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Federal Energy Regulatory Commission Announces Major Overhaul of its Interconnection Procedures

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I. Introduction

On June 16, 2022, the Federal Energy Regulatory Commission ("FERC" or "the Commission") issued a Notice of Proposed Rulemaking ("NOPR"), announcing proposed reforms to its *pro forma* Large Generator Interconnection Procedures ("LGIP"), *pro forma* Small Generator Interconnection Procedures ("SGIP"), *pro forma* Large Generator Interconnection Agreement ("LGIA"), and *pro forma* Small Generator Interconnection Agreement ("SGIA"). The Commission's NOPR is the most ambitious interconnection reform effort in two decades, and was issued in light of the over 8,000 backlogged interconnection requests waiting in interconnection queues at the end of 2021. Interconnection delays have created frustration for clients, led to inefficiencies in bringing new projects online, and created concerns that interconnection agreements are unduly discriminatory or preferential.[1]

In the NOPR, the Commission preliminarily found that interconnection backlogs are due in part to the current regulatory framework, which incentivizes interconnection customers to enter into multiple speculative interconnection requests while at the same time not incentivizing transmission providers to conduct interconnection studies. The Commission believes this combination creates a barrier of entry that hinders competitive wholesale electric markets.[2] The Commission also acknowledged the marked increase in new types of resources seeking interconnection, namely renewable generation, which has further added to the backlogs because renewable facilities can be constructed much faster than traditional types of generating facilities.[3]

In response to these findings, the Commission has proposed multiple substantial reforms to the *pro forma* LGIP, *pro forma* LGIA, *pro forma* SGIA, and *pro forma* SGIP. Namely, the Commission proposes to (1) implement a first-ready, first-served cluster study process to prioritize the interconnection of commercially viable projects (instead of the current first-come, first served approach); (2) increase the overall speed of interconnection queue processing via new requirements for transmission providers; and (3) incorporate technological advancements into the interconnection process.[4]

Interested stakeholders may submit comments on FERC's proposals until **October 13, 2022.** Reply comments are due **November 14, 2022**.[5]

II. Implementing a First-Ready, First-Served Cluster Study Process

A. Background

The NOPR appears to reasonably balance the need for ISOs and RTOs to efficiently manage their queues with the interests of project developers for fair and transparent rules. On one hand, the NOPR proposes to increase study deposit amounts and impose stricter criteria for developers to move forward with interconnection by establishing a newly defined "Commercial Readiness Deposit" and "Commercial Readiness Demonstration."[6] These proposals are more rigorous than what exists in the currently effective *pro forma* Tariff. These stricter criteria are intended to address the nationwide queue backlogs by weeding out overly speculative projects. On the other hand, the NOPR proposes to increase ISO/RTO accountability by eliminating the "reasonable efforts" standard and adding firm study deadlines and associated late penalties for missed study deadlines.[7]

The NOPR is especially timely for project developers in the PJM region, coming just a few days after PJM filed to overhaul its generator interconnection process.[8] PJM's proposal tracks the NOPR in several significant respects. For example, PJM proposes to move from a "first-come, first-served" to a "first-ready, first-served" approach featuring a three-phase cluster study process.[9] However, despite these similarities, many of PJM's proposals materially differ from those in the NOPR. Notably, PJM proposes a transition process that allows limited "grandfathering" of existing late stage projects only if those projects are not allocated costs for a network upgrade that is in excess of $5 million.[10] The NOPR proposes to more broadly grandfather projects that have executed a facilities study agreement.[11] Additionally, PJM proposes to eliminate provisions in its Tariff that assess a $500-per-day monetary penalty if PJM is late on its studies.[12] This proposal is at odds with the aforementioned NOPR proposal to institute more widespread penalties for late studies.

B. Proposed Reforms

1. Interconnection Information Access

In the NOPR, the Commission proposed reforms to improve interconnection customers' access to information necessary to facilitate efficient development efforts. The Commission identified several types of information that would assist developers in assessing project viability and identifying areas of the grid where resource investment is needed. The Commission noted that due to a current lack of transparency, developers at times submit multiple speculative generator interconnection requests only to access needed information, contributing to queue congestion.[13] The Commission identified several existing solutions currently employed voluntarily by market operators, including public "heatmap" congestion visuals and preliminary study processes as successful in enhancing transparency for interconnection customers.[14]

The Commission advances two discrete proposals for stakeholders to consider:

Informational Interconnection Study Requests

FERC requests comments on a proposed LGIP provision that would make available an interconnection customer-funded "informational interconnection study request" process that would include, at minimum: (1) preliminary identification of any circuit breaker short circuit capability limits exceeded; (2) preliminary identification of any thermal overload or voltage limit violations; and (3) estimated network upgrade costs related to the identified overloads and violations.[15] The proposal includes a $10,000 study deposit with a true-up mechanism for interconnection customers to cover actual study costs, though the estimates are non-binding.[16] The proposed provision would limit prospective

interconnection customers to no more than five separate informational interconnection study requests pending at a time in the interest of encouraging broad access to such studies, and to avoid overburdening transmission providers with such requests.[17]

Public Interconnection Information

The NOPR also seeks comment on a set of minimum information requirements available to interconnection customers. The Commission requested comments on requiring the LGIP, at minimum, require a publicly available congestion heatmap, as well as a table including relevant interconnection metrics that allow prospective interconnection customers to see certain estimates of a potential generating facility's effect on the grid.[18]

2. Cluster Studies

The *pro forma* LGIP's first-come, first-served interconnection study process has been a "major cause of the backlogs delaying transmission providers' interconnection queue."[19] Studying interconnection requests on an individualized, serial basis can result in a piecemeal identification of network upgrades that does not contemplate possible efficiencies across multiple interconnection requests. The Commission noted that in some cases, the serial study process identifies a very large, expensive network upgrade that makes the project non-viable, resulting in the interconnection customer withdrawing from the queue.[20] A cluster study approach might have identified other interconnection customers who could have shared in the cost of the network upgrade, allowing all the affected interconnection customers to go forward.

The NOPR calls for a transition to a cluster study process. The Commission noted that cluster studies "[are] the preferred method for conducting interconnection studies. . . ."[21] The crux of the cluster study process enables transmission providers to process interconnection requests as a cluster, with a shared cost responsibility for identified network upgrades by the cluster.

Under the NOPR's proposal, transmission providers would eliminate their first-come, first-served study process and instead use a first-ready, first-served cluster study process, coupled with increased financial commitments and readiness requirements.[22] The system impact study would be conducted on a clustered basis. With regard to facilities studies, the NOPR proposal would require that re-studies could be triggered by a higher or equally queued interconnection project withdrawing from the interconnection queue or modification of a higher or equally interconnection project.[23]

The Commission seeks comment on whether the new LGIP should specify how cluster studies must be re-run after a re-study is triggered or whether there are provisions the Commission could adopt to improve the efficacy of the re-study process, such as preventing excessive re-study by limiting the transmission provider to two re-studies per month within the 150-day cluster re-study period.[24] The Commission also seeks comment on whether there should be an option for some interconnection requests to be processed outside of the annual cluster study process and if so, under what circumstances and on what timeframe.

3. Allocation of Cluster Study Costs

The Commission next proposed changes to the interconnection study cost allocation process. The Commission proposed to allocate the shared costs of cluster studies as follows: "90% of the applicable study costs to interconnection customers on a pro rata basis based on requested MWs included in the applicable cluster, and 10% of the applicable study costs to interconnection customers on a per capita

basis based on the number of interconnection requests included in the applicable cluster."[25] The Commission seeks comment on different cost allocation approaches or whether each transmission provider should be provided additional flexibility to propose a cost allocation approach on compliance with any final rule.[26]

4. Allocation of Cluster Network Upgrade Costs

The Commission proposed to require transmission providers to allocate network upgrade costs to interconnection customers within a cluster using a "Proportional Impact Method." Under this method, the transmission provider would determine the degree to which each generating facility in the cluster contributes to the need for a specific network upgrade.[27] The Commission expects that this proposed reform will reduce the frequency of an individual customer being allocated a large network upgrade that benefits subsequent interconnection customers, will reduce the incentive to submit multiple speculative requests, and will reduce the amount of cascading withdrawals and re-studies.[28]

The Commission seeks comment on specific types of analyses that the Commission should require and prohibit transmission providers from using to determine the proportional impact attributed to an interconnection request.[29] The Commission further seeks comment on the circumstances under which the proportional capacity method would be appropriate and not appropriate.[30]

5. Shared Network Upgrades

The Commission proposed to require transmission providers to share network upgrade costs incurred by interconnection customers in earlier cluster studies with customers in later cluster studies that benefit from those upgrades.[31] Under the current *pro forma* LGIP, interconnection customers that are assigned the entire cost of network upgrades may be reluctant to move forward with the development of an interconnection request, even though those upgrades are likely to benefit other customers in future queue cycles.[32]

The Commission proposed detailed rules to facilitate this cost sharing principle. First, transmission providers would allocate a pro rata share of the costs of shared network upgrades to a later-in-time interconnection customer if that customer's generating facility directly connects to either (1) a network upgrade in-service for less than five years; or (2) a substation where the network upgrade in-service for less than five years terminates.[33] Second, if the new generating facility does not directly connect to the network upgrade, then the transmission provider must perform a power flow analysis with a two-step test to measure the later-in-time customer's use and benefit of the earlier funded network upgrade.[34]

Informed by MISO's and NYISO's procedures for shared network upgrades,[35] the Commission's proposals intend to remove barriers to entry in the interconnection process by better aligning the allocation of costs for interconnection-related network upgrades with the benefits received, consistent with cost causation principles.

6. Increased Financial Commitments and Readiness Requirements

The Commission identified flaws in the existing interconnection process that allow interconnection customers to remain in the generator interconnection process without having demonstrated progress toward commercial readiness. These speculative interconnection requests withdrawn late in the process trigger cascading re-studies. Consistent with the "first-ready, first-served" philosophy, the Commission proposes to apply significantly more stringent financial commitments and project viability milestones than present in the current *pro forma* LGIP.

Increased Deposits

In the NOPR, the Commission seeks comment on proposed changes the current structure of interconnection process deposits. Moving away from the standard, relatively smaller amounts for studies reflected in the LGIP (currently ranging between $10,00 and $100,000), the Commission proposes three tiers of study fees ranging from $35,000 + $1,000/MW for smaller projects to $250,000 for projects exceeding 200 MW, to be collected at each stage of the new cluster study process.[36] The Commission further proposes to collect a deposit of nine times the study amount when the LGIA is executed or filed unexecuted, with any over-collections refunded at commercial operation or withdrawal, subject to any applicable withdrawal penalty.[37] The Commission suggests that the significantly higher financial commitments associated with each phase of the interconnection process would better reflect the costs associated with each phase, and may result in fewer speculative interconnection requests and associated withdrawals.[38]

Site Control

The Commission also proposed more stringent site control requirements than are present in the current *pro forma* LGIP. Currently, interconnection customers must either (1) submit evidence that demonstrates control of a viable development site, or (2) submit deposits of $10,000 and $250,000 at initial and LGIP execution phases in lieu of site control. The NOPR identifies lax site control requirements as a cause of late-stage process withdrawals and projects lacking viability remaining in the queue. The NOPR proposes to require 100% site control at the time of their interconnection request, with only limited exceptions to account for state or federal regulatory requirements that may prohibit site control until later in the development process (e.g., projects on federal lands).[39] The Commission suggests the proposal will appropriately place only viable projects in the interconnection queue and increase efficiency of the process. The Commission specifically seeks comment on implementation matters, including circumstances where other exceptions may be required (e.g., offshore wind facilities) and the definition of "site control."[40]

Commercial Readiness

The Commission proposed to introduce a new "Commercial Readiness" framework to the interconnection process. Drawing guidance from transmission providers that have introduced commercial readiness constructs, the NOPR proposes a series of reforms to require generators to meet either (1) increasingly stringent Commercial Readiness requirements as the generator moves into later phases of the process, or (2) increasingly high refundable deposits.[41] The Commission suggests that these alternatives will provide flexibility to implement different business models and offtake arrangements while incentivizing non-commercially viable projects to leave to queue rather than linger or go into suspension.

Withdrawal Penalties

The Commission also proposed to introduce a new Withdrawal Penalty framework. Currently, withdrawing interconnection customers only pay their actual study costs when withdrawing from the queue.[42] In order to incentivize only viable projects to remain in the queue and avoid harm to other interconnection customers caused by withdrawals, the Commission proposes an escalating framework of Withdrawal Penalties that increase as the generator moves into later stages in the process, and which are higher in cases where interconnection customers provide deposits in lieu of Commercial Readiness. The Commission envisions that the penalty revenues would be used to fund studies under the cluster process.[43] The Commission also proposes a test that would except a withdrawing interconnection

customer from penalties in cases where (1) study costs are determined to be substantially more than estimated or (2) the withdrawal does not delay or increase costs for other interconnection customers in the cluster.

7. Transition Process

Although the Commission is optimistic that the first-ready, first-served cluster study process and more stringent readiness requirements will improve future queue management, it is also mindful of the reality that the existing backlogs could take years to process, thereby delaying meaningful implementation of the new procedures. As a result, the Commission proposes transition processes to phase in the new interconnection rules. Under the proposed procedures, transmission providers must offer eligible existing interconnection customers the option, for each project in the queue, to either (1) enter a transitional serial interconnection facilities study, (2) enter a transitional cluster study, or (3) withdraw from the interconnection queue without penalty.[44]

The first option is a transitional serial study. This process allows late-stage interconnection customers with executed facilities study agreements to continue under the existing serial study process and interconnect, assuming they are ready to move forward to commercial operation. The Commission seeks to ensure customers selecting this avenue are truly ready to move forward to commercial operation. To incentivize firm commitments, customers choosing the serial study would be required to provide a deposit equal to 100 percent of the interconnection facility and network upgrade costs allocated to that customer in its system impact study report. If the customer's project reaches commercial operation, the deposit is applied to construction costs of the same facilities. If the customer withdraws, the Commission proposes to assess a withdrawal penalty equal to nine times the serial study cost, and will then refund any remainder of the deposit.[45] Transitional serial study customers must meet the above commercial readiness requirements within 60 days after the effective date of a transmission provider's compliance filing with the final rule. Transitional serial studies must be completed by the transmission provider within 90 days after the customer meets the readiness requirements.

Existing interconnection customers may instead opt to join a transitional cluster study, whose cost allocation will occur pursuant to the rules established for future clusters. The transitional cluster will undergo an expedited combined system impact and interconnection facilities study. Customers opting for the transitional cluster study would be required to make a $5 million deposit, which is intended to approximate the cost of participating in a typical cluster study.[46] Transitional cluster study projects would also be required to show evidence of commercial readiness. Transitional serial studies must be completed by the transmission provider within 300 days after the deadline for the eligibility requirements to be satisfied.

III. Increasing the Speed of Interconnection Queue Processing

A. Background

The Commission's proposed cluster study reforms create heightened incentives for interconnection customers to only enter the queue when they possess viable projects. Through its proposed reforms to increase the speed of interconnection queue processing, the Commission also seeks to hold transmission providers to higher standards of timeliness and uniformity as they move projects through the interconnection process. This represents a deliberate effort by the Commission to impose parallel responsibilities on interconnection customers and transmission providers.

B. Proposed Reforms

1. Elimination of the Reasonable Efforts Standard

Currently, transmission providers are held to a "reasonable efforts" standard to assess whether they have met key deadlines in the interconnection process. Under this standard, a transmission provider is expected to process interconnection requests by taking "actions that are timely and consistent with Good Utility Practice and are substantially equivalent to those a Party would use to protect its own interests."[47] The Commission's *pro forma* Tariff did not establish penalties for missed deadlines,[48] so the reasonable efforts standard simply has no teeth.

Not surprisingly, with the nationwide surge of interconnection requests over the past decade, many transmission providers have struggled to keep up. Even the more efficient RTOs and ISOs developed multi-year delays in completing their studies. Generators and other interconnection customers began seeking accountability for such delays and sought to replace the reasonable efforts standard with firm study.[49]

In response, the Commission proposes to eliminate the reasonable efforts standard and replace it with firm study deadlines and a penalty of $500 per day for each day a transmission provider is late, capped at 100% of the total study deposit received.[50] These penalties would apply for all study types, including cluster studies, re-studies, facilities studies, and affected system studies, except in the case of a force majeure.[51] Transmission providers would not be allowed to recover penalties through their rates, and the proceeds would be distributed to the delayed interconnection customers to offset their study costs.[52] The Commission also proposes to allow transmission providers to extend a particular study deadline with mutual consent by the parties, to require transmission providers to report certain data on penalties they incur, and to allow ISOs and RTOs to directly assign monetary penalties to the appropriate transmission owners responsible for or contributing to the study delay.[53]

2. Affected Systems

The NOPR identified several areas for improvement of affected systems processes on which it seeks comments. The Commission identified proposals to foster transparency and consistency. Currently, affected systems study processes are largely ad hoc, and affected systems upgrades not timely identified can have serious economic consequences, leading to late-stage project withdrawals where expensive upgrades are identified late in the process.

The Commission proposes a substantially more prescriptive affected systems study process from both the perspective of the interconnecting transmission provider and affected system. The LGIP would be revised to include firm deadlines for transmission providers to provide notice to affected systems, provide interconnection customers with contact information for all affected systems, along with requirements on the affected systems themselves to communicate plans to study the project and potential costs early in the interconnection process.

In addition to a much more refined, prescriptive process than what is currently required for affected systems arrangements, the Commission also proposes standardized affected systems agreements, noting that the lack of conformity and structure in such arrangements currently hinders efficiency and increases the risk of litigation.[54]

3. Optional Resource Solicitation Study

Finally, the Commission proposed to implement a new optional resource solicitation study for certain resource planning entities.[55] These entities may be state agencies or load-serving entities required by state law to conduct resource planning. The resource planning entity would be tasked with grouping together existing interconnection requests associated with its resource plans, and then would request that the transmission provider study several combinations of those interconnection options. The Commission believes this optional study could help resource planning entities make efficient decisions about their resource solicitations by allowing them to better understand the cost implications of various resource proposals.[56] Resource planning entities would not fund the costs of the optional studies; instead, the costs would be borne by the underlying interconnection customers. This is a significant aspect of the NOPR because it allows resource planning entities, including state agencies, to elect to further study the resource planning ramifications of existing interconnection requests, while the associated study costs are passed through to the interconnection customers themselves.

IV. Incorporating Technological Advancements into the Interconnection Process

A. Background

The Commission further proposed reforms regarding the incorporation of technological advancements to enhance reliability, efficiency, and transparency in interconnecting to the transmission system. Specifically, the Commission's proposals involve: (i) increasing flexibility in the Generator Interconnection process; (ii) incorporating alternative transmission technologies into the generator interconnection process; and (iii) modeling and performance requirements for non-synchronous generating facilities.

B. Proposed Reforms

1. Increasing Flexibility in the Generator Interconnection Process

Co-Located Generation Sites

Large numbers of generating facilities currently in interconnection queues are seeking to co-locate on a shared site behind one point of interconnection and share an interconnection request,[57] but the current *pro forma* LGIA does not address these types of configurations.[58] In particular, FERC observed that the *pro forma* LGIP does not specify whether interconnection customers of all resource types may submit a single interconnection request for co-located components of a generating facility.[59]

The Commission proposes to remedy this situation by revising the *pro forma* LGIP to create a standardized procedure for "Co-Located Resources" to enable them to access the transmission system. FERC's proposed revisions to the *pro forma* LGIP would provide that Co-Located Resources can share an interconnection request and modify the definition of site control to allow interconnection customers to demonstrate shared land-use for generating facilities that include more than one resource.[60] The Commission also proposed to require Co-Locating Resources to have technology to address differences in terminal voltage between the co-located generating facilities to ensure that these generating facilities have the same voltage levels.[61]

Revisions to the Material Modification Process

The Commission observed that it has become increasingly common for generating projects already in an interconnection queue to request a change in their interconnection requests to add electric storage or other types of generating facilities without changing the interconnection service level and/or MW total

in the interconnection request.[62] However, transmission providers often deem these changes to constitute a "material modification" without review, which can result in unnecessary network upgrades.[63] FERC explained that under the current *pro forma* LGIP, if a transmission provider determines that a proposed modification is material, the interconnection customer can choose either to (1) abandon the proposed modification or (2) proceed but forfeit its queue positon and reenter the interconnection queue.[64]

FERC observed that without a standard set of procedures, transmission providers have adopted different strategies for processing requests to add electric storage, or other generating facilities that do not change the requested interconnection service limit, to existing interconnection requests, leading to disparate outcomes across the country and leaves open the potential for undue discrimination.[65]

FERC proposes to revise the *pro forma* LGIP to require transmission providers to evaluate the proposed addition of a generating facility to an interconnection request as long as the interconnection customer does not request a change to the originally requested interconnection service level. Specifically, FERC proposes to require that (1) transmission providers expeditiously evaluate the proposed addition of a generating facility to an interconnection request; (2) the change cannot be considered an automatic material modification and an evaluation (including studying the configuration and necessary modeling) must occur prior to determining whether the proposed change constitutes a material modification; and (3) if the proposed change does not have a material impact on the cost or timing of any interconnection request that is lower or equally queued, and does not cause any other reliability concerns, the addition will not be considered a material modification.[66]

With respect to these proposals, FERC requests public comment on the potential for later queued projects to be adversely impacted by changes to earlier projects, practical logistics considerations, and whether more prescriptive regulations are required to guide transmission providers in their evaluations.[67]

Availability of Surplus Interconnection Service

In Order No. 845, the Commission established a surplus interconnection service process to enable a new interconnection customer to utilize the unused portion of an existing interconnection customer's approved interconnection service through the inclusion of an additional generating facility behind a single point of interconnection.[68] The use of the surplus interconnection process has proven helpful for interconnection customers seeking to access interconnection capacity that has already been approved through an LGIA, but it is currently only available when a resource is fully operational.[69]

FERC proposes to revise the *pro forma* LGIP to require transmission providers to allow interconnection customers to access the surplus interconnection service process once the original interconnection customer has executed an LGIA or requests the filing of an unexecuted LGIA, enabling interconnection customers with unused interconnection capacity to let other generating facilities use that capacity earlier than is currently allowed.[70]

Operating Assumptions for Interconnection Studies

FERC observed that interconnection queues now are predominated by non-synchronous resources, such as wind, solar, and electric storage projects, and hybrid resources, all of which have operating characteristics that were not anticipated when FERC issued Order No. 2003.[71] The *pro forma* LGIP includes only general requirements regarding the operating assumptions for generating facilities in

interconnection studies,[72] and with respect to interconnection requests involving electric storage resources, a transmission provider may use operating assumptions for interconnection studies that employ worst-case assumption or other inaccuracies (e.g., that electric storage will charge during peak load periods) that do not accurately reflect the planned operation of these resources.

FERC found preliminarily that the lack of realistic operating assumptions used in interconnection studies for electric storage resources and co-located resources containing electric storage resources can result in excessive and unnecessary network upgrades and may hinder the timely development of new generation.[73] In response, the Commission proposes to revise its *pro forma* LGIP to allow interconnection customers, as part of the initial interconnection request, to propose operating assumptions reasonably representative of the likely behavior of an electric storage resource or co-located resource containing an electric storage resource. FERC further proposes to revise the *pro forma* LGIP to require transmission providers to use the operating assumptions proposed by the interconnection customer, unless the assumptions contravene prudent utility practice.

Under the proposal, transmission providers can hold interconnection customers to the intended operation of their electric storage resource or co-located resources containing an electric storage resource by memorializing these operating restrictions in the interconnection customer's LGIA and requiring control technologies in cases where appropriate such as for electric storage that wishes to limit its operation, with such protection devices included in Appendix C of the LGIA.[74]

2. Incorporating Alternative Transmission Technologies

The Commission acknowledged that its currently effective interconnection procedures and *pro forma* interconnection agreements have not kept pace with changes in the generation resources and generation configurations that currently predominate interconnection queues, as well as the new technologies now available to transmission providers that can reduce the need for network upgrades to interconnect generating facilities.[75] FERC found that the failure of its current interconnection processes to consider alternative transmission technologies has resulted in unjust and unreasonable rates.[76]

FERC proposes to modify its *pro forma* LGIP and SGIP to require consideration of alternative transmission technologies to achieve benefits in generator interconnection processes. Under FERC's proposal, the interconnection customer may request, at the relevant scoping meeting, that the transmission provider consider a single, multiple, or all technologies identified by FERC. The transmission provider would be required to evaluate the transmission technologies for feasibility, cost, and time savings within the cluster study for the LGIP and the system impact study and facilities study for the SGIP, upon request of the interconnection customer. If the identified transmission technology is feasible, the transmission provider must determine whether it should be used, consistent with good utility practice and other applicable regulatory standards. Transmission providers continue to retain discretion regarding whether to use the identified transmission technology.[77]

3. Modeling and Performance Requirements for Non-Synchronous Generating Facilities

The Commission further proposed to reform modeling and performance requirements for non-synchronous generating facilities.[78] The Commission believes that the current procedures render unjust, unreasonable, and unduly discriminatory rates because non-synchronous facilities are subject to less strict modeling and performance requirements compared to synchronous generating facilities.[79]

Modeling

The Commission proposed to revise the *pro forma* LGIP and *pro forma* SGIP to promote a consistent approach to reliability by requiring interconnection customers to submit sufficient information to model the proposed generating facility accurately. This will be accomplished through models containing details that model the generating facility in response to system disturbances.[80] Relatedly, the Commission proposes to modify the *pro forma* LGIP and SGIP, requiring that proposed modifications to the interconnection request are accompanied by updated models.[81]

Ride Through

The Commission also found that the *pro forma* LGIA and *pro forma* SIGA ride-through provisions may result in undue discrimination and preferential treatment.[82] The *pro forma* LGIA and SGIA treat synchronous and non-synchronous generation facilities differently despite the fact that they are similarly situated because both are able to "ride through" system events. The Commission therefore proposed to revise the *pro forma* LGIA to require newly interconnecting large generating facilities to ride through[83] abnormal frequency and voltage conditions.[84] The Commission proposes expanding "ride-through" definition to include the facility's ability to stay connected to and synchronized with the transmission system during system disturbances.[85] The Commission proposes to revise the *pro forma* LGIA and *pro forma* SGIA to require newly interconnecting non-synchronous generating facilities to maintain power production at pre-disturbance levels unless providing frequency response or fast frequency response.[86] Under the Commission's proposal, the newly interconnecting non-synchronous generating facility must be able to provide dynamic reactive power to maintain system voltage in accordance with the generating facility's voltage schedule.[87]

Applicability of Ride-Through Requirements

The Commission found that the *pro forma* LGIA may result in undue discrimination because while the *pro forma* SGIA requires newly interconnecting small generating facilities to ride through abnormal frequency and voltage events, the comparable article in the *pro forma* LGIA lacks the same requirement.[88] To address this reliability gap, the Commission proposes revisions to the *pro forma* LGIA to require all newly interconnecting large generating facilities to provide ride-through capability consistent with standards and guidelines applies to other generating facilities in the balancing authority area on a comparable basis.[89]

V. Implications for the Industry

The NOPR seeks to reform the interconnection process while balancing the interconnection customer's interests with the transmission provider's interests. Through the proposed changes to the cluster study process, the speed of interconnection queue processing, and the incorporation of technological advancements into the interconnection process, the Commission seeks to minimize uncertainty for interconnection customers while ensuring that transmission providers have sufficient information to process their interconnection queues in an efficient manner. Adoption of these reforms could therefore benefit interconnection customers and transmission providers alike through decreased barriers to entry for the interconnection of generation resources, while still ensuring just and reasonable jurisdictional rates.

Given the substantial changes to the Commission's interconnection procedures and rules, virtually every segment of the electric generation industry will be affected, including developers, interconnecting utilities, RTOs/ISOs, off-takers of generation, investors, and lenders. Inevitably, every player in the

electric industry will favor some proposals but dislike others. When combined with the proposed reforms in the Commission's recent Transmission NOPR, the Interconnection NOPR injects additional uncertainty in the industry. Companies will need to carefully consider the impact of such substantial interconnection and transmission reforms, if adopted by FERC, on their long-term business plans. The opportunity to comment on the Commission's proposed reforms enables interested parties to both provide their insight and document their experiences with the interconnection process in order to help the Commission determine the appropriate approach on these issues.

VI. Conclusion

The Commission's proposed reforms to the *pro forma* LGIA, LGIP, SGIA, and SGIP represent what could amount to the most comprehensive changes to the interconnection process in almost two decades. Through these proposed changes, the Commission intends to minimize barriers to entry in the interconnection process through the creation of more cost and timing certainty for market participants. Industry participants should stay apprised of these important interconnection policy developments and can take an active stakeholder role by submitting comments on the proposals outlined by the Commission in the NOPR.

We continue to monitor opportunities to engage with the Commission on matters affecting clients' interests and are actively following this proceeding and other areas within the Commission's jurisdiction that may be impacted by the NOPR.

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[1] *Improvements to Generator Interconnection Procedures and Agreements*, 179 FERC ¶ 61,194, at P 3 (2022) (NOPR).

[2] *Id.* P 30.

[3] *Id.* P 18.

[4] *Id.* P 4.

[5] *Improvements to Generator Interconnection Procedures and Agreements*, Notice of Proposed Rulemaking, 87 FR 39934 (July 5, 2022).

[6] *Id.* P 109.

[7] *Id.* PP 161–173.

[8] *See PJM Interconnection, LLC*, Tariff Revisions for Interconnection Process Reform, Docket No. ER22-2110 (June 14, 2022) (PJM Proposal).

[9] PJM Proposal, Transmittal, at 1.

[10] PJM Proposal, Executive Summary, at 11–12.

[11] NOPR at P 158.

[12] PJM Proposal, Executive Summary, at 73.

[13] NOPR at P 49.

[14] *Id.* PP 41, 50.

[15] *Id.* P 46.

[16] *Id.* P 43.

[17] *Id.*

[18] *Id.* P 51.

[19] *Id.* P 53.

[20] *Id.* P 55.

[21] *Id.* P 61.

[22] *Id.* P 64.

[23] *Id.* P 75.

[24] *Id.* P 78.

[25] *Id.* P 82.

[26] *Id.* P 83.

[27] *Id.* P 88; n. 150.

[28] *Id.* P 88.

[29] *Id.* P 89.

[30] *Id.*

[31] *Id.* P 98.

[32] *Id.* P 97.

[33] *Id.* P 98. Specifically, if either of the above criteria are met, the transmission provider would designate the network upgrade as a shared network upgrade, and the later-in-time interconnection customer would contribute a pro rata portion of the shared network upgrade's remaining undepreciated cost of capital based on the impact that customer has on the network upgrade, measured using the same method the transmission provider used to determine the impact in the earlier cluster study.

[34] Under the first step, the transmission provider would identify interconnection customers that benefit from the network upgrade by determining if the impact of that customer to the upgrade exceeds 5 MW and exceeds 1% of the network upgrade's rating. If so, then the transmission provider would determine if the later-in-time customer's impact exceeds more than 5% of the network upgrade's facility rating, or if the Transmission Distribution Factor (TDF) is greater than 20%. If either of those two additional criteria are met, then the transmission provider must designate the network upgrade as a shared network upgrade and allocate a pro rata share of the costs as described above.

[35] NOPR at PP 91–92.

[36] *Id.* P 106.

[37] *Id.* P 108.

[38] *Id.* P 109.

[39] *Id.* P 116.

[40] *Id.* PP 121–123.

[41] *Id.* P 129.

[42] *Id.* P 138.

[43] *Id.* P 143.

[44] *Id.* P 156.

[45] *Id.* P 158.
[46] *Id.* P 159.
[47] *Id.* P 161.
[48] *Id.* P 162.
[49] *Id.* P 163.
[50] NOPR at PP 168–70.
[51] *Id.* P 169.
[52] *Id*.
[53] *Id.* PP 170–72.
[54] *Id.* P 194.
[55] *Id.* P 223.
[56] *Id.* P 225.
[57] *Id.* P 238.
[58] *Id.* P 239.
[59] *Id.* P 31.
[60] *Id.* P 243.
[61] *Id.* P 245.
[62] *Id.* P 246.
[63] *Id.* P 32.
[64] *Id.* P 248.
[65] *Id.* P 252.
[66] *Id.* P 255.
[67] *Id.* PP 256–257.
[68] *Id.* P 262.
[69] *Id.* P 32.
[70] *Id.* P 264.
[71] *Id.* P 31.
[72] *Id.* P 265.
[73] *Id.* P 279.
[74] *Id*.
[75] *Id*. P 294.
[76] *Id*. P 296.
[77] *Id.* P 299.
[78] *Id.* P 303.
[79] *Id.* P 303.
[80] *Id.* P 328.
[81] *Id.* P 334.
[82] *Id.* P 320.
[83] Defined in the pro forma LGIA as "the ability of the large generating facility to stay connected to and synchronized with the transmission system during system disturbances within a range of under-frequency and over-frequency conditions."
[84] NOPR at P 336
[85] *Id.*
[86] *Id.* P 337.
[87] *Id.*
[88] *Id.* P 326.
[89] *Id.* P 340.