information about transmission service request processing time on the transmission providers OASIS[179] and assesses penalties to transmission providers that complete too many transmission service request studies outside of the study completion timeframes. Transmission providers are able to explain extenuating circumstances in a filing with the Commission to avoid such penalties.

b. AWEA Petition and Comments

142. In its Petition, AWEA voices concern about the nature of study delays and requests elimination of the reasonable effort standard and instituting firm deadlines to give some certainty to the process.[180] Some commenters disagree about AWEA's proposal to remove the reasonable efforts standard from established timeframes to require that transmission providers meet firm deadlines. Several commenters contend that AWEA does not account for the various factors that impact the interconnection study and restudy processes.[181] NYISO states that the performance of interconnection studies requires the active participation and input of multiple parties, including the provision of extensive information and technical data by interconnection customers. NYISO and Indicated NYTOs assert that flexibility in performing interconnection studies is necessary.[182] Similarly, TVA contends

[179] *See* 18 CFR 37.6 (h) (2016).

[180] Petition at 17.

[181] Avista 2015 Comments at 3; EEI 2015 Comments at 21; KCP&L 2015 Comments at 10; NYISO 2015 Comments at 20-21; TVA 2015 Comments at 2.

[182] NYISO 2015 Comments at 21 and Indicated NYTOs 2015 Comments at 6.

that the lack of uniformity in generator interconnection requests does not allow a transmission provider to follow an inflexible, standardized study schedule. TVA argues that differences in size and location of proposed generators result in significant variability in the studies' complexity and the required analysis time, asserting that the process is not entirely within a transmission provider's control.[183] Additionally, some commenters argue that restudy delays are often due to the actions or inactions of the interconnection customer.[184]

143. TVA asserts that if a transmission provider must always meet a fixed study schedule, it would have to either maintain a larger analytical staff that would frequently be idle when there are few interconnection requests or would have to increasingly rely on contractors to conduct studies.[185] KCP&L states that interconnection customers would ultimately pay the additional costs for increased staffing and resources needed to meet firm study deadlines.[186] KCP&L argues that there are costs to faster processing of interconnection requests, costs which are most likely, and appropriately, recovered in higher study fees – fees that AWEA criticizes and seeks to cap.[187] TVA contends that allowing greater flexibility in study

[183] TVA 2015 Comments at 2.

[184] Avista 2015 Comments at 3; KCP&L 2015 Comments at 10; NYISO 2015 Comments at 21; PSEG 2015 Comments at 9; TVA 2015 Comments at 3.

[185] TVA 2015 Comments at 2, 3.

[186] KCP&L Comments at 10 (citing Order No. 2003-B, FERC Stats. & Regs. ¶ 31,171 at P 2).

[187] KCP&L 2015 Comments at 8-9.

completion time allows the transmission provider to balance the legitimate timing needs of generation developers with the costs to load.[188]

144. Several parties with experience as interconnection customers with renewable generating facilities support efforts to provide interconnection study requests and restudy results by the dates listed in the generator interconnection procedures.[189] Sustainable FERC contends that the ability to accurately and timely complete interconnection studies pursuant to interconnections requests is within transmission providers' control but that these delays chiefly affect interconnection customers even though interconnection customers have no control over the process.[190] NRG asserts that the uncertainty created by sliding study dates causes significant risk to interconnection customers, which is, in turn, passed through to all purchasers of renewable power in the form of higher risk premiums.[191]

145. Similarly, RENEW argues that the current interconnection process, which it believes contains embedded unjust, unreasonable, and unduly discriminatory delays, imposes barriers to the development of new generation sources.[192] In addition, Interwest Energy Alliance contends that for renewable energy generators in the West, some interconnection processes

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[188] TVA 2015 Comments at 2, 3.

[189] NRG Companies 2015 Comments at 3; RENEW 2015 Comments at 4; Sustainable FERC 2015 Comments at 2; Wind Coalition 2015 Comments at 2; Wind on the Wires 2015 Comments at 2.

[190] Sustainable FERC 2015 Comments at 2.

[191] NRG 2015 Comments at 3.

[192] RENEW 2015 Comments at 3.

have imposed delays and unduly discriminatory costs that resulted in "increased potential for missed deadlines and disqualification when submitting bids in response to requests for proposals in competitive procurements."[193]

c. Proposal

146. The Commission has expressed concerns about interconnection queue delays in other proceedings.[194] In the 2008 Order, the Commission required all RTOs/ISOs to file an interconnection queue status report at the Commission and, as a condition of approving requested queue reforms, required RTOs/ISOs to file periodic queue status updates at the Commission for a period of time.[195]

147. Although the Commission has approved queue reforms to attempt to streamline the interconnection process, there are still delays associated with the interconnection process. Some commenters have asked the Commission to require transmission providers to complete interconnection connection studies within the *pro forma* LGIP time frames rather than simply require the transmission providers to make reasonable efforts to do so. The Commission believes that transmission providers should continue to have flexibility in

[193] Interwest 2015 Comments at 2.

[194] *See, e.g.*, 2008 Order, 122 FERC ¶ 61,252 at PP 4-6.

[195] *See, e.g.*, *Midwest Indep. Transmission Sys. Operator, Inc*., 124 FERC ¶ 61,183 at P 164 (directing MISO to file annual updates on interconnection queue metrics and queue improvement efforts from 2009 – 2011); *California Indep. Sys. Operator Corp.*, 124 FERC ¶ 61,292 at PP 199-200 (directing CAISO to file quarterly reports on the interconnection including the number of interconnection requests received, studies conducted and the reasons for missing study deadlines).

completing interconnection studies, but is nonetheless concerned that delays in the interconnection process continue. At times, it is not clear to interconnection customers why and where queue delays are occurring, and the underlying causes of queue delays are not always agreed upon by interconnection customers and transmission providers. Providing greater transparency by identifying the geographical locations where these delays are occurring and the causes of these delays would benefit stakeholders.

148. The Commission proposes to require that transmission providers post summary statistics related to processing interconnection studies, pursuant to interconnection service requests, on their OASIS sites on a quarterly basis. This proposal is analogous to the requirement we established in Order No. 890 that transmission providers post information on processing of transmission service request studies within the best efforts timeframes.[196] The Commission proposes to require that a transmission provider that has more than 25 percent of any study type exceeding study deadlines for interconnection requests for two consecutive quarters must file informational reports at the Commission for the next four calendar quarters. For example, if a transmission provider had 35 percent of its interconnection feasibility studies exceeding study deadlines one calendar quarter and 40 percent of them exceeding study deadlines the next calendar quarter, the transmission provider would have to file reports to the Commission for the following four calendar quarters describing the reason for each study (or group of clustered studies) delay and post on OASIS the total number of employee or consultant hours devoted to processing studies

[196] *See* 18 CFR 37.6(h) (2016).

that quarter. The transmission provider must continue to file these reports for four consecutive quarters. 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. For example, if a transmission provider had more than 25 percent of its interconnection feasibility studies exceeding study deadlines every calendar quarter in Year 1, it must begin reporting to the Commission in the third quarter of Year 1 and must continue reporting until at least the fourth quarter of Year 2.

149. To this end, the Commission proposes to modify section 3.4 of the *pro forma* LGIP[197] as follows (*proposing to delete italicized text*):

> ***3.4*** **3.5.1 OASIS Posting.**
>
> **3.5.2** The Transmission Provider will maintain on its OASIS summary statistics related to processing Interconnection Studies pursuant to Interconnection Requests, updated quarterly. For each calendar quarter, Transmission Providers must calculate and post the information detailed in sections 3.5.2.1 through 3.5.2.4.
>
> **3.5.2.1** Interconnection Feasibility Studies processing time. (A) Number of Interconnection Requests that had Interconnection Feasibility Studies completed within the Transmission Provider's coordinated region during the reporting quarter, (B) Number of Interconnection Requests that had Interconnection Feasibility Studies completed within the Transmission

[197] In the "Utilization of Surplus Interconnection Service" section, the Commission proposes revisions to the *pro forma* LGIP that result in renumbering of several existing sections. One section that the Commission proposes 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.

Provider's coordinated region during the reporting quarter that were completed more than [timeline as listed in the Transmission Provider's LGIP] after receipt by the Transmission Provider of the Interconnection Customer's executed Interconnection Feasibility Study Agreement, (C) At the end of the reporting quarter, the number of active valid Interconnection Requests with ongoing incomplete Interconnection Feasibility Studies where such Interconnection Requests had executed Interconnection Feasibility Study Agreements received by the Transmission Provider more than [timeline as listed in the Transmission Provider's LGIP] before the reporting quarter end, (D) Mean time (in days), Interconnection Feasibility Studies completed within the Transmission Provider's coordinated region during the reporting quarter, from the date when the Transmission Provider received the executed the Interconnection Feasibility Study Agreement to the date when the Transmission Provider provided the completed Interconnection Feasibility Study to the Interconnection Customer, (E) Percentage of Interconnection Feasibility Studies exceeding [timeline as listed in the Transmission Provider's LGIP] to complete this reporting period, calculated as 1 – (the sum of 3.5.2.2(A) minus 3.5.2.2(B) and dividing that amount by the sum of 3.5.2.2(A) plus 3.5.2.2(C)).

3.5.2.2 Interconnection System Impact Studies processing time. (A) Number of Interconnection Requests that had Interconnection System Impact Studies completed within the Transmission Provider's coordinated region during the reporting quarter, (B) Number of Interconnection Requests that had Interconnection System Impact Studies completed within the Transmission Provider's coordinated region during the reporting quarter that were completed more than [timeline as listed in the Transmission Provider's LGIP] after receipt by the Transmission Provider of the Interconnection Customer's executed Interconnection System Impact Study Agreement, (C) At the end of the reporting quarter, the number of active valid Interconnection Requests with ongoing incomplete System Impact Studies where such Interconnection Requests had executed Interconnection System Impact Study Agreements received by the Transmission Provider more than [timeline as listed in the Transmission Provider's LGIP] before the reporting quarter end, (D) Mean time (in days), Interconnection System Impact Studies completed within the Transmission Provider's coordinated region during the reporting quarter, from the date when the Transmission Provider received the executed Interconnection System Impact Study Agreement to the date when the Transmission Provider provided the completed Interconnection System Impact Study to the Interconnection Customer, (E) Percentage of Interconnection System Impact Studies exceeding [timeline as listed in the Transmission Provider's LGIP] to complete this reporting period, calculated as 1 – (the sum of 3.5.2.3(A) minus 3.5.2.3(B) and dividing that amount by the sum of 3.5.2.3(A) plus 3.5.2.3(C)).

3.5.2.3 Interconnection Facilities Studies Processing time. (A) Number of Interconnection Requests that had Interconnection Facilities Studies that are completed within the Transmission Provider's coordinated region during the reporting quarter, (B) Number of Interconnection Requests that had Interconnection Facilities Studies that are completed within the Transmission Provider's coordinated region during the reporting quarter that were completed more than [timeline as listed in the Transmission Provider's LGIP] after receipt by the Transmission Provider of the Interconnection Customer's executed Interconnection Facilities Study Agreement, (C) At the end of the reporting quarter, the number of active valid Interconnection Service requests with ongoing incomplete Interconnection Facilities Studies where such Interconnection Requests had executed Interconnection Facilities Studies Agreement received by the Transmission Provider more than [timeline as listed in the Transmission Provider's LGIP] before the reporting quarter end (D) Mean time (in days), Interconnection Facilities Studies completed within the Transmission Provider's coordinated region during the reporting quarter, from the date when the Transmission Provider received the executed Interconnection Facilities Study Agreement to the date when the Transmission Provider provided the completed Interconnection Facilities Study to the Interconnection Customer, (E) Percentage of delayed Interconnection Facilities Studies this reporting period, calculated as 1 – (the sum of 3.5.2.4(A) minus 3.5.2.4(B) and dividing that amount by the sum of 3.5.2.4(A) plus 3.5.2.4(C)).

3.5.2.4 Interconnection Service requests withdrawn from interconnection queue. (A) Number of Interconnection Service requests withdrawn from the Transmission Provider's interconnection queue during the reporting quarter, (B) Number of Interconnection Service requests withdrawn from the Transmission Provider's interconnection queue during the reporting quarter before completion of any interconnection studies or execution of any interconnection study agreements, (C) Number of Interconnection Service requests withdrawn from the Transmission Provider's interconnection queue during the reporting quarter before completion of an Interconnection System Impact Study, (D) Number of Interconnection Service requests withdrawn from the Transmission Provider's interconnection queue during the reporting quarter before completion of an Interconnection Facility Study, (E) Number of Interconnection Service requests withdrawn from the Transmission Provider's interconnection queue after execution of a generator interconnection agreement or Interconnection Customer requests the filing of an unexecuted, new interconnection agreement, (F) Mean time (in days), for all withdrawn Interconnection Service requests, from the date when the request was determined to be valid to when the Transmission Provider received the request to withdraw from the queue.

3.5.3 The Transmission Provider is required to post on OASIS the measures in paragraph 3.5.2.1(A) through paragraph 3.5.2.4(F) for each calendar quarter within 30 days of the end of the calendar quarter. The Transmission Provider will keep the quarterly measures posted on OASIS for three calendar years with the first required reporting year to be 2017.

3.5.4 In the event that any of the values calculated in paragraphs 3.5.2.1(E), 3.5.2.2(E) or 3.5.2.3(E) exceeds 25 percent for two consecutive calendar quarters the Transmission Provider will have to comply with the measures below for the next four consecutive calendar quarters and must continue reporting this information until the Transmission Provider reports four consecutive calendar quarters without the values calculated in 3.5.2.1(E), 3.5.2.2(E) or 3.5.2.3(E) exceeding 25 percent for two consecutive calendar quarters:

(i) The Transmission Provider must submit a report to the Commission describing the reason for each study or group of clustered studies pursuant to an Interconnection Request that exceeded its deadline (i.e., 45, 90 or 180 days) for completion (excluding any allowance for Reasonable Efforts). The Transmission Provider must describe the reasons for each study delay and any steps taken to remedy these specific issues and, if applicable, prevent such delays in the future. The report must be filed at the Commission within 45 days of the end of the calendar quarter.

(ii) The Transmission Provider shall aggregate the total number of employee-hours and third party consultant hours expended towards interconnection studies within its coordinated region that quarter and post on OASIS. This information is to be posted within 30 days of the end of the calendar quarter.

150. The Commission preliminarily finds that this proposal will increase transparency into study timeliness and the reason for delays in regions that have consistent study delays. The Commission seeks comment on whether to require fewer or additional interconnection processing statistics to be posted on OASIS by the transmission provider. For example, such additional statistics could include: the number of new valid interconnection requests received by the transmission provider, the average number of days it takes for the transmission provider to determine whether a received interconnection service request is a

valid interconnection request, the average number of days it takes for an interconnection request to receive a study agreement, and the number of study agreements executed in the transmission provider's region during the reporting period. The Commission also seeks comment on whether it is proposing the appropriate summary data requirements to enhance transparency into interconnection queue processes and what, if any, customizations of these requirements should be made to adjust for different regional processes.

151. The Commission notes that LGIP Sections 6.3, 7.4 and 8.3 have provisions requiring transmission providers to inform interconnection customers as to the causes of study delays and to provide them with revised study schedules. The Commission requests comment on whether interconnection customers have sufficient information regarding, and transparency into, the cause of study delays under the current LGIP provisions and whether transmission providers should have to provide a more detailed explanation to interconnection customers regarding the cause(s) of study delays. The Commission also seeks comment on whether a transmission provider should have to inform interconnection customers regarding its process for revising study timelines once a delay occurs and whether the transmission provider should also describe in sufficient detail any relevant issues that could further affect the revised timeline for a particular interconnection customer.

6. Improving Coordination with Affected Systems

a. Existing Provisions and Background

152. The interconnection of a new generating facility to a transmission system may sometimes affect the reliability of a neighboring transmission system, termed the affected system. Currently, section 3.5 of the *pro forma* LGIP requires the transmission provider to

coordinate required interconnection studies with affected systems[198] and, if possible, include those results within applicable results from the LGIP study process. In Order No. 2003, the Commission found that:

> [a]lthough the owner or operator of an Affected System is not bound by the provisions of the Final Rule 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.[199]

Because the transmission operator of the affected system is not bound by the terms of the LGIP or LGIA of a particular interconnection request, the transmission operator of the affected system may choose not to abide by the time limits established for the various interconnection studies.

153. Order No. 2003 further explained that, if the affected system does not provide information in a timely manner, a transmission provider may proceed without taking into account any information that could have been provided by the affected system.[200]

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[198] An "Affected System shall mean an electric system other than the Transmission Provider's Transmission System that may be affected by the proposed interconnection." *Pro forma* LGIP, Sec. 1 (Definitions); *Pro Forma* LGIA, Art. 1 (Definitions).

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

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

(continued…)

Typically, transmission providers do not proceed with the interconnection process until they receive the analysis of reliability impact from the affected system(s). The issue of impacts on an affected system is raised in a recent contested proceeding.[201]

154. Order No. 2003 does not require that transmission providers publicize their process for coordination with affected systems. It also does not require that transmission providers include the affected systems analysis alongside the system impact study and facilities study. During the Order No. 2003 process, the Commission declined Duke's request to require affected systems to participate in the interconnection process with interconnection customers.[202] The Commission reiterated, however, that a transmission provider must allow any affected system to participate in the interconnection study process and incorporate the affected system's legitimate safety and reliability needs.[203]

b. AWEA Petition and Comments

155. Multiple commenters that represent interconnection customers and RTOs/ISOs voiced a need for improved affected system coordination. For example, MISO supports

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from any future delivery service) will endanger reliability. *See* Order No. 2003-A, FERC Stats. & Regs. ¶ 31,171 at P 114.

[201] *See* Docket No. ER17-75-000, in which PJM filed an unexecuted LGIA with Lackawanna, Energy Center, LLC (Lackawanna) at Lackawanna's request. This unexecuted GIA contains non-conforming terms and conditions, including limitations on Lackawanna's output, due to preliminary (and as yet incomplete) affected systems analysis by NYISO.

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

[203] Order No. 2003, FERC Stats. & Regs. ¶ 31,146 at PP 120-121.

more specific guidance in the *pro forma* LGIP on when and how to engage affected systems, as well as how to impose obligations on affected systems to minimize delays in the interconnection process.[204] AWEA asks the Commission to require a standard contract between affected systems.[205] Additionally, AWEA asks the Commission to require affected systems to share their respective models to ensure that prospective interconnection customers can more readily ascertain the impacts of their interconnection requests in a timely manner.[206] SoCal Edison states that the primary challenge associated with the coordination of affected systems is the enforceability of provisions in a particular balancing authority area tariff if those provisions place obligations on potentially affected systems, especially those outside of the Commission's jurisdiction. To address this issue, SoCal Edison proposes that RTOs/ISOs amend existing balancing authority area agreements or enter into new, legally-binding affected system agreements, to implement appropriate, enforceable mechanisms, including cost responsibility for mitigation.

156. El Paso states that it is not always clear how many affected systems an interconnection request may impact until after study work on the request is complete or near completion. El Paso argues that, to improve this process, the transmission provider should invite all electrically-connected transmission owners and operators to participate in the interconnection study process upon receipt of a valid interconnection request. El Paso

[204] *Id.* at 9.

[205] AWEA 2016 Comments at 18.

[206] AWEA 2016 Comments at 18.

further suggests that the transmission provider extend this invitation to any other transmission system(s) for which the transmission provider has reason to suspect that the interconnection request may have adverse impacts, given its location, size, type, and other characteristics. Transmission Dependent Utility Systems urge the Commission to clarify the definition of affected system in the *pro forma* LGIP, *pro forma* LGIA, and *pro forma* SGIP to reflect the recognition, articulated in Order No. 2006, that the definition is not limited to transmission facilities but also to "an electric system . . . that may be affected by the proposed interconnection."[207]

157. Some entities, like Modesto Irrigation District, Imperial Irrigation District, Xcel, and MISO TOs, indicate no changes are needed in affected systems provisions.[208]

c. Request for Comments

158. Several of the proposed reforms in this Proposed Rule seek to improve the information provided to interconnection customers through the interconnection process and facilitate the timely interconnection of new generating facilities. Based on the comments received, it appears that transmission providers may not provide sufficient information on the guidelines and timelines they will use to coordinate with affected systems during the

[207] Transmission Dependent Utility Systems 2016 Comments at 7 (quoting Order No. 2006 at P 543). Transmission Dependent Utility Systems consist of the following rural electric generation and transmission cooperatives: Golden Spread Electric Cooperative, Inc., Kansas Electric Power Cooperative, Inc.; North Carolina Electric Membership Corporation; PowerSouth Energy Cooperative, and Seminole Electric Cooperative, Inc.

[208] Modesto Irrigation District 2015 Comments at 3; Imperial Irrigation District 2016 Comments at 4-6; Xcel 2016 Comments at 11; MISO TOs Comments at 13.

interconnection process. Providing these guidelines and timelines could improve the information available to the interconnection customer in the interconnection process and could help to avoid late-stage withdrawals due to unforeseen costly network upgrades on affected systems. Furthermore, a clear set of procedures and timelines regarding the affected system's study of the proposed interconnection memorialized in a Commission-approved agreement regarding affected systems analysis could help to ameliorate delays experienced awaiting study results from affected systems.

159. The Commission seeks comment on whether it should prescribe guidelines for affected systems analyses and coordination or if it should impose study requirements and associated timelines on affected systems that are also public utility transmission providers. The Commission also seeks comment on whether to standardize the process for coordinating an affected system analysis and whether to develop a standard affected system study agreement. Finally, the Commission seeks comments on proposals or additional steps that the Commission could take (e.g., conducting a workshop or technical conference focused on improving issues that arise when affected systems are impacted by a proposed interconnection).

C. Enhancing Interconnection Processes

160. The five proposed reforms in this section would 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

161. The Commission proposes to allow interconnection customers to request a level of interconnection service for a generating facility that is lower than the generating facility's capacity.[209] The use of a level of interconnection service below generating facility capacity will allow generating facilities that do not intend to use the full generating facility capacity to avoid constructing network upgrades and interconnection facilities to meet a level of interconnection service that is not necessary. For example, the owner of an electric storage resource with a generating facility capacity of 30 MW may choose to always operate the facility in such a way that it only uses 25 MW of interconnection service. Under this proposal, the transmission provider would allow the interconnection customer to apply for the 25 MW it intends to use instead of the entire 30 MW of generating facility capacity. If a facility utilizes this option, it must establish in its interconnection agreement the appropriate hardware and/or software to prevent it from exceeding its interconnection service, consent to penalties if its output does exceed its interconnection service, and be subject to curtailment provisions consistent with 9.7.2 of the LGIA.

a. Existing Provisions and Background

162. There are no current provisions in the *pro forma* LGIP and LGIA that directly speak to this issue. However, in certain regions of the country, there are already generating

[209] 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 at Art.1.

facilities with a level of interconnection service lower than the generating facility capacity. The details of these limitations have thus far been included in Appendix C of the LGIA.[210]

b. Comments

163. In post-technical conference comments, parties with experience as interconnection customers emphasized their desire for the ability to request interconnection service that meets a facility's needs, even if this service is below the generating facility capacity.[211] Commenters argue that the unique characteristics of electric storage resources, including their fast response times and high controllability, justify interconnection service below the rated capacity of the facility because they can time their charging and discharging of the resource to avoid or mitigate congestion of the transmission grid or to support transmission grid voltage and frequency.[212] SoCal Edison provides examples of interconnection agreements that limited interconnection service to an amount lower than full capacity [213] ESA and NextEra note that PJM and CAISO have allowed interconnection customers to

[210] *See, e.g.*, *S. Cal. Edison Co.*, Docket No. ER16-1459-000 (June 14, 2016) (delegated letter order); *S.Cal. Edison Co.*, Docket No. ER16-44-000 (November 16, 2015) (delegated letter order); *S.Cal. Edison Co.*, Docket No. ER15-2730-000 (November 12, 2015) (delegated letter order).

[211] *See, e.g.*, NextEra 2016 Comments at 10-12; AES 2016 Comments at 15; ESA 2016 Comments at 5; RES Americas 2016 Comments at 3, 5-6; California Energy Storage Alliance 2016 Comments at 12-13.

[212] California Energy Storage Alliance 2016 Comments at 6 (citing *Midcontinent Indep. Sys. Operator, Inc.*, 155 FERC ¶ 61,211 (2016)).

[213] SoCal Edison 2016 Comments at 6.

limit injection rights in certain circumstances.[214] NextEra suggests that the structure of interconnection rights could alternatively be set forth in a separate *pro forma* agreement, similar to MISO's Monitoring and Consent Agreement for Net Zero Interconnection Service.[215]

164. The RTOs/ISOs comments suggest they are cautiously open to the idea of allowing interconnection service below the total generating facility capacity if the interconnection request is subject to the proper control technologies and penalties.[216] MISO notes that it is actively discussing the issue with stakeholders.[217] NYISO states that allowing interconnection at a level below the generating facility capacity should not be permitted without adequate provisions for enforcement of the maximum limit, but that interconnection customers should be able to submit proposals for limited interconnection service.[218] ISO-NE notes that it would still need to know the network impacts for the full output of the generating facility capacity.[219]

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[214] ESA 2016 Comments at 9; NextEra 2016 Comments at 14.

[215] NextEra 2016 Comments at 14.

[216] *See, e.g.*, NYISO 2016 Comments at 28.

[217] MISO 2016 Comments at 12-13.

[218] NYISO 2016 Comments at 28.

[219] ISO-NE 2016 Comments at 28.

165. Representatives of the storage industry agree that safeguards to limit output should be in place to ensure safety and reliability when limiting interconnection service.[220] ESA and RES Americas suggest that operational tests and/or demonstrations could validate interconnection customers' intended uses and control technologies.[221] Commenters also suggest that RTOs/ISOs could install physical safeguards and/or impose financial penalties and legal liability.[222] California Energy Storage Alliance suggests that verifiable controls and algorithms, as well as utility equipment already in place (e.g., reclosers), cap the discharge at the point of interconnection and that there is no need to require power relays and other physical equipment.[223] NYISO argues that monitoring and corrective action must maintain reliability if the facility exceeds the maximum power limit.[224] SoCal Edison explains that, pursuant to its current agreements that allow interconnection below generating facility capacity, SoCal Edison will notify the interconnection customer if that customer is violating its maximum output and notes that the customer risks disconnection if the violation persists.[225]

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[220] Xcel 2016 Comments at 18-19; Exelon 2016 Comments at 16.

[221] RES Americas 2016 Comments at 5-6; ESA 2016 Comments at 9.

[222] SoCal Edison 2016 Comments at 6; ESA 2016 Comments at 9; RES Americas 2016 Comments at 5-6.

[223] California Energy Storage Alliance 2016 Comments at 12-13.

[224] NYISO 2016 Comments at 28.

[225] SoCal Edison 2016 Comments at 6.

c. Proposal

166. The Commission preliminarily finds that the *pro forma* LGIP and *pro forma* LGIA may not be just and reasonable and may be unduly discriminatory or preferential to the extent that they disallow interconnection service below generating facility capacity. Disallowing the requests for interconnection service below generating facility capacity forces generating facilities intending to utilize lower levels of interconnection service capacity to pay for interconnection facilities and network upgrades they do not need.

167. The Commission proposes to require that transmission providers allow interconnection customers to request interconnection service below their generating facility capacity. The Commission recognizes the concerns raised regarding the need for proper control technologies and penalties to ensure that an interconnection is safe and reliable when a generating facility requests interconnection service below the facility's full capacity. Provided these concerns can be addressed through hardware and/or software installed to prevent a facility from exceeding its interconnection service, as well as penalties and possible curtailment, the Commission believes that there are legitimate reasons for allowing an interconnection customer to request interconnection service at a level less than its generating facility capacity. Reducing the amount of interconnection facilities and network upgrades required for lower interconnection service capability could also result in lower interconnection costs, lower ratepayer costs, and more efficient use of the network upgrades and interconnection facilities that are constructed. Therefore, the Commission preliminarily finds that this proposal will result in just and reasonable and not unduly discriminatory or preferential rates, terms and conditions. The proposal will help to reduce overbuilding of

interconnection facilities and network upgrades by tailoring the interconnection facilities and network upgrades to a facility's needed capacity. This means that if a facility, for operational or other reasons, will never exceed its interconnection service limitations, it may request to build upgrades for interconnection service at a lower level to match the intended operation of the facility. This proposal will therefore remove barriers to the development of generating facilities which do not intend to operate at full generating facility capacity. Allowing generating facilities to limit their interconnection costs by avoiding the construction of unnecessary interconnection facilities and network upgrades may also lower costs to customers.

168. The Commission proposes that transmission providers have a process in the *pro forma* LGIP and LGIA in place to consider such requests. The Commission proposes 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. Such a generating facility or interconnection customer will be subject to reasonable provisions that enforce a maximum export limit, a notification process to a generating facility that has exceeded such limit, and a process for resolving disputes if deemed necessary by the transmission provider and/or transmission owner as part of the *pro forma* LGIP and LGIA. Additionally, the Commission proposes that interconnection customers that request interconnection service below generating facility capacity be subject to reasonable penalties imposed by transmission owners, or transmission providers if more appropriate, if they exceed the limitations for interconnection service established in their interconnection agreements. Such penalties could be financial, could include a requirement

to pay the cost of additional interconnection facilities or network upgrades, or could consist of a loss of interconnection rights. The Commission seeks comment on the potential penalties that transmission providers or transmission owners may impose if an interconnection customer exceeds the interconnection service levels agreed upon.

169. In addition to seeking comment on these proposals, the Commission seeks comment on the types and availability of control technologies and protective equipment that could ensure that a generating facility does not exceed its level of interconnection service. The Commission expects that the transmission providers, transmission owners, and interconnection customers will establish the necessary control technologies, as well as reasonable penalties or other enforcement mechanisms necessary to ensure compliance with the maximum injection limit in Appendix C of the *pro forma* LGIA. The Commission also seeks comment on whether certain protection systems would eliminate the need to study the full generator facility capacity in some circumstances, potentially reducing study costs.

170. This proposal would not eliminate the transmission provider's potential need to study interconnection customers' interconnection facilities and network upgrades at generating facility capacity in addition to the generating facility's requested level of interconnection service when needed to ensure reliability.[226] The Commission seeks comment on what types of studies and under what conditions the transmission provider may need to study the generating facility at its generating facility capacity, even if the interconnection customer

[226] ISO-NE suggests that it would always need to evaluate the generating facility capacity to know the network impacts of the full rated capacity and ensure reliability. ISO-NE Comments at 28.

does not intend to use that level of interconnection service and agrees to install all necessary equipment to prevent injections of electricity in excess of the requested level of interconnection service.

171. The Commission acknowledges that allowing interconnection customers to request service below their generating facility capacity could result in additional study costs during the interconnection process because the transmission provider may need to study the full generating facility capacity as well as the requested level of interconnection service. The Commission proposes that interconnection customers should bear any additional study costs associated with requesting interconnection service below their generating facility capacity, but the Commission seeks comment on the potential nature and extent of such costs.

172. The Commission also proposes 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. The Commission considers this proposed change to be consistent with the reform in Order No. 792 where the Commission allowed, subject to certain conditions, transmission providers to measure the capacity of small generating facilities based on the capacity specified in the interconnection request.[227] The Commission

[227] *See* Order No. 792, 145 FERC ¶ 61,159 at P 230 (stating that "Under section 4.10.3 adopted herein, the Transmission Provider is to measure the capacity of a Small Generating Facility based on the capacity specified in the interconnection request, which may be less than the maximum capacity that a device is capable of injecting into the Transmission Provider's system, provided that the Transmission Provider agrees, with such agreement not to be unreasonably withheld, that the manner in which the

(continued…)

seeks comment on the proposed changes to the definitions of "Large Generating Facility" and "Small Generating Facility" and the impact of such a change, if any, on the interconnection procedures and the interconnection agreement, including the need for other related changes to the *pro forma* LGIP and LGIA.

173. The Commission also seeks comment on whether revisions in addition to those proposed here for the *pro forma* LGIP or LGIA are necessary to accommodate requests for interconnection service below generating facility capacity. We also seek comment on whether in lieu of changes to the Commission's *pro forma* LGIP and LGIA, transmission providers should describe the processes for processing and studying requests for interconnection service below generating facility capacity in their *pro forma* LGIPs and LGIAs on compliance, or if such requests should be processed on an *ad hoc* basis rather than having a specified process in the *pro forma* documents.

174. The Commission proposes to add the following new paragraph at the end of section 3.1 of the *pro forma* LGIP as follows:

> 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 Customer proposes to limit the maximum capacity that its facility is capable of injecting into the Transmission Provider's system will not adversely affect the safety and reliability of the Transmission Provider's system.").

> 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.

175. The Commission proposes to add the following language to the end of section 6.3 of the *pro forma* LGIP:

> 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.

176. The Commission proposes to insert the following language in section 7.3 of the *pro forma* LGIP in line 8 of the second paragraph, just before the sentence "The Interconnection System Impact Study will provide a list of facilities that are required as a result of the Interconnection Request and a non-binding good faith estimate of cost responsibility and a non-binding good faith estimated time to construct."

> 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.

177. The Commission proposes to add the following language to the end of section 8.2 of the *pro forma* LGIP:

> The Facilities Study will also identify any potential control equipment for requests for Interconnection Service that are lower than the Generating Facility Capacity.

178. The Commission proposes to add the following language to Appendix 1, Item 5, of the *pro forma* LGIP, as sub-item h:

> Requested capacity (in MW) of Interconnection Service (if lower than the Generating Facility Capacity)

179. Lastly, the Commission proposes 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 (*proposing to delete 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.

180. The Commission recognizes that the NERC reliability standards are generally applicable to generating facilities with a gross nameplate rating of greater than 20 MVA,[228] and do not generally apply to Small Generating Facilities with SGIAs. The Commission clarifies that its proposed revisions to the definition of Large Generating Facility and Small Generating Facility are not intended to conflict with any applicable NERC Reliability Standards or NERC's compliance registration process.

[228] *See* NERC Statement of Compliance Registry Criteria (effective: July 1, 2014), http://www.nerc.com/FilingsOrders/us/RuleOfProcedureDL/Appendix_5B_RegistrationCriteria_20140701.pdf

2. Provisional Interconnection Service

181. The Commission recognizes that the length of the interconnection process can pose a challenge for interconnection customers. In some cases, there is a certain amount of interconnection capacity that has already been studied at the point of interconnection. The Commission therefore proposes to adopt a provisional agreement process wherein new generating facilities could interconnect, possibly under limited operation, using interconnection service pursuant to existing and regularly updated studies while they wait to complete the additional studies needed to satisfy their full interconnection request.

a. Existing Provisions and Background

182. There are no current provisions in the *pro forma* LGIP or *pro forma* LGIA that allow for provisional agreements where new generating facilities could interconnect, possibly under limited operation, using interconnection service pursuant to existing and regularly updated studies while they wait to complete the additional studies needed to satisfy their full interconnection request. Under the current interconnection process, an interconnection customer that seeks to interconnect quickly, possibly under limited operation, and is willing to bear the financial risk of network upgrades that will be identified after the interconnection process has been completed, may not use interconnection service that is available as indicated by existing and regularly updated studies. Only at the end of the interconnection process—after the transmission provider has studied the final form of the proposed generating facility and its effects, and has evaluated the need for any interconnection facilities and network upgrades—may the interconnection customer begin injection onto the grid. Thus, the *pro forma* LGIP/LGIA do not provide for provisional arrangements that

would allow interconnection customers to interconnect using existing capacity on the transmission system prior to the completion of the interconnection study process.

183. However certain regions, such as SPP and MISO, already permit interconnection customers to execute provisional agreements prior to the completion of the full interconnection process.[229] In MISO, interconnection customers are able to request provisional agreements to provide a limited amount of service prior to completion of the interconnection process, i.e., prior to the completion of any network upgrades, based on the availability of existing studies.[230] To do so, interconnection customers must demonstrate that sufficient facilities exist for the level of output requested in the provisional agreement and must re-verify that determination on a regular basis.[231] Extending this policy to other transmission providers could help facilitate the interconnection of generating facilities that have a desire to build and/or provide service prior to completion of the full interconnection process.

b. Comments

184. Multiple commenters, particularly those in the electric storage industry, expressed a desire to expedite the interconnection process and to employ existing interconnection and network facilities as a way to do so. Several note that increasing the speed of

[229] SPP, OATT, Attachment V, app. 6 (6.1.0). MISO, FERC Electric Tariff, Att. X, Section 11.5 (47.0.0).

[230] MISO, FERC Electric Tariff, Att. X, Section 11.5 (47.0.0).

[231] MISO, FERC Electric Tariff, Att. X, Section 11.5 (47.0.0).

interconnection for resources such as electric storage is important because these resources can physically come on-line before completion of the interconnection process.[232]

c. Proposal

185. The Commission preliminarily finds that the lack of a process in the *pro forma* LGIP and the lack of a provision in the *pro forma* LGIA for an interconnection customer to obtain a provisional agreement for interconnection service weakens competition due to the inability of interconnection customers to leverage prior investments in interconnection studies and related facilities to provide wholesale services. This lack of provisional interconnection service may also raise costs due to the inability to use some existing interconnection facilities and network upgrades, thereby leading to unjust and unreasonable rates for customers. Although a transmission provider may be able to provide interconnection service at the currently studied and approved level of interconnection capacity while it is studying a larger interconnection request, the *pro forma* LGIP and *pro forma* LGIA do not currently provide for such flexibility for provisional service at currently studied levels. Therefore, lack of a process for provisional interconnection service precludes the interconnection customer from providing wholesale services during the pendency of its interconnection request.

186. The Commission therefore proposes to allow interconnection customers to enter into provisional agreements for limited interconnection service prior to the completion of the full interconnection process. Such provisional agreements could benefit interconnection

[232] *See, e.g.*, AES 2016 Comments at 3.

customers by permitting limited operation based on existing and regularly updated studies, and prior to the completion of studies and network upgrades being built for the larger interconnection service that is requested. Provisional agreements could also benefit interconnection customers with short development lead times, such as electric storage resources, which can provide some services prior to 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 as permitted by existing and regularly updated studies. 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, finalization of a final interconnection agreement, and the construction of any additional interconnection facilities and network upgrades and cost assignments for the network upgrades that may result from the full interconnection process. The Commission also proposes that provisional large generator interconnection agreements and the associated provisional interconnection service would terminate upon completion of construction of network upgrades. At this point, the interconnection customer would proceed according to the terms of the interconnection agreement.

187. Provisional agreements may also mitigate interconnection customer risk associated with unknown final network upgrade costs by creating revenue streams earlier in an interconnection customer's life. However, the Commission proposes that such interconnection customers must still assume all risks and liabilities associated with the

required interconnection facilities and network upgrades for their interconnection that are identified pursuant to the interconnection studies for the requested interconnection service.

188. The Commission therefore proposes to require that transmission providers allow interconnection customers to request provisional interconnection service and operate under provisional interconnection agreements based on existing and regularly updated studies that demonstrate that necessary interconnection facilities and network upgrades are in place to meet applicable North American Electric Reliability Corporation (NERC) or other regional reliability requirements for new, modified, and/or expanded generating facilities. If available studies do not demonstrate whether provisional interconnection service can be reliably accommodated, the transmission provider shall perform additional studies as necessary. An evaluation of provisional service by the transmission provider shall 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 proposes that transmission providers must assess any safety or reliability concerns posed by provisional agreements, and establish a process for the interconnection customer that will mitigate any reliability risks associated with operation pursuant to provisional agreements. The costs of such mitigation, if necessary, would be borne by the interconnection customer. The Commission is interested in additional comments on this proposal and the means by which transmission providers and interconnection customers could mitigate any risks and liabilities for provisional interconnection service. Additionally, acknowledging that transmission providers have limited resources to conduct studies, we

also seek comment on the circumstances under which provisional interconnection service would be beneficial and how common such circumstances would be for potential interconnection customers.

189. The Commission proposes to add the following new definitions to Section 1 of the *pro forma* LGIP, as well as to article 1 of the LGIA:

> **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 Interconnection Agreement and, if applicable, the Tariff.
>
> **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.

190. Additionally, the Commission proposes a new section 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 has not developed a *pro forma* Provisional Large Generator Interconnection Agreement because such agreements could either be established on an *ad hoc* basis for provisional interconnection service, or transmission providers could establish their own *pro forma* provisional agreements. However, the Commission seeks comment on the need for the Commission to establish a *pro forma* Provisional Large Generator Interconnection Agreement as part of the *pro forma* LGIA as well as any important details related to the service, e.g., the stage in the interconnection process where the customer would be able to

request this service and whether all milestone payments would be required to be paid upon submission of the provisional agreement. The Commission proposes to add the following new section 5.10 to the *pro forma* LGIA:

> 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 risks 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.

3. Utilization of Surplus Interconnection Service

191. Based on comments received during this proceeding, it has become clear that a number of interconnection customers would like to co-locate new generating facilities with

existing generating facilities which may not be fully utilizing an existing generating facility's interconnection service. Commenters provided examples of circumstances when this can happen, including instances where an existing variable energy resource is paired with a new electric storage resource. In this example, the variability in the variable energy resource's output may prevent it from fully utilizing its interconnection capacity during some hours. To address these comments, the Commission proposes to require transmission providers to include in their tariffs and the *pro forma* LGIP an expedited process for interconnection customers to utilize or transfer surplus interconnection service at existing generating facilities. The Commission further proposes that this process give an existing generating facility owner or its affiliate priority to use the surplus interconnection service, but that the tariffs and *pro forma* LGIP also establish an open and transparent process for the sale of that surplus interconnection service if the owner and its affiliates elect not to use it, and elect to make it available to another party. Lastly, the Commission proposes that this expedited process for surplus interconnection service be available for any quantity of surplus interconnection service, regardless of whether it is above or below the 20 MW threshold for small and large generator interconnection.

a. Existing Provisions and Background

192. On occasion, interconnection customers request more interconnection service for an interconnection request than they may need at any given time. As a result, they may have surplus interconnection service that the relevant transmission provider has already studied and approved. An interconnection customer with an existing interconnection agreement might want to add resources, such as electric storage resources, which were not planned as

part of the original interconnection request, or it may wish to sell surplus interconnection service without conveying the originally planned generating facility as part of the sale. In these instances, it is difficult for an interconnection customer at present to utilize this surplus interconnection service. The Commission has addressed the desire for an interconnection customer to retain access to excess capacity on interconnection customer interconnection facilities.[233] These reforms were motivated by phased generating facilities that have built additional interconnection customer interconnection facility capacity beyond that needed by the initial phases of development. However, there are other circumstances when an interconnection customer may have surplus interconnection service and the *pro forma* LGIP and *pro forma* LGIA do not address the utilization or transfer of surplus interconnection service where there is no transfer of the underlying generating facility.

193. MISO's tariff offers Net Zero Interconnection Service, which MISO designed 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.[234] Under MISO's approach, a new generating facility could use this service to interconnect at an existing point of

[233] *Open Access and Priority Rights on Interconnection Customer's Interconnection Facilities*, Order No. 807, 150 FERC ¶ 61,211 (2015).

[234] MISO FERC Electric Tariff, Att. 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 POI such that the Interconnection Service limit remains the same").

interconnection.[235] In MISO, Net Zero Interconnection Service entails a separate interconnection process for interconnection service that an existing interconnection customer wishes to make available for a new interconnection customer.[236] This process includes an energy displacement agreement between the existing and the new interconnection customers,[237] a monitoring and consent agreement between the new interconnection customer and the transmission owner,[238] as well as the appropriate studies, and an evaluation process for Net Zero Interconnection Service.[239]

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[235] *Midwest Indep. Transmission Sys. Operator*, 138 FERC ¶ 61,233 at P 16.

[236] MISO FERC Electric Tariff, Att. 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 POI such that the Interconnection Service limit remains the same").

[237] MISO FERC Electric Tariff, Att. X, Section 1 (Definitions) (47.0.0) ("Energy Displacement Agreement shall mean an agreement between an Interconnection Customer with an existing generating facility on the Transmission Provider's Transmission System and an Interconnection Customer with a proposed Generating Facility seeking to interconnect with Net Zero Interconnection Service. The Energy Displacement Agreement specifies the term of operation, the Generating Facility Interconnection Service limit, and the mode of operation for energy production (common or singular operation)").

[238] MISO FERC Electric Tariff, Att. X, Section 1 (Definitions) (47.0.0) ("Monitoring and Consent Agreement shall mean an agreement that defines the terms and conditions applicable to a Generating Facility acquiring Net Zero Interconnection Service. The Monitoring and Consent Agreement will list the roles and responsibilities of an Interconnection Customer seeking to interconnect with Net Zero Interconnection Service and Transmission Owner to maintain the total output of the Generating Facility inside the parameters delineated in the GIA").

[239] MISO FERC Electric Tariff, Att. X, Sections 3.2.3 & 3.3.1 (47.0.0).

194. As implemented in MISO, Net Zero Interconnection Service is a restricted form of Energy Resource Interconnection Service. The interconnection study consists of reactive power, short circuit/fault duty, and stability analyses. Steady-state (thermal/voltage) analyses may be performed as necessary to ensure that all required reliability conditions are studied. Moreover, if the existing generating facility was not studied under off-peak conditions, off-peak steady state analyses will be performed to the required level necessary to demonstrate reliable operation of the Net Zero Interconnection Service. If no system impact study was available for the existing generation, both off-peak and peak analysis may need to be performed for the generating facility seeking Net Zero Interconnection Service in accordance with the LGIP. The interconnection study will identify the interconnection facilities required and the network upgrades necessary to address reliability issues.

195. In its order accepting MISO's proposal for Net Zero Interconnection Service, the Commission expressed concern about the "lack of transparency" and failure to "provide a clear and consistent way in which generators seeking Net Zero Interconnection Service may identify opportunities for [such service] or how such a generator would be chosen for such service."[240] For these reasons, the Commission directed MISO to submit a compliance filing to ensure that MISO offers Net Zero Interconnection Service "on a fair, transparent,

[240] *Midwest Indep. Transmission Sys. Operator, Inc.*, 138 FERC ¶ 61,233, at P 301 (2012) (First Net Zero Order).

and non-discriminatory basis and that comply with the filing requirements of FPA section 205."[241]

b. Comments

196. The Commission received multiple comments that support Commission action to improve the interconnection process with regard to surplus interconnection service. Some commenters stressed the importance of getting resources, especially electric storage resources, on-line more quickly. For instance, NextEra states that a program that allows for utilization of surplus interconnection capacity could result in faster processing of requests to co-locate batteries with existing generation.[242] ESA argues that customers that wish to install electric storage resources without additional injection rights should be able to limit interconnection service to the level established in the existing interconnection agreement. ESA also suggests that interconnection customers should be able to transfer some of their injection rights to others, with thermal studies required only for the incremental service.[243]

197. Commenters also assert that co-locating electric storage resources with generators that have existing interconnection rights should require less modeling and should not require thermal injection studies.[244] NextEra suggests that studies should be tailored to the service

[241] First Net Zero Order, 138 FERC ¶ 61,233 at P 302.

[242] *See, e.g.*, NextEra 2016 Comments at 13. MISO notes that its Net Zero Interconnection Service product is available to any new resources. MISO 2016 Comments at 24-25.

[243] ESA 2016 Comments at 8-10.

[244] NextEra 2016 Comments at 13; California Energy Storage Alliance 2016.

requested, with a focus on stability studies and thermal withdrawal studies only if they are necessary. NextEra suggests that these changes should apply to both electric storage resources that seek to interconnect at existing generation sites and to new brownfield electric storage resources co-located with new generation.[245]

198. During the technical conference, transmission providers noted that processes and procedures would need to be in place to determine whether the requested interconnection service was available, including having service, rights, and descriptions that are clear and implementable.[246]

c. Proposal

199. The Commission is concerned that existing interconnection service is underutilized. The Commission also recognizes changes in the industry that have created greater opportunities for co-located facilities, such as generation and electric storage resources. It is appropriate to incentivize the utilization of surplus interconnection service because creating an expedited process for interconnection customers to utilize or transfer the utilization of surplus interconnection service will help reduce system costs by leveraging existing assets. Doing so could also improve competition in the wholesale markets by accelerating the interconnection process and facilitating the use of new complementary technologies such as electric storage resources that can further improve reliability and competition. Therefore,

[245] NextEra 2016 Comments at 13.

[246] Review of Generator Interconnection Agreements and Procedures, American Wind Energy Association, Docket No RM16-12-000, Technical Conference Transcript at 251.

the Commission preliminarily finds that facilitating the use of surplus interconnection service will reduce costs and improve competition, helping to ensure just and reasonable rates as required of the Commission under the FPA.

200. The Commission preliminarily finds that providing an expedited process for interconnection customers to utilize or transfer surplus interconnection service at existing generating facilities could remove barriers to the interconnection of a new generator, or to the modification and/or expansion of the existing generating facility. Expediting the use of surplus interconnection service could be particularly beneficial to electric storage and other resources that can be developed and constructed faster than existing interconnection processes often allow. Allowing interconnection customers to better leverage existing assets, whether for their own purposes or for transfer to another interconnection customer, will help prevent stranded costs and improve access to the transmission system, thereby enhancing competition and helping to ensure just and reasonable rates, terms, and conditions.

201. The Commission proposes 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 provides an expedited process for interconnection customers to utilize or transfer surplus interconnection service at existing generating facilities. The Commission further proposes that this process give an existing generating facility owner or its affiliates priority to use the surplus interconnection service, but that the transmission providers would also establish an open and transparent process for the transfer of that surplus interconnection service if the

generating facility owner and its affiliates elect not to use it, and the generating facility owner elects to make it available to another party.

202. The Commission proposes that the studies for surplus interconnection service shall consist of reactive power, short circuit/fault duty, and stability analyses, and that steady-state (thermal/voltage) analyses may be performed as necessary to ensure that all required reliability conditions are studied. The Commission proposes that 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. The Commission also proposes that 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. Additionally, the Commission proposes that this process for the use or transfer of surplus interconnection service be available for any quantity of surplus interconnection service that currently exists.

203. The Commission proposes 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. The surplus interconnection service customer may 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. In addition to the new interconnection agreement for surplus interconnection service, we recognize that other contractual arrangements may also be necessary. For example, the interconnection customer for the

existing generating facility and the surplus interconnection service customer will likely want to memorialize their rights and obligations with regard to the operation of the existing generating facility and the new generating facility that will use the surplus interconnection service.

204. While the Commission does not propose specific contractual arrangements with respect to surplus interconnection service in this Proposed Rule, the Commission seeks 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 LGIA. The Commission notes that the *pro forma* LGIA only permits survival of the LGIA under limited circumstances.[247] For this reason, one important consideration for the new interconnection agreement for surplus interconnection service is whether the surplus interconnection service should survive the retirement of the existing generating facility. The Commission seeks comment on whether the interconnection agreement for surplus interconnection service should terminate upon the retirement of the existing generating facility, or whether there are

[247] Article 2.6 provide that an LGIA:

> shall continue in effect after termination to the extent necessary to provide for final billings and payments and for costs incurred hereunder, including billings and payments pursuant to this LGIA; to permit the determination and enforcement of liability and indemnification obligations arising from acts or events that occurred while this LGIA was in effect; and to permit each Party to have access to the lands of the other Party pursuant to this LGIA or other applicable agreements, to disconnect, remove or salvage its own facilities and equipment.
>
> *Pro forma* LGIA Art. 2.6 (Survival).

circumstances under which the surplus interconnection service customer may operate its generating facility under terms of the surplus interconnection service agreement after the retirement of the existing generating facility. If the transmission provider, transmission owner (as applicable), and the surplus interconnection service customer choose to provide for survival of the surplus interconnection service agreement for the surplus interconnection service customer after the retirement of the existing generating facility, they must memorialize this arrangement in the surplus interconnection service agreement. The Commission notes, however, that in recent precedent, the Commission stated that procedures that allow retiring generators to transfer their interconnection service must "ensure that the opportunity to replace or increase the capacity of the retiring facility is offered on a fair, transparent, and nondiscriminatory basis."[248] For this reason, the Commission anticipates that, upon the retirement of the existing generating facility, any interconnection service could only be transferred on a fair, transparent, and nondiscriminatory basis.

205. While some commenters suggest that other transmission providers should adopt a process similar to MISO's process for Net Zero Interconnection Service, upon further consideration of the MISO Net Zero Interconnection Service proceeding, the Commission proposes to modify its position with regard to utilization of surplus interconnection service so that the existing generating facility owners have priority to utilize such surplus

[248] *Midwest Indep. Transmission Sys. Operator, Inc.*, 153 FERC ¶ 61,313, at P 27 (2015).

interconnection service. In revisiting these previous findings, the Commission notes that existing generating facility owners (or their predecessors) have already paid for the interconnection studies and interconnection facilities and have real property interests and other assets associated with those existing generating facilities, such as real estate and permits. After executing an interconnection agreement, a generating facility owner is entitled to the interconnection service contained therein, and is not required to make such service available unless it elects to.

206. Under this 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, new interconnection agreement for surplus interconnection service without posting or going through an open solicitation. However, if an existing generating facility owner that has surplus interconnection service wishes to transfer this surplus interconnection service, and it does not wish to use the surplus interconnection service itself or to transfer it to one of its affiliates, the existing generator must conduct an open and transparent solicitation process for that surplus interconnection service. The proposal to grant existing generating facility owners priority over their surplus interconnection service is similar to the Commission's findings in Order No. 807 where the Commission waived certain open access requirements and granted interconnection customers priority over their interconnection customer's interconnection facilities.[249] While

[249] Order No. 807, Open Access and Priority Rights on Interconnection Customer's Interconnection Facilities, 150 FERC ¶ 61,211.

the Commission proposes that priority be given to the existing generating facility owner of the surplus interconnection service or its affiliates, the Commission seeks comment on whether any further limitations should be placed on the entities with priority use of that surplus interconnection service.

207. In consideration of the foregoing, the Commission proposes 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. Additionally, the Commission proposes to add new sections 3.3, 3.3.1 and 3.3.2 to the *pro forma* LGIP that define the requirements of the transmission provider regarding requests for the use of surplus interconnection service and the solicitation process for surplus interconnection service that the existing generating facility owner must follow if it, or one of its affiliates, elects not to use the surplus interconnection service and wants to transfer that service to another interconnection customer.

208. The Commission proposes to add the following new definition to Section 1 of the *pro forma* LGIP and to article 1 of the *pro forma* LGIA:

> **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.

209. The Commission proposes 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. This section will displace the current section 3.3, changing the numbering of current sections 3.3, 3.4, 3.5, and 3.6 to 3.4, 3.5, 3.6, and 3.7, respectively.[250]

> **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.

210. The Commission proposes to add a new section 3.3.1 to the *pro forma* LGIP that describes the process for using surplus interconnection service:

> **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.

211. The Commission proposes 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:

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[250] Renumbering detailed in Appendix B of this Proposed Rule.

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.

4. Material Modification and Incorporation of Advanced Technologies

212. It is not uncommon for equipment manufacturers to make technological advancements to equipment while an interconnection request progresses through the interconnection process since the process can span several years. Technological advancements to equipment may achieve cost efficiencies and/or electrical grid performance

benefits. These changes may include, for example, advancements to turbines, inverters, plant supervisory controls, or may affect a generating facility's ability to provide ancillary services. However, the *pro forma* LGIP does not include clear guidelines on what technology changes constitute material modifications and how these changes can be incorporated into an interconnection request. The *pro forma* LGIP also does not contain guidance regarding the analysis and modeling for the incorporation of technological advancements into an existing interconnection request. The Commission proposes to require that transmission providers develop: (1) a definition of permissible technological advancements pursuant to an interconnection request that the interconnection process can accommodate and (2) an accompanying procedure that will be used to accommodate the incorporation of technological advancements to interconnection requests for synchronous and non-synchronous generating facilities. Further, the Commission proposes that this definition should contemplate advancements that provide cost efficiency and/or electrical performance benefits.

a. Existing Provisions and Background

213. 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.[251] An interconnection customer retains its queue position if the modifications are either allowed explicitly under the *pro forma* LGIP or if the transmission

[251] *See Pro forma* LGIP at Section 4.4.

provider determines that the modifications are not Material Modifications.[252] 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.[253] If a transmission provider finds a proposed modification to be material, the interconnection customer can choose whether to abandon the proposed modification or to proceed with the modification and lose its existing queue position.

b. Comments

214. During the 2016 Technical Conference, some panelists questioned whether interconnection customers should be able to incorporate technological advancements into their interconnection requests as they move through the interconnection study process. The Commission subsequently solicited post-technical conference comments on whether technological advancements could be incorporated without presenting system reliability concerns and causing delays to the interconnection study process.[254] Multiple commenters assert that the interconnection process could benefit from the additional flexibility to accommodate technological advancements that do not cause significant reliability issues or

[252] *See Pro forma* LGIP at Sections 4.4.1, 4.4.2, 4.4.3, 4.4.4.

[253] *See Pro forma* LGIP at Section 4.4.4.

[254] *See* Notice Inviting Post-Technical Conference Comments, Question 1.13 Docket Nos. RM16-12-000 and RM15-21-000 (June 3, 2016).

timing delays.[255] Some commenters state that these advancements should be permissible as long as they do not trigger the Material Modification provision of the LGIP and do not disrupt other interconnection requests.[256] PacifiCorp proposed a formal procedure for transmission providers to evaluate technological advancements.[257] In particular, PacifiCorp's proposal would require interconnection customers to provide formal notification and a $10,000 deposit for the performance of a technological change study that the transmission provider would complete within 30 days.[258] MISO asserts that a new approach to account for technological advancements would require manufacturers to provide validation documentation that the advancement performs equally or better than without the technological change. MISO further asserts that if a technological advancement would result in improved performance, in most cases, a transmission provider study is unnecessary.[259] Xcel acknowledges that new technologies may not be appropriately modeled in the existing analytical software, and states that developing sufficient modeling

[255] *See, e.g.*, PacifiCorp 2016 Comments at 3-4; AWEA 2016 Comments at 27; Invenergy 2016 Comments at 18; MISO 2016 Comments at 14; EDF 2016 Comments at 25; NYISO 2016 Comments at 19; ISO-NE 2016 Comments at 20-21.

[256] *See, e.g.*, Xcel 2016 Comments at 12-13; MISO 2016 Comments at 14; EDP 2016 Comments at 14-15; Invenergy 2016 Comments at 18.

[257] PacifiCorp 2016 Comments at 3-4.

[258] *Id*.

[259] MISO 2016 Comments at 14.

parameters should be made clear to interconnection customers' technology vendors.[260] Xcel argues that confidentiality issues should not preclude the sharing of functional specifications sufficient to model the new equipment.[261]

215. With regard to the timing of technological change requests, most commenters did not identify an appropriate deadline within the interconnection process beyond which transmission providers could not accommodate technological advancements. EDF argues that technological advancements should be accommodated as an interconnection request proceeds through the LGIP process up until the commercial operation date, because advancements provide benefits to all customers.[262] NYISO, on the other hand, asserts that technological advances and other modifications can be incorporated into an interconnection request only if they are proposed at appropriate stages.[263]

c. Proposal

216. The Commission preliminarily finds that the provisions regarding material modifications in the *pro forma* LGIP provide the transmission provider with significant discretion in determining whether a modification is deemed material, and that this discretion can lead to unjust and unreasonable rates, terms, and conditions, and unduly discriminatory

[260] Xcel 2016 Comments at 12-13.

[261] Xcel 2016 Comments at 12-13.

[262] EDF 2016 Comments at 25.

[263] NYISO 2016 Comments at 19.

or preferential practices when transmission providers evaluate technological advancements under the existing material modification construct.

217. The Commission thus proposes to require transmission providers to establish a technological change procedure to assess and, if necessary, study whether they can accommodate a technological change request without the change considered to be a material modification. The Commission proposes that transmission providers include the technological change procedure in their *pro forma* LGIPs. The Commission proposes an approach below for how this new procedure should be structured and proposes to require that transmission providers use this approach when developing their technological change procedure.

218. The Commission proposes that an interconnection customer that seeks to incorporate technological advancements into an interconnection request must formally notify the relevant transmission provider. In order for the transmission provider to determine that a proposed technological change is not a material modification,[264] the interconnection customer's formal technological change request would include analyses to 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. In some instances, a transmission provider may determine that no

[264] 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 at Section 1.

additional study is necessary to accommodate a proposed technological advancement without a loss of queue position.

219. In other instances, a transmission provider may require a study for a proposed technological advancement to not be considered a material modification. The Commission proposes that, in this scenario, 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. The transmission provider should then provide the study results within 30 days.

220. Under this proposal, the technological change procedure should specify what technological advancements can be incorporated at various stages of the interconnection process and the procedure should clearly specify which requirements apply to the interconnection customer and which apply to the transmission provider. The procedure should, for example, state that an interconnection customer that seeks to incorporate technological advancements into its generating facility should submit a formal technological change request. Additionally, the procedure should specify the necessary information that should be submitted by the interconnection customer as part of a formal technological change request and, to the extent practicable, specify the conditions when a study will or will not be necessary. If a study is necessary, the procedure should clearly specify the information that the interconnection customer needs to provide, including study scenarios, modeling data, and any other assumptions. The procedure should also clearly indicate what types of information and/or study results are necessary from the interconnection customer

and explain how the transmission provider will evaluate the technological change request. In the instance where the transmission provider performs the study, the interconnection customer may be required to tender a deposit, and the procedure should specify the amount of the study deposit and include the timeframe for the transmission provider to perform the study and return the results to the interconnection customer. If a proposed technological advancement cannot be accommodated without triggering the material modification provision of the *pro forma* LGIP or be completed through an abbreviated assessment that does not affect the interconnection customer's queue position, the Commission proposes to require the transmission provider to provide an explanation to the interconnection customer. The Commission seeks comment on reasonable study deposits and time frames.[265]

221. Consistent with the discussion above, the Commission proposes to revise Section 4.4.2 of the *pro forma* LGIP as follows (*proposing to delete italicized text*):

> **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) certain technological advancements 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 advancements.

[265] In its 2016 Comments, PacifiCorp proposes a $10,000 study deposit and 30-day timeframe for the study to be performed. PacifiCorp 2016 Comments at 4-5.

222. Pursuant to this proposal, the Commission also proposes to require transmission providers to develop a definition of technological advancements in their LGIPs. This definition should consider technological changes to equipment that may achieve cost and grid performance efficiencies. Examples of technological advancements that fit within these parameters include, but are not limited to, upgrades to turbines, inverters, and plant supervisory controls.

223. This proposal should reduce barriers to the implementation of technological advancements that improve the electrical characteristics of a generating facility and that perform equally or better than the performance of previous equipment and/or provide cost efficiencies. The Commission proposes that transmission providers use sound engineering judgment to determine whether they can accommodate the proposed technological changes so that they would not require a material modification. The Commission proposes to permit interconnection customers to submit requests to incorporate technological advancements prior to the execution of the interconnection facilities study agreement, and the Commission seeks comment as to whether this is the appropriate stage in the interconnection process to implement the technological change procedure.

5. Modeling of Electric Storage Resources for Interconnection Studies

224. The Commission proposes 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 report to the Commission why and how their existing practices are or are not sufficient.

a. Existing Provisions and Background

225. Electric storage resources present unique interconnection challenges because they are able to both receive electricity from the grid and inject electricity onto the grid. For this reason, transmission providers must study them in a way that measures their potential impact as both generation and load. It is not currently clear to the Commission whether making electric storage resources fit into the existing procedures for generation and load is the most effective means of evaluating these interconnection requests. The fact that generation studies and load studies are often conducted separately appears to complicate the way electric storage resources are modeled during the interconnection process and was a source of frustration among interconnection customers of electric storage resources that filed post-technical conference comments.

b. Comments

226. At the 2016 Technical Conference, panelists and staff discussed the modeling of electric storage resources for interconnection studies, including potential means for interconnection studies to better reflect the intended operation of electric storage resources. The Commission requested comment on whether current interconnection studies adequately account for the operational characteristics of electric storage resources in its request for post-technical conference comments. In response, several commenters note that two changes would improve the functionality of the interconnection study process: (1) changing the way storage is evaluated and modeled to follow California's "negative generation" approach; and (2) allowing interconnection customers to specify the charge/discharge

parameters to be used by the transmission provider in interconnection studies.[266] Commenters also recommend that interconnection studies model the impacts of storage resources under their planned use cases and argue that they include the operational characteristics of storage and the benefits it provides for reliability.[267] AES notes that its software eliminates the potential for voltage flicker and that transmission providers should be able to take into account that a particular interconnection customer can operate without voltage flicker.[268]

227. The RTOs/ISOs generally believe that their practices for modeling electric storage resources for interconnection studies are adequate. MISO asserts that the generator interconnection process is an appropriate process to study new storage interconnections and that only minor changes from that process are necessary for it to study storage interconnection.[269] NYISO contends that interconnection studies currently account for the operating characteristics of electric storage resources to the extent necessary under the minimum interconnection standard. However, NYISO states that it has experienced challenges with the accuracy of modeling information used to evaluate electric storage

[266] *See, e.g.*, ESA Comments at 5, RES Americas Comments at 3. The Commission notes that RES Americas would prefer a separate process but alternatively suggests using the negative generation approach. NextEra Comments at 10-11.

[267] Energy Storage Association Comments at 7-8; RES Americas Comments at 5; California Energy Storage Alliance Comments at 11; Invenergy Comments at 28; AES comments at 3-4; NextEra Comments at 11; Xcel Comments at 18.

[268] AES Comments at 14.

[269] MISO Comments at 23.

resources in the interconnection process.[270] ISO-NE claims that its current interconnection studies adequately account for the operational characteristics of electric storage resources.[271]

228. CAISO's approach to modeling electric storage resources (or Non-Generator Resources) as "negative generation" was identified as a best practice during the 2016 Technical Conference and in the post-technical conference comments.[272] NextEra states that allowing electric storage resources to provide better information about their resources for interconnection studies would benefit the study process, and NYISO indicates that it has experienced challenges with the accuracy of modeling information.[273] Both NextEra's and NYISO's concern suggests that more specific information requirements for modeling electric storage resources would be appropriate.

c. Proposal

229. The Commission proposes 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 provide their responses to the Commission in comments to this Proposed Rule regarding why and how their existing practices are or are not sufficient. Specifically, transmission providers and others should

[270] NYISO Comments at 27-28.

[271] ISO-NE Comments at 28.

[272] ESA Comments at 5; RES Americas Comments at 3.

[273] NextEra Comments at 11; NYISO Comments at 28.

comment on whether establishing a unified model for studying electric storage resources would expedite the study process and therefore reduce the time and costs expended by the transmission providers for studying the interconnection of electric storage resources. For example, the negative-generation practice in CAISO may allow transmission providers to better account for the transitions of electric storage resources between generation and load and may better enable the use of existing generator interconnection procedures and agreements due to their treatment as negative generation instead of load. This approach to studying electric storage resources may also expedite their interconnection by allowing the transmission provider to study them as a single resource and perform one study (as opposed to separate studies for generation and load impacts). In addition, this approach may also help ensure the applicability of existing interconnection agreements and procedures to electric storage resources.

230. Additionally, commenters should describe what information electric storage resources should provide that is not already consistently provided with interconnection requests. Since transmission providers evaluate electric storage resources using existing processes for generation and load, it is unclear to the Commission whether the existing information requirements for new interconnection customers that want to interconnect electric storage resources are adequate to capture the operational characteristics of electric storage resources. Bringing electric storage resources onto the system as efficiently as possible may enhance competition in the wholesale markets and improve reliability. If there are approaches to studying electric storage resources that capture their unique characteristics

and facilitate their interconnection, the Commission would like to identify those potential improvements as best practices for all transmission providers.

V. Proposed Compliance Procedures

231. The Commission proposes to require each public utility[274] transmission provider to submit a compliance filing within 90 days of the effective date of the final rule in this proceeding revising its LGIP and LGIA, as necessary, to demonstrate that it meets the requirements set forth in any final rule issued in this proceeding.

232. Some public utility transmission providers may have provisions in their existing LGIPs and LGIAs that the Commission has previously deemed to be consistent with or superior to the *pro forma* LGIP and *pro forma* LGIA. Where these provisions would be modified by the final rule, public utility transmission providers must either comply with the final rule or demonstrate that these previously-approved variations continue to be consistent with or superior to the *pro forma* as modified by the final rule. The Commission also proposes to permit appropriate entities to seek "regional reliability variations" or "independent entity variations" from the proposed revisions to the *pro forma*.[275]

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[274] A public utility is a utility that owns, controls, or operates facilities used for transmitting electric energy in interstate commerce, as defined by the FPA. *See* 16 U.S.C. 824(e) (2012). A non-public utility that seeks voluntary compliance with the reciprocity condition of an OATT may satisfy that condition by filing an OATT, which includes an SGIA.

[275] *See, e.g.*, Order No. 2003, FERC Stats. & Regs. ¶ 31,146 at PP 822-827; Order No. 2006, FERC Stats. & Regs. ¶ 31,180 at PP 546-550.

233. The Commission will assess whether each compliance filing satisfies the proposed requirements stated above and issue additional orders as necessary to ensure that each public utility transmission provider meets the requirements of the subsequent final rule.

234. The Commission proposes that Transmission Providers that are not public utilities will have to adopt the requirements of this Proposed Rule as a condition of maintaining the status of their safe harbor tariff or otherwise satisfying the reciprocity requirement of Order No. 888.[276]

VI. Information Collection Statement

235. The following collection of information contained in this Proposed Rule is subject to review by the Office of Management and Budget (OMB) regulations under section 3507(d) of the Paperwork Reduction Act of 1995.[277] OMB's regulations require approval of certain information collection requirements imposed by agency rules.[278] Upon approval of a collection of information, OMB will assign an OMB control number and expiration date. Respondents subject to the filing requirements of this Proposed 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.

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[276] *Promoting Wholesale Competition Through Open Access Non-Discriminatory Transmission on Services by Public Utilities; Recovery of Stranded Costs by Public Utilities and Transmitting Utilities*, Order No. 888, FERC Stats. & Regs. ¶ 31,036, at 31,760-763 (1996).

[277] 44 U.S.C. 507(d) (2012).

[278] 5 CFR 1320.11 (2016).

236. The reforms proposed in this Proposed Rule would revise the Commission's *pro forma* LGIP, *pro forma* LGIA, and the Commission's regulations in accordance with section 35.28(f)(1) of the Commission's regulations.[279] This Proposed Rule proposes that each public utility transmission provider will amend its LGIP and LGIA to improve the interconnection process. The Commission anticipates the revisions proposed in this Proposed Rule, once implemented, will not significantly change currently existing burdens on an ongoing basis. The Commission will submit the proposed reporting requirements to OMB for its review and approval under section 3507(d) of the Paperwork Reduction Act.[280]

237. While the Commission expects the revisions proposed in this Proposed Rule will provide significant benefits, the Commission understands that implementation can be a complex and costly endeavor. The Commission solicits comments on its need for this information, whether the information will have practical utility, the accuracy of the provided burden and cost estimates, ways to enhance the quality, utility, and clarity of the information to be collected or retained, and any suggested methods for minimizing the respondents' burdens.

Burden Estimate and Information Collection Costs: The Commission believes that the burden estimates below are representative of the average burden on respondents. The

[279] 18 CFR 35.28(f)(1) (2016).

[280] 44 U.S.C. 3507(d) (2012).

estimated burden and cost[281] for the requirements contained in this Notice of Proposed Rulemaking follow.

FERC 516F					
	Number of Applicable Registered Entities (1)	**Annual Number of Responses per Respondent (2))[282]**	**Total Number of Responses (1)*(2)=(3)**	**Average Burden (Hours) & Costs per Response[283] (4)**	**Total Annual Burden Hours & Total Annual Cost (3)*(4)=(5)**
Issue A1 – Scheduled periodic restudies	Non-RTO/ISO (126)	Year 1– 1 Year 2– 0	Year 1– 126 Year 2– 0	Year 1– 4 Year 2– 0	Year 1– 504 Year 2– 0
	RTO/ISO (6)	Year 1– 1 Year 2– 0	Year 1– 6 Year 2– 0	Year 1– 4 Year 2– 0	Year 1– 24 Year 2– 0
Issue A2 – Interconnection customer's option to build	Non-RTO/ISO (126)	Year 1– 1 Year 2– 0	Year 1– 126 Year 2– 0	Year 1– 4 Year 2– 0	Year 1– 504 Year 2– 0
	RTO/ISO (6)	Year 1– 1 Year 2– 0	Year 1– 6 Year 2– 0	Year 1– 4 Year 2– 0	Year 1– 24 Year 2– 0
Issue A3 – Self-funding by the transmission owner	Non-RTO/ISO (126)	N/A	N/A	N/A	N/A
	RTO/ISO (6)	Year 1– 1 Year 2– 0	Year 1– 6 Year 2– 0	Year 1– 4 Year 2– 0	Year 1– 24 Year 2– 0

[281] The estimates for cost per response are derived using the following formula: Average Burden hours per Response * $74.50 per Hour = Average Cost per Response. The hourly cost figure comes from the Commission average salary of $154,647. Subject matter experts found that industry employment costs closely resemble the Commission's regarding the FERC-516F information collection.

[282] Any figures labeled as "Year 2" should be considered ongoing response or burden amounts.

[283] ($154,647/year) / (2,080 hours/year) = $74.349 per hour and is rounded to $74.50 per hour.

FERC 516F					
	Number of Applicable Registered Entities (1)	**Annual Number of Responses per Respondent (2))[282]**	**Total Number of Responses (1)*(2)=(3)**	**Average Burden (Hours) & Costs per Response[283] (4)**	**Total Annual Burden Hours & Total Annual Cost (3)*(4)=(5)**
Issue A4 – RTO/ISO dispute resolution	Non-RTO/ISO (126)	N/A	N/A	N/A	N/A
	RTO/ISO (6)	Year 1– 1 Year 2– 0	Year 1– 6 Year 2– 0	Year 1– 4 Year 2– 0	Year 1– 24 Year 2– 0
Issue A5 – Capping costs for network upgrades	Non-RTO/ISO (126)	N/A	N/A	N/A	N/A
	RTO/ISO (6)	N/A	N/A	N/A	N/A
Issue B1 – Identification and definition of contingent facilities	Non-RTO/ISO (126)	Year 1– 1 Year 2– 0	Year 1–126 Year 2– 0	Year 1– 80 Year 2– 0	Year 1– 10,080 Year 2– 0
	RTO/ISO (6)	Year 1– 1 Year 2– 0	Year 1– 6 Year 2– 0	Year 1– 80 Year 2– 0	Year 1–480 Year 2– 0
Issue B2 – Lack of transparency in the interconnection process	Non-RTO/ISO (126)	Year 1– 1 Year 2– 0	Year 1–126 Year 2– 0	Year 1– 80 Year 2– 0	Year 1– 10,080 Year 2– 0
	RTO/ISO (6)	Year 1– 1 Year 2– 0	Year 1– 6 Year 2– 0	Year 1– 80 Year 2– 0	Year 1–480 Year 2– 0
Issue B3 – Curtailment concerns	Non-RTO/ISO (126)	Year 1– 1 Year 2– 12	Year 1–126 Year 2– 1512	Year 1– 4 Year 2– 4	Year 1–504 Year 2– 6,048
	RTO/ISO (6)	Year 1– 1 Year 2– 12	Year 1– 6 Year 2– 72	Year 1– 4 Year 2– 4	Year 1– 24 Year 2–288
Issue B4 – Definition of generating facility	Non-RTO/ISO (126)	Year 1– 1 Year 2– 0	Year 1–126 Year 2– 0	Year 1– 4 Year 2– 0	Year 1–504 Year 2– 0
	RTO/ISO (6)	Year 1– 1 Year 2– 0	Year 1– 6 Year 2– 0	Year 1– 4 Year 2– 0	Year 1– 24 Year 2– 0
Issue B5 – Interconnection study deadlines	Non-RTO/ISO (126)	Year 1– 1 Year 2– 4	Year 1–126 Year 2–504	Year 1– 4 Year 2– 4	Year 1–504 Year 2– 2,016
	RTO/ISO (6)	Year 1– 1 Year 2– 4	Year 1– 6 Year 2– 24	Year 1– 4 Year 2– 4	Year 1– 24 Year 2– 96

FERC 516F					
	Number of Applicable Registered Entities (1)	**Annual Number of Responses per Respondent (2))[282]**	**Total Number of Responses (1)*(2)=(3)**	**Average Burden (Hours) & Costs per Response[283] (4)**	**Total Annual Burden Hours & Total Annual Cost (3)*(4)=(5)**
Issue C1 – Requesting interconnection service below generating facility capacity	Non-RTO/ISO (126)	Year 1– 1 Year 2– 0	Year 1– 126 Year 2– 0	Year 1– 4 Year 2– 0	Year 1– 504 Year 2– 0
	RTO/ISO (6)	Year 1– 1 Year 2– 0	Year 1– 6 Year 2– 0	Year 1– 4 Year 2– 0	Year 1– 24 Year 2– 0
Issue C2 – Provisional agreements	Non-RTO/ISO (126)	Year 1– 1 Year 2– 0	Year 1– 126 Year 2– 0	Year 1– 4 Year 2– 0	Year 1– 504 Year 2– 0
	RTO/ISO (6)	Year 1– 1 Year 2– 0	Year 1– 6 Year 2– 0	Year 1– 4 Year 2– 0	Year 1– 24 Year 2– 0
Issue C3 – Utilization of surplus interconnection service	Non-RTO/ISO (126)	Year 1– 1 Year 2– 0	Year 1– 126 Year 2– 0	Year 1– 4 Year 2– 0	Year 1– 504 Year 2– 0
	RTO/ISO (6)	Year 1– 1 Year 2– 0	Year 1– 6 Year 2– 0	Year 1– 4 Year 2– 0	Year 1– 24 Year 2– 0
Issue C4 – Material modification and incorporation of advanced technologies	Non-RTO/ISO (126)	Year 1– 1 Year 2– 0	Year 1– 126 Year 2– 0	Year 1– 4 Year 2– 0	Year 1– 504 Year 2– 0
	RTO/ISO (6)	Year 1– 1 Year 2– 0	Year 1– 6 Year 2– 0	Year 1– 4 Year 2– 0	Year 1– 24 Year 2– 0
Issue C5 – Modeling of electric storage resources	Non-RTO/ISO (126)	Year 1– 1 Year 2– 0	Year 1– 126 Year 2– 0	Year 1– 80 Year 2– 0	Year 1– 10,080 Year 2– 0
	RTO/ISO (6)	Year 1– 1 Year 2– 0	Year 1– 6 Year 2– 0	Year 1– 80 Year 2– 0	Year 1– 480 Year 2– 0
Total	Non-RTO/ISO, Year 1		276		34,776
	Non-RTO/ISO, Ongoing		64		8,064
	RTO/ISO, Year 1		284		1,704
	RTO/ISO, Ongoing		64		384

Cost to Comply: The Commission has projected the total cost of compliance as follows:[284]

Year 1: $2,590,812 ($20,562/non-RTO/ISO utility), $126,948 ($21,158/RTO/ISO utility)[285]

Year 2: $600,768 ($4,768/non-RTO/ISO utility), $28,608 ($4,768/RTO/ISO utility)[286]

Year 1 costs reflect filing of new LGIP and LGIA language with the Commission, as well as certain efforts to review and revise existing interconnection procedures. Year 2 represents ongoing costs that the transmission provider will face on an ongoing basis to fulfill the directives of this Notice of Proposed Rulemaking. The reforms proposed in this Notice of Proposed Rulemaking, once implemented, would not significantly change existing burdens on an ongoing basis.

Title: FERC-516, Electric Rate Schedules and Tariff Filings.

Action: Proposed revision to an information collection.

OMB Control No.: TBD

Respondents for Proposal: Businesses or other for profit and/or not-for-profit institutions.

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[284] The costs for Year 1 would consist of filing proposed changes to the LGIP and LGIA with the Commission within 90 days of the effective date of the final revision plus initial implementation. The costs for year 2 represent ongoing requirements that would persist in subsequent years.

[285] Non-RTO/ISO utility costs (Year One): 34,776 hours * $74.50 = $2,590,812; $2,590,812 ÷ 126 = $20,562. RTO/ISO utility costs: 384 hours * $74.50 = $28,608; $28,608 ÷ 6 = $4,768.

[286] Non-RTO/ISO utility costs (Year 2 and ongoing): 8,064 hours * $74.50 = $600,768; $600,768 ÷ 126 = $4,768. RTO/ISO utility costs: 384 hours * $74.50 = $28,608; $28,608 ÷ 6 = $4,768.

Frequency of Information: One-time during year one. Multiple times during subsequent years.

Necessity of Information: The Commission issues this Proposed Rule to address interconnection practices that may be resulting in unjust and unreasonable or unduly discriminatory or preferential rates, terms, and conditions. The Commission seeks to improve certainty in the interconnection process, to promote more informed 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.

238. 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. Comments concerning the collection of information and the associated burden estimate(s) in the Proposed Rule 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, phone: (202) 395-0710, fax: (202) 395-7285]. Due to security concerns, comments should be sent electronically to the following email address:

oira_submission@omb.eop.gov. Comments submitted to OMB should include FERC-516D and OMB Control No. 1902-0288.

VII. Regulatory Flexibility Act

239. The Regulatory Flexibility Act of 1980 (RFA)[287] generally requires a description and analysis of rules that will have significant economic impact on a substantial number of small entities. The RFA does not mandate any particular outcome in a rulemaking. It only requires consideration of alternatives that are less burdensome to small entities and an agency explanation of why alternatives were rejected.

240. The Small Business Administration (SBA) revised its size standards (effective January 22, 2014) for electric utilities from a standard based on megawatt hours to a standard based on the number of employees, including affiliates. Under SBA's standards, some transmission owners will fall under the following category and associated size threshold: electric bulk power transmission and control, at 500 employees.[288]

241. 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 be between $20,562 and $21,158 in Year One and $4,768 in

[287] 5 U.S.C. 601-12 (2012).

[288] 13 CFR 121.201, Sector 22 (Utilities), NAICS code 221121 (Electric Bulk Power Transmission and Control) (2016).

subsequent years. 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."[289] The Commission does not consider the estimated burden to be a significant economic impact. As a result, the Commission certifies that the revisions proposed in this Proposed Rule will not have a significant economic impact on a substantial number of small entities.

VIII. Environmental Analysis

242. 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.[290] The Commission concludes that neither an Environmental Assessment nor an Environmental Impact Statement is required or the revisions proposed in this Proposed Rule under section 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.[291]

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[289] U.S. Small Business Administration, *A Guide for Government Agencies How to Comply with the Regulatory Flexibility Act*, at 18 (May 2012), https://www.sba.gov/sites/default/files/advocacy/rfaguide_0512_0.pdf.

[290] *Regulation Implementing National Environmental Policy Act of 1969*, Order No. 486, FERC Stats. & Regs. ¶ 30,783 (1987).

[291] 18 CFR 380.4(a)(15) (2016).

The revisions proposed in this Proposed Rule fall within the categorical exemptions provided in the Commission's regulations, and as a result neither an Environmental Impact Statement nor an Environmental Assessment is required.

IX. Comment Procedures

243. The Commission invites persons to submit comments on the matters and issues proposed in this Notice of Proposed Rulemaking to be adopted, including any related matters or alternative proposals that commenters may wish to discuss. Comments are due 60 days after publication in the Federal Register. Comments must refer to Docket No. RM17-8-000, and must include the commenter's name, the organization they represent, if applicable, and their address.

244. The Commission encourages comments to be filed electronically via the eFiling link on the Commission's web site at http://www.ferc.gov. The Commission accepts most standard word processing formats. Documents created electronically using word processing software should be filed in native applications or print-to-PDF format and not in a scanned format. Commenters filing electronically do not need to make a paper filing.

245. Commenters that are not able to file comments electronically must send an original of their comments to: Federal Energy Regulatory Commission, Secretary of the Commission, 888 First Street, NE, Washington, DC 20426.

246. All comments will be placed in the Commission's public files and may be viewed, printed, or downloaded remotely as described in the Document Availability Section below. Commenters on this proposal are not required to serve copies of their comments on other commenters.

X. Document Availability

247. 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.

248. 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.

249. 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. E-mail the Public Reference Room at public.referenceroom@ferc.gov.

List of subjects in 18 CFR Part 35:

Electric power rates

Electric utilities

Reporting and recordkeeping requirements

List of subjects in 18 CFR Part 37:

Electric power rates

Electric utilities

Reporting and recordkeeping requirements

By direction of the Commission.

(S E A L)

Nathaniel J. Davis, Sr.,
Deputy Secretary.

In consideration of the foregoing, the Commission proposes to amend Parts 35 and 37 Chapter I, Title 18, *Code of Federal Regulations*, as follows.

PART 35 – FILING OF RATE SCHEDULES AND TARIFFS

1. The authority citation for Part 35 continues to read as follows:

Authority: 16 U.S.C. 791a-825r; 2601-2645; 31 U.S.C. 9701; 42 U.S.C. 7101-7352.

2. Amend § 35.28 to add (g)(9) as follows:

The additions read as follows:

§ 35.28 Non-discriminatory open access transmission tariff.

(g) * * *

(9) *Generator Interconnection Dispute Resolution Procedures.* 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.

PART 37 – OPEN ACCESS SAME-TIME INFORMATION SYSTEMS

1. The authority citation for Part 37 continues to read as follows:

Authority: 5 U.S.C. 551-557; 16 U.S.C. 791a-825r; 31 U.S.C. 9701; 42 U.S.C. 7107-7352

2. Amend § 37.6 to add (l) as follows:

§ 37.6 Information to be posted on the OASIS

*** * ***

(l) *Posting of congestion and curtailment data.* 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.

Note: Appendix A will not be published in the Code of Federal Regulations

Appendix A: List of Short Names of Commenters on the AWEA Petition (Docket No. RM 15-21-000) and the 2016 Technical Conference (Docket No. RM16-12-000)

Short Name or Acronym	Commenter
AES Companies	Indianapolis Power & Light Company, Dayton Power and Light Company, AES Storage LLC, AES ES Tait LLC and all other AES U.S. operating companies that own generation and storage
AVANGRID	AVANGRID, Inc.
Avista	Avista Corporation
AWEA	American Wind Energy Association
CAISO	California Independent System Operator, Corp.
CMUA	California Municipal Utilities Association
EDF	EDF Renewable Energy, Inc.
EDP	EDF Renewables North America LLC
EEI	Edison Electric Institute
E.ON	E.ON Climate & Renewables North America, LLC
ESA	Energy Storage Alliance
Exelon	Exelon Corporation
Interwest	Interwest Energy Alliance
Invenergy	Invenergy Wind Development LLC, Invenergy Thermal Development LLC, Invenergy Storage Development LLC, and Invenergy Solar Development LLC

ISO-NE	ISO New England Inc.
ITC	ITC Holdings
KCP&L	Kansas City Power & Light Company and KCP&L Greater Missouri Operations
MISO	Midcontinent Independent System Operator, Inc.
MISO TOs	Ameren Services Company, as agent for Union Electric Company d/b/a Ameren Missouri, Ameren Illinois Company d/b/a Ameren Illinois and Ameren Transmission Company of Illinois; American Transmission Company LLC; Central Minnesota Municipal Power Agency; City Water, Light & Power (Springfield, IL); Cleco Power LLC; Dairyland Power Cooperative; Duke Energy Business Services, LLC for Duke Energy Indiana, Inc.; East Texas Electric Cooperative; Entergy Arkansas, Inc.; Entergy Louisiana, LLC; Entergy Gulf States Louisiana, L.L.C.; Entergy Mississippi, Inc.; Entergy New Orleans, Inc.; Entergy Texas, Inc.; Great River Energy; Indiana Municipal Power Agency; Indianapolis Power & Light Company; International Transmission Company d/b/a ITC Transmission; ITC Midwest LLC; Michigan Electric Transmission Company, LLC; MidAmerican Energy Company; Minnesota Power (and its subsidiary Superior Water, L&P); Missouri River Energy Services; Montana-Dakota Utilities Co.; Northern Indiana Public Service Company; Northern States Power Company, a Minnesota corporation, and Northern States Power Company, a Wisconsin corporation, subsidiaries of Xcel Energy Inc.; Northwestern Wisconsin Electric Company; Otter Tail Power Company; Prairie Power Inc.; Southern Indiana Gas & Electric Company (d/b/a Vectren Energy Delivery of Indiana); Wabash Valley Power Association, Inc.; and Wolverine Power Supply Cooperative, Inc.

NextEra	NextEra Energy Resources, LLC
NRG	NRG Power Marketing LLC and GenOn Energy Management, LLC
NYISO	New York Independent System Operator, Inc.
NYTOs	Central Hudson Gas & Electric Corporation, Consolidated Edison Company of New York, Inc., Power Supply Long Island, New York Power Authority, Niagara Mohawk Power Corporation d/b/a National Grid, and Orange and Rockland Utilities, Inc.
PacifiCorp	PacifiCorp Transmission
PSEG	Public Service Electric and Gas Company, PSEG Power LLC, and PSEG Energy Resources & Trade LLC
RENEW	RENEW Northeast, Inc.
RES Americas	RES America Developments Inc.
Six Cities	Cities of Anaheim, Azusa, Banning, Colton, Pasadena, and Riverside, California
SoCal Edison	Southern California Edison Company
Sustainable FERC	Sustainable FERC Project
TVA	Tennessee Valley Authority
Xcel	Xcel Energy Services Inc., Northern States Power Company, Northern States Power Company, Public Service Company of Colorado, and Southwestern Public Service Company

Note: Appendix B will not be published in the Code of Federal Regulations

Appendix B: Compilation of proposed changes to the *pro forma* LGIP

The Commission proposes to modify the following sections of the *pro forma* LGIP as indicated below:

Section 1. Definitions

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 restudies of the interconnection request or a reassessment of the network upgrades and/or costs and timing.

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.

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.

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 Interconnection Agreement and, if applicable, the Tariff.

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.

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.

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.

2.3. Base Case Data.

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.

3.1 General

An Interconnection Customer shall submit to Transmission Provider an Interconnection Request in the form of Appendix 1 to this LGIP and a refundable deposit of $10,000. Transmission Provider shall apply the deposit toward the cost of an Interconnection Feasibility Study. Interconnection Customer shall submit a separate Interconnection Request for each site and may submit multiple Interconnection Requests for a single site. Interconnection Customer must submit a deposit with each Interconnection Request even when more than one request is submitted for a single site. An Interconnection Request to evaluate one site at two different voltage levels shall be treated as two Interconnection Requests.

At Interconnection Customer's option, Transmission Provider and Interconnection Customer will identify alternative Point(s) of Interconnection and configurations at the Scoping Meeting to evaluate in this process and attempt to eliminate alternatives in a reasonable fashion given resources and information available. Interconnection Customer will select the definitive Point(s) of Interconnection to be studied no later than the execution of the Interconnection Feasibility Study Agreement.

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.

3.3 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.

3.3.1 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.

3.3.2 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.

3.~~3~~4 Valid Interconnection Request.

3.~~3~~4.1 Initiating an Interconnection Request.

3.~~3~~4.2 Acknowledgment of Interconnection Request.

~~3.4~~ 3.5.1 OASIS Posting.

3.5.2 The Transmission Provider will maintain on its OASIS summary statistics related to processing Interconnection Studies pursuant to Interconnection Requests, updated quarterly. For each calendar quarter, Transmission Providers must calculate and post the information detailed in sections 3.5.2.1 through 3.5.2.4.

3.5.2.1

Interconnection Feasibility Studies processing time. (A) Number of Interconnection Requests that had Interconnection Feasibility Studies completed within the Transmission Provider's coordinated region during the reporting quarter, (B) Number of Interconnection Requests that had Interconnection Feasibility Studies completed within the Transmission Provider's coordinated region during the reporting quarter that were completed more than [timeline as listed in the Transmission Provider's LGIP] after receipt by the Transmission Provider of the Interconnection Customer's executed Interconnection Feasibility Study Agreement, (C) At the end of the reporting quarter, the number of active valid Interconnection Requests with ongoing incomplete Interconnection Feasibility Studies where such Interconnection Requests had executed Interconnection Feasibility Study Agreements received by the Transmission Provider more than [timeline as listed in the Transmission Provider's LGIP] before the reporting quarter end, (D) Mean time (in days), Interconnection Feasibility Studies completed within the Transmission Provider's coordinated region during the reporting quarter, from the date when the Transmission Provider received the executed the Interconnection Feasibility Study Agreement to the date when the Transmission Provider provided the completed Interconnection Feasibility Study to the Interconnection Customer, (E) Percentage of Interconnection Feasibility Studies exceeding [timeline as listed in the Transmission Provider's LGIP] to complete this reporting period, calculated as 1 – (the sum of 3.5.2.2(A) minus 3.5.2.2(B) and dividing that amount by the sum of 3.5.2.2(A) plus 3.5.2.2(C)).

3.5.2.2

Interconnection System Impact Studies processing time. (A) Number of Interconnection Requests that had Interconnection System Impact Studies completed within the Transmission Provider's coordinated region during the reporting quarter, (B) Number of Interconnection Requests that had Interconnection System Impact Studies completed within the Transmission Provider's coordinated region during the reporting quarter that were completed more than [timeline as listed in the Transmission Provider's LGIP] after receipt by the Transmission Provider of the Interconnection Customer's executed Interconnection System Impact Study Agreement, (C) At the end of

the reporting quarter, the number of active valid Interconnection Requests with ongoing incomplete System Impact Studies where such Interconnection Requests had executed Interconnection System Impact Study Agreements received by the Transmission Provider more than [timeline as listed in the Transmission Provider's LGIP] before the reporting quarter end, (D) Mean time (in days), Interconnection System Impact Studies completed within the Transmission Provider's coordinated region during the reporting quarter, from the date when the Transmission Provider received the executed Interconnection System Impact Study Agreement to the date when the Transmission Provider provided the completed Interconnection System Impact Study to the Interconnection Customer, (E) Percentage of Interconnection System Impact Studies exceeding [timeline as listed in the Transmission Provider's LGIP] to complete this reporting period, calculated as 1 – (the sum of 3.5.2.3(A) minus 3.5.2.3(B) and dividing that amount by the sum of 3.5.2.3(A) plus 3.5.2.3(C)).

3.5.2.3

Interconnection Facilities Studies Processing time. (A) Number of Interconnection Requests that had Interconnection Facilities Studies that are completed within the Transmission Provider's coordinated region during the reporting quarter, (B) Number of Interconnection Requests that had Interconnection Facilities Studies that are completed within the Transmission Provider's coordinated region during the reporting quarter that were completed more than [timeline as listed in the Transmission Provider's LGIP] after receipt by the Transmission Provider of the Interconnection Customer's executed Interconnection Facilities Study Agreement, (C) At the end of the reporting quarter, the number of active valid Interconnection Service requests with ongoing incomplete Interconnection Facilities Studies where such Interconnection Requests had executed Interconnection Facilities Studies Agreement received by the Transmission Provider more than [timeline as listed in the Transmission Provider's LGIP] before the reporting quarter end (D) Mean time (in days), Interconnection Facilities Studies completed within the Transmission Provider's coordinated region during the reporting quarter, from the date when the Transmission Provider received the executed Interconnection Facilities Study Agreement to the date when the Transmission Provider provided the completed Interconnection Facilities Study to the Interconnection Customer, (E) Percentage of delayed Interconnection Facilities Studies this reporting period, calculated as 1 – (the sum of 3.5.2.4(A) minus 3.5.2.4(B) and dividing that amount by the sum of 3.5.2.4(A) plus 3.5.2.4(C)).

3.5.2.4

Interconnection Service requests withdrawn from interconnection queue. (A) Number of Interconnection Service requests withdrawn from the Transmission Provider's interconnection queue during the reporting quarter, (B) Number of Interconnection Service requests withdrawn from the Transmission Provider's interconnection queue during the reporting quarter before completion of any interconnection studies or execution of any interconnection study agreements, (C) Number of Interconnection Service requests withdrawn from the Transmission Provider's interconnection queue during the reporting quarter before completion of an Interconnection System Impact Study, (D) Number of Interconnection Service requests withdrawn from the Transmission Provider's interconnection queue during the reporting quarter before completion of an Interconnection Facility Study, (E) Number of Interconnection Service requests withdrawn from the Transmission Provider's interconnection queue after execution of a generator interconnection agreement or Interconnection Customer requests the filing of an unexecuted, new interconnection agreement, (F) Mean time (in days), for all withdrawn Interconnection Service requests, from the date when the request was determined to be valid to when the Transmission Provider received the request to withdraw from the queue.

3.5.3 The Transmission Provider is required to post on OASIS the measures in paragraph 3.5.2.1(A) through paragraph 3.5.2.4(F) for each calendar quarter within 30 days of the end of the calendar quarter. The Transmission Provider will keep the quarterly measures posted on OASIS for three calendar years with the first required reporting year to be 2017.

3.5.4 In the event that any of the values calculated in paragraphs 3.5.2.1(E), 3.5.2.2(E) or 3.5.2.3(E) exceeds 25 percent for two consecutive calendar quarters the Transmission Provider will have to comply with the measures below for the next four consecutive calendar quarters and must continue reporting this information until the Transmission Provider reports four consecutive calendar quarters without the values calculated in 3.5.2.1(E), 3.5.2.2(E) or 3.5.2.3(E) exceeding 25 percent for two consecutive calendar quarters:

(i) The Transmission Provider must submit a report to the Commission describing the reason for each study or group of clustered studies pursuant to an Interconnection Request that exceeded its deadline (i.e., 45, 90 or 180 days) for completion (excluding any allowance for Reasonable Efforts). The Transmission Provider must describe the reasons for each study delay and any steps taken to remedy these specific issues and, if applicable, prevent such delays in the future. The report must be filed at the Commission within 45 days of the end of the calendar quarter.

(ii) The Transmission Provider shall aggregate the total number of employee-hours and third party consultant hours expended towards interconnection studies within its coordinated region that quarter and post on OASIS. This information is to be posted within 30 days of the end of the calendar quarter.

3.~~5~~6 Coordination with Affected Systems.

3.~~6~~7 Withdrawal.

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.

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) certain technological advancements 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 advancements.

6.3 Interconnection Feasibility Study Procedures.

Transmission Provider shall utilize existing studies to the extent practicable when it performs the study. Transmission Provider shall use Reasonable Efforts to complete the Interconnection Feasibility Study no later than forty-five (45) Calendar Days after

Transmission Provider receives the fully executed Interconnection Feasibility Study Agreement. At the request of Interconnection Customer or at any time Transmission Provider determines that it will not meet the required time frame for completing the Interconnection Feasibility Study, Transmission Provider shall notify Interconnection Customer as to the schedule status of the Interconnection Feasibility Study. If Transmission Provider is unable to complete the Interconnection Feasibility Study within that time period, it shall notify Interconnection Customer and provide an estimated completion date with an explanation of the reasons why additional time is required. Upon request, Transmission Provider shall provide Interconnection Customer supporting documentation, workpapers and relevant power flow, short circuit and stability databases for the Interconnection Feasibility Study, subject to confidentiality arrangements consistent with Section 13.1.

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.

6.4 Re-Study.

If Re-Study of the Interconnection Feasibility Study is required due to a higher queued project dropping out of the queue, or a modification of a higher queued project subject to Section 4.4, or re-designation of the Point of Interconnection pursuant to Section 6.1 Transmission Provider shall notify Interconnection Customer in writing. Serially processed Re-Studies ~~Such Re-Study~~ shall take no longer than forty-five (45) Calendar Days from the date of the notice. Any cost of Re-Study shall be borne by the Interconnection Customer being re-studied.

If a Transmission Provider that conducts cluster studies identifies a need for restudies, it will conduct periodic Re-Studies for each cluster [placeholder for time frame proposed by each Transmission Provider]. Re-Study dates for each cluster will also be posted on the Transmission Provider's OASIS. Re-Study shall take no longer than [forty-five (45)/ sixty (60)] Calendar Days from the commencement date of the Re-Study. Any cost of Re-Study shall be borne by the Interconnection Customer being re-studied.

7.3 Scope of Interconnection System Impact Study.

The Interconnection System Impact Study shall evaluate the impact of the proposed interconnection on the reliability of the Transmission System. The Interconnection System Impact Study will consider the Base Case as well as all generating facilities (and with respect to (iii) below, any identified Network

Upgrades associated with such higher queued interconnection) that, on the date the Interconnection System Impact Study is commenced: (i) are directly interconnected to the Transmission System; (ii) are interconnected to Affected Systems and may have an impact on the Interconnection Request; (iii) have a pending higher queued Interconnection Request to interconnect to the Transmission System; and (iv) have no Queue Position but have executed an LGIA or requested that an unexecuted LGIA be filed with FERC.

The Interconnection System Impact Study will consist of a short circuit analysis, a stability analysis, and a power flow analysis. The Interconnection System Impact Study will state the assumptions upon which it is based; state the results of the analyses; and provide the requirements or potential impediments to providing the requested interconnection service, including a preliminary indication of the cost and length of time that would be necessary to correct any problems identified in those analyses and implement the interconnection. 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. The Interconnection System Impact Study will provide a list of facilities that are required as a result of the Interconnection Request and a non-binding good faith estimate of cost responsibility and a non-binding good faith estimated time to construct.

7.6 Re-Study.

If Re-Study of the System Impact Study is required due to a higher queued project dropping out of the queue, or a modification of a higher queued project subject to Section 4.4, or re-designation of the Point of Interconnection pursuant to Section 6.1 Transmission Provider shall notify Interconnection Customer in writing. Serially processed Re-Studies ~~Such Re-Study~~ shall take no longer than sixty (60) Calendar Days from the date of the notice. Any cost of Re-Study shall be borne by the Interconnection Customer being re-studied.

If a Transmission Provider that conducts cluster studies identifies a need for restudies, it will conduct periodic Re-Studies for each cluster [placeholder for time frame proposed by each Transmission Provider]. Re-Study dates for each cluster will also be posted on the Transmission Provider's OASIS. Re-Study shall take no longer than [forty-five (45)/ sixty (60)] Calendar Days from the commencement date of the Re-Study. Any cost of Re-Study shall be borne by the Interconnection Customer being re-studied.

8.2 Scope of Interconnection Facilities Study.

The Interconnection Facilities Study shall specify and estimate the cost of the equipment, engineering, procurement and construction work needed to implement the conclusions of the Interconnection System Impact Study in accordance with Good Utility Practice to physically and electrically connect the Interconnection Facility to the Transmission System. The Interconnection Facilities Study shall also identify the electrical switching configuration of the connection equipment, including, without limitation: the transformer, switchgear, meters, and other station equipment; the nature and estimated cost of any Transmission Provider's Interconnection Facilities and Network Upgrades necessary to accomplish the interconnection; and an estimate of the time required to complete the construction and installation of such facilities. The Facilities Study will also identify any potential control equipment for requests for Interconnection Service that are lower than the Generating Facility Capacity.

8.5 Re-Study.

If Re-Study of the Interconnection Facilities Study is required due to a higher queued project dropping out of the queue or a modification of a higher queued project pursuant to Section 4.4, Transmission Provider shall so notify Interconnection Customer in writing. Serially processed Re-Studies ~~Such Re-Study~~ shall take no longer than sixty (60) Calendar Days from the date of the notice. Any cost of Re-Study shall be borne by the Interconnection Customer being re-studied.

A Transmission Provider that conducts cluster studies will conduct periodic Re-studies for each cluster [placeholder for time frame proposed by each Transmission Provider]. Re-Study dates for each cluster will also be posted on the Transmission Provider's OASIS. Re-Study of the cluster shall take no longer than sixty (60) Calendar Days from the commencement date of the Re-Study.

Appendix 1 to LGIP

5.

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

Note: Appendix C will not be published in the Code of Federal Regulations

Appendix C: Compilation of proposed changes to the *pro forma* LGIA

Article 1. Definitions

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.

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.

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 Interconnection Agreement and, if applicable, the Tariff.

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.

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.

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.

5.1 **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 section 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.

5.1.3 **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 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.

5.1.4 **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 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 5.1.1, Standard Option~~.

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 risks 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.

11.3 **Network Upgrades and Distribution Upgrades.**
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.