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Order No. 2023 Requires Major Reforms to Generator Interconnection

On July 28, the Federal Energy Regulatory Commission (FERC or the Commission) issued a final rule on Improvements to Generator Interconnection Procedures and Agreements (Final Rule or Order No. 2023).[1] In the Final Rule, the Commission requires major changes to the process for how electric generators interconnect with the transmission grid, and directs all public utility transmission providers to adopt reforms to the *pro forma* Large Generator Interconnection Procedures (LGIP) and Agreement (LGIA), and the *pro forma* Small Generator Interconnection Procedures (SGIP) and Agreement (SGIA). The Commission enacted these reforms to ensure that interconnection customers are able to "interconnect to the transmission system in a reliable, efficient, transparent, and timely manner."[2] The Final Rule was adopted unanimously by all Commissioners with concurring statements from Commissioners Danly, Clements, and Christie.[3] Compliance filings in response to Order No. 2023 are due 90 days from the date of its publication in the *Federal Register*, which as of the date of this Advisory has not yet occurred. Order No. 2023 follows the Notice of Proposed Rulemaking (NOPR) issued in July 2022[4] and the submission of many industry comments. While the reforms mandated in the Final Rule closely reflect those proposed in the NOPR, the Commission deviates from the NOPR in several significant areas, as discussed below. Order No. 2023 stems from the challenges both transmission providers and interconnection customers have in the processing of new generators seeking to interconnect to the transmission system. With the growth of new types of generation resources, there are large interconnection queue backlogs and increases in uncertainty when it comes to the costs and timing of interconnecting to the transmission system. While the Commission has tried to address these issues in previous rulemakings, such as Order No. 845,[5] backlogs still impede the interconnection process, increasing consumer costs and reliability issues, and slowing the transition to the future grid. The Final Rule determines this situation to be unacceptable under the Federal Power Act, stating that "the existing *pro forma* generator interconnection procedures and agreements are insufficient to ensure that interconnection customers are able to interconnect to the transmission system in a reliable, efficient, transparent, and timely manner, thereby ensuring that rates, terms, and conditions for Commission-jurisdictional services are just, reasonable, and not unduly discriminatory or preferential."[6] Accordingly, the Commission requires reforms to its *pro forma* LGIP and LGIA and to its *pro forma* SGIP and SGIA. Specifically, as explained further below, the reforms are intended to: (1) implement a first-ready, first-served cluster study process; (2) increase the speed of interconnection queue processing; and (3) incorporate technological advancements into the interconnection process. This Advisory discusses each of these three categories of reforms. At a high level, the reforms:

- Institute a first-ready, first-served cluster study process that requires transmission providers to receive and study interconnection requests in "clusters." The use of clusters is intended to streamline the interconnection process and improve efficiency and certainty for interconnection customers. Many transmission providers, including PJM (on a broad basis) and ISO-NE (on a more limited basis), already use some form of clustering to perform interconnection studies. While this part of the Final Rule will have an impact in certain regions, many developers may already be familiar with the cluster process that the Commission has set in place.

- Eliminate the first-come, first-served serial interconnection process, except for some generators already in the interconnection process under transition provisions.
- Include provisions for transitional serial studies and transitional cluster studies for existing interconnection customers—these will be an important focus for developers in the near term.
- Include provisions that allow transmission provider flexibility in establishing clusters, including through the use of sub-groups, such as those based on locations. This will allow transmission providers to determine geographic zone clusters or use other bases for grouping interconnection studies.
- Increase the financial obligations and readiness requirements for interconnection customers looking to join, and proceed through, an interconnection queue, but not require offtake agreements or other contractual arrangements to demonstrate commercial readiness. The increases in financial obligations and site control are intended to discourage speculative interconnection requests but will also reduce developer flexibility in what is often a fluid development environment for new projects.
- Establish public interconnection information requirements to provide better transparency to customers about the viability of potential points of interconnection prior to entering the queue.
- Assign queue positions for clusters instead of individual interconnection customers, placing less importance on queue position and placing all interconnection requests studied in a single cluster at the same queue priority.
- Tighten the site control requirements for generators, including the requirement to demonstrate 90 percent site control at the time of the interconnection request and limiting the ability to provide a deposit in lieu of site control. The new rules will require developers to focus more time, effort and expenditures on securing site control up front.
- Impose significant financial penalties for withdrawing from the queue, the costs of which increase in amount based on the stage at which the customer withdraws from the interconnection process.
- Remove the "reasonable efforts" standard for transmission providers conducting studies and instead impose penalties for study delays, which penalty costs could be recovered under Section 205 filings by and RTO/ISO. The penalty provisions are mitigated somewhat by a 10-day grace period and the ability of the parties to agree to an extension.
- Create a uniform affected system study process including a *pro forma* Affected System Study Agreement and a *pro forma* Affected System Facilities Construction Agreement.
- Establish requirements for including technological advancements—including colocation and electric storage resources—in the interconnection process.
- Make surplus interconnection service that is already subject to an executed LGIA available to other generating facilities earlier than currently allowed without it triggering the material modification process.
- Require transmission providers to use operating assumptions to reflect the charging behaviors of electric storage resources to limit unnecessary network upgrades and increased costs to customers.
- Require that transmission providers evaluate and consider other transmission technologies as alternatives to network upgrades during the interconnection process.
- Establish ride-through requirements for non-synchronous generating facilities to support reliability during abnormal voltage and frequency conditions.

- Require transmission providers to file a compliance filing within 90 days of publication in the *Federal Register*. While publication in the *Federal Register* has not yet occurred as of the issuance of this Advisory, 90 days is a short time for transmission providers, particularly for regional transmission organizations (RTOs) and independent system operators (ISOs) with extensive stakeholder review requirements, to propose revised Tariff language and receive adequate stakeholder input. We anticipate that some transmission providers will request an extension of the 90-day compliance deadline.

I. Reforms To Implement a First-Ready, First-Served Cluster Process

To prevent unreasonable delays and streamline the interconnection process, the Final Rule eliminates the "first-come, first-served" approach and adopts the "first-ready, first-served" cluster study process. Under this process, the Commission intends to increase efficiency and provide greater certainty regarding interconnection timing and network upgrade costs.[7] FERC explains that obviously, ready and higher-queued generating facilities are more likely to achieve commercial operation than those that have made little to no progress with development even as they have moved up the queue.[8] Notably, FERC does not explain how transmission providers should form clusters, but instead leaves cluster formation and determination to the transmission providers.[9]

A. Informational Interconnection Study and Information Access

Although proposed in the NOPR, the Final Rule does not require transmission providers to conduct informational interconnection studies before customers submit requests.[10] The Commission finds that this requirement would place additional burdens on transmission providers and cause them to divert resources away from conducting cluster studies, ultimately undermining the purpose of these reforms.[11] Instead, transmission providers are required to post generator interconnection information, in the form of heatmaps, on their respective websites. After the completion of each cluster study and restudy, a transmission provider has 30 calendar days to update its heatmap.[12] With the availability of heatmaps, customers will be able to better assess interconnection points' network updates, potential for congestion, possibility of curtailment, and the overall viability of an interconnection point before submitting a request.[13] The Commission reasons that this would provide an alternative way of providing information to customers and decrease the number of speculative interconnection requests.[14]

B. Cluster Study Process

The Final Rule eliminates the first-come, first-served serial interconnection process and instead requires transmission providers to use a first-ready, first-served cluster study process. FERC believes this study process will increase efficiency because transmission providers can evaluate multiple generating facilities in one cluster study as opposed to separate studies for individual customers.[15] This process begins when transmission providers open a 45-calendar-day cluster request window to solicit interconnection requests.[16] The start date is to be determined by each individual transmission provider and must be included in each transmission provider's LGIP.[17] The Commission believes that by including the start date in the LGIP, customers will have sufficient notice to prepare application materials for an interconnection request.[18] Following the close of the cluster request window, transmission providers will initiate a 60-day customer engagement window. During this period, transmission providers will post the details of each interconnection request on the Open Access, Same-Time Information System and give customers an opportunity to assess the viability of their proposals.[19] The Commission adopts a longer customer engagement window to provide the parties with an opportunity to comprehensively evaluate requests and allow customers to withdraw their interconnection requests without penalty to prevent later withdrawals.[20] The Final Rule mandates that transmission providers conduct one cluster study process per year, but does not prohibit transmission providers from conducting overlapping cluster studies.[21] While the Commission does not want to overextend transmission providers' resources on multiple cluster request windows, it also does not want to limit transmission providers

with capacity from conducting multiple cluster studies at a time.[22] The Final Rule places less significance on an individual customer's queue position. All valid requests submitted within a cluster request window will be equally queued.[23] Clusters initiated earlier in time will have a higher queue position than clusters initiated later in time.[24] Under the serial study process, a customer's queue position influences the allocation of network upgrade costs.[25] By contrast, under the cluster study process, network upgrade costs are allocated between cluster members and thus will not be influenced by queue position.[26] For cost allocation of the cluster studies, the Final Rule revises Section 13.3 of the *pro forma* LGIP to allow each transmission provider to propose its own cost allocation ratio between 10 percent and 50 percent of costs allocated on a per-capita basis, with the remainder (between 90 percent and 50 percent) allocated pro rata by megawatts (MW).[27] Regarding network upgrades, the Final Rule requires that transmission providers use a proportional impact method to allocate costs for system network upgrades among interconnection customers within a cluster, but not within different clusters.[28]

C. Increased Financial Commitments and Readiness Requirements

As proposed in the NOPR, interconnection customers will be subject to more stringent financial obligations and readiness requirements. Upon entering a cluster, customers will pay one deposit, ranging from $35,000 to $250,000, commensurate with the MW size of the generating facility.[29] Deposit amounts are tiered because studying larger proposed generating facilities costs more than studying smaller facilities regardless of the type of generating facility.[30] Although this approach may not accurately estimate study costs, the Commission finds that it is appropriate because study costs will be trued up and any excess funds will be refunded once the customer executes an LGIA, requests to file an unexecuted LGIA with the Commission, submits the corresponding payment, or withdraws from the queue.[31] The Final Rule provides the following study deposit framework:

Size of Proposed Generating Facility Associated With Interconnection Request	Amount of Deposit
> 20 MW to < 80 MW	$35,000 + $1,000/MW
≥ 80 MW to < 200 MW	$150,000
≥ 200 MW	$250,000

At the start of each study in the cluster study process, customers will need to submit commercial readiness deposits.[32] Similar to the initial study deposit, the amount of the initial commercial readiness deposit corresponds to the proposed generating facility size. [33] Subsequent commercial readiness deposits are to be based on assigned network upgrade costs once those are estimated. Notably, the Final Rule does not require an offtake agreement or a contractual arrangement to demonstrate commercial readiness. The Final Rule requires that customers pay a deposit when executing an LGIA or when requesting the filing of an unexecuted LGIA. The deposit will combine with the prior commercial readiness deposit to equal 20 percent of the estimated network upgrade costs identified in the LGIA.[34] In addition, FERC modifies the proposal in the NOPR requiring customers to demonstrate 100 percent site control upon submitting a request to require that customers demonstrate 90 percent site control.[35] Customers will be required to demonstrate 100 percent site control at the time the LGIA is executed.[36] Site control can still be demonstrated by an option to lease but the option must be exclusive to the interconnection customer.[37] The exclusive right to occupy a site is solely for an individual customer and only for a single

interconnection request.[38] If a customer fails to meet these milestones, its request will be withdrawn and it may be subject to withdrawal penalties.[39] The Commission (1) eliminates the option to provide a deposit in lieu of site control demonstration except in limited circumstances where an interconnection customer demonstrates a regulatory limitation to obtaining site control; (2) eliminates the option to post $250,000 of non-refundable security in lieu of site control at LGIA execution; and (3) requires that interconnection customers that could not demonstrate the requisite level of site control at the relevant milestone of the interconnection process (i.e., 90 percent for the cluster study and cluster restudy, and 100 percent for the interconnection facilities study and when executing, or requesting the unexecuted filing of an LGIA) have their interconnection request deemed withdrawn and potentially be subject to withdrawal penalties under certain circumstances.[40] The Commission finds that these site control and financial requirements will limit speculative commercially non-viable requests while also providing interconnection customers with the flexibility to resolve issues that may arise throughout the interconnection process.[41]

D. Withdrawal Penalties

Unless qualified for certain exemptions, customers will be penalized for withdrawing from the queue.[42] Penalties must be used to fund studies and restudies and any excess funds must be used to offset increases in network costs for other customers within the same cluster.[43] Depending on when a customer withdraws from the queue, it may be exempt from penalties.[44] The penalty amounts vary depending on when a customer withdraws from the queue.

Phase of Withdrawal	Total Withdrawal Penalty (if greater than study deposit)
Initial Cluster Study	Two times study costs
Cluster Restudy	5 percent of network upgrade costs
Facilities Study	10 percent of network upgrade costs
After Execution of or After Request to File an Unexecuted LGIA	20 percent of network upgrade costs

E. Transition Process

Depending on which stage of the serial study process their requests are in, transmission providers must offer existing interconnection customers up to three transition options: (1) a transitional serial study comprised of a facilities study (i.e., a transitional serial interconnection facilities study); (2) a transitional cluster study comprised of a clustered system impact study and individual facilities studies; or (3) withdrawal from the queue without penalty.[45] If an interconnection customer elects a transitional study, it must demonstrate 100 percent site control of its proposed generating facilities. After the transition period, transmission providers must implement the cluster study process. There are detailed provisions for the transitional cluster study, including timing, deposits and site control requirements, in Section 5.1.1.2 of the revised LGIP.

II. Reforms To Increase the Speed of Interconnection Queue Processing

As part of its general effort to increase the ability of interconnection customers to interconnect to the transmission system in a reliable, efficient, transparent and timely manner, the Commission proposes several reforms directly aimed at increasing the speed of interconnection queue processing. The Commission establishes rules that: (1) remove the "reasonable efforts" standard and instead provide penalties for study delays and requirements for the distribution of penalties; and (2) amend the affected system study process to attempt to make the study process and affected system agreements more uniform across a transmission provider's footprint. In the NOPR, the Commission had proposed to require transmission providers to allow resource planning entities to initiate an optional resource solicitation study.[46] However, upon consideration of the record, the Commission determined there is insufficient support for a requirement for a "one size fits all" approach for coordinating state-level resource planning with the interconnection process and, therefore, declined to incorporate this requirement into Order No. 2023.[47]

A. Removal of the "Reasonable Efforts" Standard and Imposition of Penalties and Penalty-Related Rules

Order No. 2023, finds that the use of the "reasonable efforts" standard for transmission providers to complete interconnection studies results in Commission-jurisdictional rates that are unjust and unreasonable.[48] Instead of the reasonable efforts standard, the Commission imposes study delay penalties to be paid by the transmission provider. The study delay penalties increase at later stages of the process to reflect the greater harm caused by delayed studies at those stages.[49] After a 10-business day grace period, for each day that the study is delayed beyond the Tariff-specified deadline, transmission providers incur the following penalties:

Study	$/day
Cluster Study	$1,000/day
Cluster Restudy	$2,000/day
Affected System Study	$2,000/day
Facility Study	$2,500/day

In addition to the 10-business day grace period before penalties begin to accrue, FERC also implemented other safeguards to balance the harms of interconnection study delays with the need to encourage timely interconnection studies without being overly punitive.[50] These additional safeguards include a transition period where no study delay penalties will be assessed; an option to extend a study's deadline by 30 days upon agreement; caps on study delay penalties; a force majeure exception; and the opportunity to appeal delay penalties.[51] To ensure that customers do not bear the costs associated with study delay penalties, all non RTO/ISO transmission providers and transmission owning members of RTO/ISOs are prohibited from recovering the costs of delay penalties through transmission rates. The Commission also determined that transmission providers cannot recover costs for the penalty from interconnection customers if the delay is caused by the interconnection customer.[52] While this prohibition seems questionable, the Commission offered that if a delay is caused by an interconnection customer, then the transmission provider would have a "potentially compelling" basis for the Commission to grant a waiver of the study delay penalties.[53] For RTO/ISOs, however, the Commission determined that these entities

could submit an FPA Section 205 filing to propose a default structure for recovering study delay penalties or submit individual filings to recover costs of any specific delay penalties.[54] The Commission also clarified that, because RTO/ISO studies are often conducted by transmission-owning members, the study delay penalties are to be imposed directly on the transmission-owning member that conducted the late study.[55]

B. Ensuring Uniformity and Transparency Across the Affected System Study Process

The Commission also follows the NOPR with regards to its proposal to establish an affected system study process in the *pro forma* LGIP to ensure uniformity and prevent unjust, unreasonable and unduly discriminatory or preferential treatment to interconnection customers. Similar to its reforms regarding the reasonable efforts standard, FERC's reforms are aimed at increasing efficiency and transparency, with the added benefit of cost certainty to decrease the amount of late-stage withdrawals and delays.[56] In addition to the inclusion of necessary definitions, the Commission proposes a general structure and methodology for the identification of affected systems, the affected system study process and the affected system agreement. The process (as identified below) is already in use in several regions. The process set forth by the Commission generally follows the following steps:

- **Notification**: Within 10 days after the completion of the cluster study or restudy, transmission providers must notify the affected system operator of a potential affected system impact. The affected system transmission provider has 20 business days to respond and indicate whether it plans to conduct an affected system study.
- **Scoping Meeting:** The Commission declined to adopt the NOPR proposal requiring an affected system scoping meeting. No scoping meeting is required.
- **Affected System Study Agreement:** Fifteen business days after it notifies the transmission provider and interconnection customer that it intends to conduct an affected system study, an affected system transmission provider must provide a non-binding good faith estimate of the cost and time frame for completing an affected system study.[57] Ten days after sharing the schedule for the study, the affected system transmission provider must tender an affected system study agreement.[58] FERC adopted a true-up of the affected system study deposit and the actual cost of the affected system study. The Commission's new *pro forma* Affected System Study Agreement is Appendix 9 of the LGIP.[59]
- **Affected System Study:** The affected system study must consider the base case and higher-queued generating facilities on the affected system transmission provider's system. Affected system transmission providers are required to study all affected system interconnection requests using energy resource interconnection service modeling unless it makes a Section 205 filing to study using network resource interconnection service on a case-by-case basis. It must provide a list of affected system network upgrades required to support interconnection, and non-binding good faith estimates of both cost and time to construct. The affected system transmission provider is required to study and provide the affected system study results within 150 days.[60]
- **Restudy Period:** Maximum 60 calendar day period for any affected system restudies. The affected system transmission provider has 30 calendar days to notify an affected system interconnection customer that restudy is needed.
- **Affected System Facilities Construction Agreement:** Within 10 days after providing the affected system study results, the parties are required to meet to facilitate transparent and meaningful communication regarding the study. Within 30 days after providing the affected system study report to the interconnection customer, the affected system transmission provider must tender to the interconnection customer an affected system facilities construction agreement. Upon receipt, the interconnection customer has 10 business days to execute or request the agreement be filed unexecuted with FERC.[61] The *pro forma* Affected System Facilities Construction Agreement adopted by the Commission is Appendix 11 of the LGIP.

III. Reforms To Incorporate Technological Advancements into the Interconnection Process

The Final Rule establishes new requirements for including technological advancements into the interconnection process. First, transmission providers must allow multiple generating facilities to submit one request to co-locate on a share site behind a single point of interconnection with a single terminal voltage.[62] The Final Rule does not require generating facilities to adopt technologies to accommodate facilities of two different voltages.[63] The Final Rule clarifies that the addition of a new generating facility to an existing request is not automatically a material modification.[64] Second, transmission providers may allow customers to access surplus interconnection service subject to an executed LGIA.[65] If the original customer's LGIA is terminated or suspended, then any requests for surplus interconnection service will also be terminated or suspended.[66] Third, transmission providers are required to use operating assumptions in interconnection studies to reflect the charging behaviors of electric storage resources.[67] The Commission finds this will ensure reliable interconnection of new electric storage.[68] As part of the initial interconnection request, customers are required to submit the requested operating assumptions for the interconnecting electric resource and a description of any applicable control technologies.[69] If transmission providers find that the originally proposed operating assumptions are in conflict with good utility practice, they can require that the customer install additional control technologies.[70] Fourth, transmission providers must fully evaluate and consider using alternative transmission technologies

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