Troutman Pepper Summary of FERC Order No. 2023-A on Generator Interconnections

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Executive Summary

On March 21, the Federal Energy Regulatory Commission (FERC or the Commission) issued Order No. 2023-A (Final Rule), which reaffirmed aspects of Order No. 2023 — the Commission's landmark order updating its generator interconnection procedures. As detailed further in this summary, the Commission largely upheld Order No. 2023, including some of the more controversial aspects of the order, such as penalties and the transmission capacity "heat map," and provided further clarity on other aspects.

Compliance Filings must include Order No. 2023-A reforms and are now due within 30 days of the Final Rule's publication in the *Federal Register*. Transmission providers proposing deviations from the Final Rule in their compliance filings must demonstrate that their deviations are "consistent with or superior to" standard (for non-RTO/ISO providers) or satisfy the "independent entity variation" standard (for RTOs/ISOs).

Summary of Key Aspects of Order No. 2023-A

A. Conflicts With Ongoing Queue Reform Efforts

- All transmission providers — including those with existing cluster study processes — must demonstrate compliance with Order No. 2023;[1] no "presumption" of compliance.[2]
- Such early-adopter transmission providers may, but are not required to, impose a transition process.[3]
- Unless FERC grants a variance, transmission providers not undertaking a transition process must impose the Final Rule's heightened readiness, and site control, requirements starting 60 calendar days after the Commission-approved effective date.[4]
- FERC will require "item-by-item justification" for every requested variance — *i.e.*, general statements that variances comply with Order No. 2023 are insufficient.[5]

B. Reforms to Implement a First-Ready, First-Served Cluster Study Process

- **Public Interconnection Information:**
    - FERC clarified that heatmaps must utilize assumptions for NRIS and may include ERIS.[6]
    - Because heatmaps must be based on the power flow models and assumptions used in the recent cluster study or restudy, they must include in-service and higher-queued network upgrades.[7]
    - If a transmission provider does not conduct a transition process, it is not required to make its heatmaps available until 360-days after the Large Generator Interconnection Procedures (LGIP) becomes effective.[8]

- FERC reiterated that transmission providers (not interconnection customers) must cover heatmap development-related costs, with recovery permitted to the extent costs are "consistent with Commission accounting and ratemaking policy."[9]

- **Cluster Study Process:**
  - FERC revised the LGIP definitions to permit multiple interconnection customers to agree to exercise the Option to Build stand-alone network upgrades.[10]
  - FERC clarified that Order No. 2023 did not modify the process for studying provisional interconnection service requests as-received.[11]
  - FERC clarified that transmission providers must issue successive deficiency notices as time allows in the cluster request window.[12]
  - FERC clarified that the customer's cure period ends at the close of the cluster request window, but noted that "minor errors" or "incompletions in technical data" can be corrected throughout the process.[13]
  - FERC revised the LGIP to require Facilities Study Agreement tendering within five business days after notification that no restudies are required.[14]
- **Allocating Cluster Network Upgrade Costs:**
  - FERC reiterated that transmission providers are not required to use, nor are prohibited from using, minimum impact thresholds in their proportional impact analyses.[15]
  - FERC modified the LGIP to clarify that substation network upgrades are at distinct voltage levels.[16]
- **Shared Network Upgrades:**
  - FERC reiterated that transmission providers with existing shared network upgrade schemes are not required to eliminate, change, or re-justify such schemes.[17]
  - FERC stated generally that "Transmission Providers need only seek approval to maintain previously approved variations from the *pro forma* LGIP and *pro forma* LGIA if such variations are impacted by the requirements of Order No. 2023."[18]
- **Increased Financial Commitments and Commercial Readiness Requirements:**
  - *Financial Security*: FERC modified the LGIP to allow surety bonds or other reasonably acceptable forms of financial security (in addition to cash and irrevocable letters of credit) to serve as the commercial readiness deposit and study deposits.[19]
  - *Study Deposits*: FERC modified the LGIP to (1) reflect that the first study deposit tier would also apply to small generating facilities requesting NRIS;[20] (2) clarify that the $5,000 application fee is nonrefundable; and (3) remove language that implied collection of separate study deposit collections.[21]
  - *Demonstration of Site Control*: FERC clarified that if a regulatory limitation required a change to a project's point of interconnection (POI), any deposit submitted by the interconnection customer in lieu of site control must be nonrefundable, though the customer could be subject to a withdrawal penalty.[22]
  - *Commercial Readiness*: FERC reiterated that it did not adopt nonfinancial commercial readiness requirements, but that it would not prejudge compliance filings that propose such readiness requirements.[23]
  - *Withdrawal Penalties*: FERC (1) clarified that withdrawal penalties cannot exceed the dollar amount collected from withdrawing customers; (2) revised the LGIP to clarify that no withdrawal penalties will be assessed if the withdrawal does not have a material impact on any co-clustered request; (3) clarified that using withdrawal penalties to offset other customer-provided financial security will not reduce the total network upgrade cost

that can be put into ratebase; (4) modified the LGIP to clarify withdrawal process steps; (5) clarified that withdrawal penalties can cover costs for cluster restudies and facilities studies; (6) clarified the withdrawal penalty process when the withdrawal does and does not cause shared network upgrade cost increases; (7) modified the LGIP to distinguish transition- and non-transition-process-related withdrawal penalties; (8) clarified that "study costs", for transitional withdrawal penalty purposes, also include all study costs incurred prior to the effective date of the reforms.[24]

- **Transition Process:**
    - FERC largely denied all transition-related rehearing and clarification requests, but did revise the LGIP to add "Transitional Cluster Study Agreement" and "Transitional Serial Interconnection Facilities Study Agreement" as definitions.[25]

C. Reforms to Increase the Speed of Interconnection Queue Processing

- **Elimination of the Reasonable Efforts Standard in Favor of Penalties for Delayed Studies:**
    - FERC generally rejected all requests for rehearing challenging the decision in Order No. 2023 to remove the Reasonable Efforts standard for certain studies and impose a penalty and appeal scheme.[26]
    - FERC clarified that: (1) no interest will be owed on any penalty funds;[27] (2) penalties would be incurred on a per-study basis (not per-customer basis) and per business day that the study is delayed;[28] (3) RTOs and ISOs have several options for collecting delay penalties, which they can propose on compliance;[29] (4) transmission providers are not required to collect or earmark late study penalties prior to concluding any appeal process under the LGIP;[30] and (5) Order No. 2023 did not limit the type of evidence that transmission providers may present on appeal.[31]
- **Coordination With Affected Systems:**
    - FERC clarified, and in some cases required various LGIP modifications to effectuate, that: (1) there are deadlines on affected system transmission providers; (2) affected system transmission providers may pause affected system studies if the host transmission provider decides to conduct a restudy and also delay the commencement of an affected system study until after the host completes its restudy;[32] (3) that "completion of" a cluster study is when the study, or restudy, report is issued; and (4) previous acceptances of affected system agreements without affected system network upgrade reimbursement provisions were in error.[33]

D. Reforms to Incorporate Technological Advancements Into the Interconnection Process

- **Increasing Flexibility in the Generator Interconnection Process:**
    - FERC largely denied clarification and rehearing requests, and reaffirmed its earlier reforms, regarding: (1) allowing co-located generating facilities behind a single POI;[34] (2) requiring transmission providers to evaluate requests to add generating capacity to an interconnection request without automatically deeming it a material modification provided the interconnection service level remains the same;[35] (3) requiring transmission providers to evaluate the proposed charging behavior of storage resources (if such analysis is done in the transmission provider's interconnection process);[36] and (4) availability of surplus service.
    - FERC clarified that transmission providers must allow customers to apply for surplus service once the underlying Large Generator Interconnection Agreement (LGIA) is executed (or filed unexecuted), not that surplus service must commence at that point.[37]
- **Incorporating Alternative Transmission Technologies Into the Process:**

- FERC largely denied clarification and rehearing requests, and reaffirmed its earlier reforms, regarding requiring transmission providers to evaluate certain enumerated alternative transmission technologies in the interconnection study process — a list that excluded dynamic line ratings.[38]
- FERC revised the Small Generator Interconnection Procedures (SGIP) and LGIP to mirror the LGIP-related reforms in the applicable SGIP provisions and clarify aspects of the reform in the LGIP.[39]
- FERC clarified that the term "advanced conductors" includes present and future conductors that are more advanced relative to conventional conductors.[40]

- **Modeling and Ride-Through Requirements for Nonsynchronous Generating Facilities:**
  - FERC largely denied clarification and rehearing requests, and reaffirmed its earlier reforms, regarding modeling and ride-through requirements for nonsynchronous generating facilities.[41]
  - FERC clarified that a generating facility's inability to prioritize reactive power without a reduction in active power would qualify as a "physical limitation of the generating facility" under revised LGIA Article 9.7.3 and SGIA Article 1.5.7.[42]

Compliance Procedures:

- Compliance filings are due within 30 calendar days of the Final Order's publication in the *Federal Register*.
- Transmission providers proposing deviations from the Final Rule will be held to the "consistent with or superior to" standard (for non-RTO/ISO providers) and "independent entity variation" standard for RTOs/ISOs.
- Transmission providers may propose — and FERC will consider on a case-by-case basis — a requested effective date for their revised LGIPs and SGIPs, *e.g.*, to align with their existing queue processing dates.[43]

Introduction

On July 28, 2023, FERC issued Order No. 2023 (Order No. 2023) a final rule that updates the generator interconnection procedures adopted in Order Nos. 2003 and 2006, and which is intended to address interconnection queue backlogs, improve certainty in the interconnection process, and prevent undue discrimination for new technologies. The most significant change in Order No. 2023 was the move away from FERC's historic "first come, first served" approach to generator interconnection in favor of a "first *ready*, first served" approach that requires generators to demonstrate commercial readiness in order to proceed through the queue.

On March 21, FERC issued Order No. 2023-A (Final Rule) to address various rehearing requests from across the industry. As explained below, FERC largely upheld the reforms introduced in Order No. 2023 and offered clarification on several matters of interest.

Summary of Changes and Clarifications

A. Conflicts With Ongoing Reform Efforts

In Order No. 2023, the Commission addressed concerns regarding the impacts on transmission providers who are either already operating under, or transitioning to, a cluster study process.[44] In Order No. 2023-A, the Commission explained that it did not intend for the reforms in Order No. 2023 to disrupt these ongoing transition processes, stifle further innovation, or interfere with the timely completion of those in-progress cluster studies and transition processes.[45] FERC clarified that Order No. 2023, therefore, did not require transmission providers who are currently undergoing transition plans and/or processing existing cluster studies to adopt the transition requirements of Order No. 2023 or propose a variation.

Regarding the transition process, the Commission affirmed its previous reforms in Order No. 2023 but made additional clarifications and changes, as follows:

- Transmission providers that have already adopted, or are currently transitioning to, a cluster study process are not required to file the *pro forma* LGIP Section 5 and the related appendices in their compliance filings;[46]
- Order No. 2023 does not prohibit transmission providers from adopting the transition process established in Order No. 2023, and transmission providers may adopt *pro forma* LGIP Section 5;[47]
- The new readiness requirements are required to be applied to current interconnection customers' progress in the queue as of 60 calendar days after the Commission-approved effective date of the transmission provider's Order No. 2023 compliance filing.[48] Interconnection customers that have not executed an LGIA or requested an LGIA to be filed unexecuted with the Commission must meet the transmission provider's new readiness requirements or be deemed withdrawn.[49]
- FERC added new Section 5.1.2 to the *pro forma* LGIP[50] to clarify that an interconnection customer that meets the new readiness requirements may withdraw from the queue within 60 calendar days of the effective date of the transmission provider's Commission-approved compliance filing without being subject to penalties but if an interconnection customer withdraws outside the 60-day timeline, it will be subject to new withdrawal penalties in Section 5.1.2.[51]

B. Reforms to Implement a First-Ready, First-Served Cluster Study Process

1. Interconnection Information Access

In Order No. 2023, the Commission adopted Section 6.1 (Publicly Posted Interconnection Information) of the *pro forma* LGIP to require transmission providers to make publicly available an interactive visual representation of available interconnection capacity as well as a table of relevant interconnection metrics that allows prospective interconnection customers to see certain estimates of a potential generating facility's effect on the transmission provider's transmission system.[52] Specifically, Order No. 2023 requires transmission providers to develop a heatmap of estimated incremental injection capacity (in MW) available at each bus in the transmission provider's footprint under N-1 conditions and provide a table of results showing the estimated impact of the addition of a proposed project for each monitored facility impacted by the proposed project.[53] Additionally, Order No. 2023 requires that the information be updated within 30 days after each cluster study or restudy, not on a cycle of every 30 calendar days.[54]

On rehearing, the Commission clarified that:

- Transmission providers may propose an option for heatmap users to view results using ERIS assumptions in addition to NRIS assumptions but are not required to do so;[55]
- Heatmaps are to be calculated under N-1 conditions and studied based on the power flow model of the transmission system with the transfer simulated from each POI to the whole transmission provider's footprint (to approximate NRIS), and with the incremental capacity at each POI decremented by the existing and queued generation at that location (based on the existing or requested interconnection service limit of such generation;[56]
- Transmission providers are not required to update their heatmaps on a rolling 30-day basis but within 30 days of completing a cluster study or restudy;[57]
- The creation and implementation of the heatmap should not divert attention from interconnection engineers who would otherwise be focused on transitioning to cluster studies because heatmaps are not required to be available until *after* their transition period;[58]
- Those transmission providers that opt not to adopt the Commission's *pro forma* LGIP Section 5 (transition process) do not need to make their heatmap available until 360 calendar days after the Commission-approved effective date of the transmission provider's Order No. 2023 compliance filing;[59]
- Transmission providers must bear the costs associated with developing and maintaining the heatmap and may recover those costs through transmission rates to the extent they are recoverable under the Commission's accounting and ratemaking policy;[60] and
- Order No. 2023 does not preclude transmission providers from proposing to develop joint, regional heatmaps.[61]

2. Cluster Study Process

In Order No. 2023, the Commission implemented numerous revisions to the *pro forma* LGIP and *pro forma* LGIA, requiring transmission providers to study interconnection requests in clusters on a first-ready-first-served basis.[62] In Order No. 2023-A, the Commission clarified and revised aspects of its Order No. 2023 cluster study reforms, including:

- Modified the definition of stand-alone network upgrades in Section 1 (Definitions) of the *pro forma* LGIP and *pro forma* LGIA and Article 5.1.3 (Option to Build) of the *pro forma* LGIA[63] to enable

interconnection customers to exercise the build option, whether the standalone network upgrade is attributable to single or multiple interconnection customers;[64]

- Clarified that Order No. 2023 did not modify the process for transmission providers to study provisional interconnection service requests;[65]
- Clarified that transmission providers have 150 days from the point of informing interconnection customers about a restudy to complete each restudy, which must occur within 30 calendar days after the cluster study report meeting;[66] and, in the case of multiple restudies, the transmission provider is not expected to know whether to initiate a restudy of later-in-time clusters and inform those interconnection customers until the initial restudy is completed;[67]
- Clarified that the Commission leaves what constitutes a material modification to the transmission providers' currently effective processes for determining materiality;[68]
- Clarified that interconnection customers are entitled to as many cure periods as necessary to remedy a deficient interconnection request; however, the end of the cure periods must fall prior to the last day of the 45-day cluster request window;[69]
- Clarified that if a transmission provider finds an interconnection request deficient less than 10 days before the close of the cluster request window, the interconnection customer can cure the deficiencies until the close of the cluster request window;[70]
- Clarified that the sentence in *pro forma* LGIP Section 3.4.4, which reads "At any time, if Transmission Provider finds that the technical data provided by Interconnection Customer is incomplete or contains errors, Interconnection Customer and Transmission Provider shall work expeditiously and in good faith to remedy such issues" does not extend the time period for an interconnection customer to address deficiencies for the transmission provider's acceptance of a valid, complete interconnection request;[71]
- Clarified that the transmission provider must complete its determination that an interconnection request is valid by the close of the cluster request window, and interconnection customers must also cure deficient interconnection requests by the close of the cluster request window;[72]
- Modified *pro forma* LGIP Section 3.4.5 to clarify that an interconnection customer's cure period ends at the close of the cluster request window at the latest;[73]
- Modified *pro forma* LGIP Section 3.4.4 to clarify that all items in *pro forma* LGIP Section 3.4.2 must be received during the cluster request window;[74]
- Modified *pro forma* LGIP Sections 7.3 and 8.1 of the to remove the requirement for transmission providers to tender an interconnection facilities study agreement simultaneously with the issuance of a cluster study (or restudy) report;[75]
- Modified *pro forma* LGIP Section 8.1 to clarify that transmission providers shall tender the interconnection facilities study agreement within five business days after the transmission provider notifies interconnection customers that no further restudies are required;[76]
- Clarified Order No. 2023 does not limit transmission providers' ability to make an Federal Power Act (FPA) Section 205 filing, and the Commission will continue to assess such filings on a case-by-case basis;[77]
- Clarified that Order No. 2023 does not require transmission providers to change, eliminate, or re-justify existing Commission-approved generator replacement processes on compliance;[78]

- Revised *pro forma* LGIP Section 7.5 to clarify that cluster restudies can be triggered by withdrawal of a higher-queued interconnection customer, and that interconnection customers being restudied are responsible for the cost of any restudy, except as provided in Section 3.7;[79] and
- Revised *pro forma* LGIP Section 3.5.2.4 to clarify that the requirement to track and post metrics on interconnection queue withdrawals includes every stage of the study process.[80]

3. Allocation of Cluster Network Upgrade Costs

Order No. 2023 required that transmission providers: (1) allocate network upgrade costs based on the proportional impact method, and (2) allocate the costs of the substation network upgrades on a per capita basis.[81] However, the Commission declined to prescribe a specific type of proportional impact method or distribution factor analysis, emphasizing the importance of ensuring flexibility for transmission providers.[82] The Commission determined that transmission providers must provide tariff provisions describing their cost allocation methods; however, specific metrics, thresholds, and technical information can be included in business practice manuals or posted on the provider's website.[83] The Commission also added definitions for key terms and modified the existing definition of stand along network upgrades.

In Order No. 2023-A, the Commission made the following clarifications:

- In response to generation developers' request for clarification, the Commission explained that, consistent with the rule of reason, the details of the proportional impact method and whether they should be included the transmission provider's tariff or in other governing documents will be considered in individual Order No. 2023 compliance filings;[84]
- Although the Commission declined a rehearing request that FERC impose a minimum impact threshold under the proportional impact method, FERC clarified that transmission providers are not precluded from proposing their own minimum impact threshold;[85] and
- The Commission explained that substation network upgrade cost allocation is based on the number of interconnection facilities connecting to the substation, and in order to allocate such costs per capita to each generating facility in accordance with Section 4.2.1.1.a of the *pro forma* LGIP, the transmission provider must first allocate the cost of substation network upgrades on a per capita basis for each interconnection facility connecting to the substation, and then allocate those costs on a per capita basis between each generating facility using the interconnection facility.[86]

Finding that substation network upgrades are at distinct voltage levels, the Commission made conforming changes to Section 4.2.1.1.a of the *pro forma* LGIP.[87]

4. Shared Network Upgrades

In Order No. 2023, the Commission declined to establish an approach to sharing the costs of network upgrades between interconnection customers from an earlier and a subsequent cluster. FERC found that doing so may lead to potential administrative burdens and the reforms in Order No. 2023's cluster network upgrade cost allocation would address the "first mover/free rider" issue that motivated commentors' proposal for such a cost sharing approach.[88]

In a request for rehearing and clarification, Shell asked the Commission to clarify that Order No. 2023 does not prohibit existing mechanisms of inter-cluster cost sharing of network upgrades and that the Commission will not prohibit inter-cluster cost sharing in the future.[89] Shell argued that the network upgrade cost sharing between initial and subsequent interconnection customers is a common practice in the industry, citing ISO-NE market as an example.[90]

In Order No. 2023-A, the Commission confirmed that Order No. 2023 does not require transmission providers to modify, eliminate or seek re-justification for existing mechanisms regarding cost sharing of

network upgrades between earlier and later clusters, as Order No. 2023 does not impact these provisions.[91] Instead, the Commission only requires that transmission providers seek approval for deviations from the *pro forma* LGIP and *pro forma* LGIA that are influenced by the requirements of Order No. 2023.[92]

5. Increased Financial Commitments and Readiness Requirements

Financial Security Generally

In Order No. 2023, the Commission modified the *pro forma* LGIP to require that an interconnection customer pay the commercial readiness deposit and deposits prior to the transitional serial study, transitional cluster study, cluster restudy and the interconnection facilities study via cash or a letter of credit.[93] On rehearing, the Commission expanded the acceptable forms of security to not only include cash or an irrevocable letter of credit, but also surety bonds or other forms of financial security that are reasonably acceptable to the transmission provider.[94] The Commission also clarified that it will not preclude transmission providers from allowing interconnection customers to pay cash in lieu of drawing on a previously submitted letter of credit or surety bond.[95] The Commission modified the study deposit framework in Section 3.1.1.1 of the *pro forma* LGIP as follows: [96]

Size of Proposed Generating Facility Associated With Interconnection Request Under the *pro forma* LGIP	Amount of Deposit
< 80 MW	$35,000 + $1,000/MW
≥ 80 MW < 200 MW	$150,000
≥ 200 MW	$250,000

The Commission explained that the modified framework accommodates instances where interconnection customers developing small generating facilities requesting NRIS submit their interconnection requests under the relevant transmission providers' LGIP.[97] The Commission also clarified that the Section 3.1.1.1 $5,000 application fee is nonrefundable.[98]

Demonstration of Site Control

In Order No. 2023, the Commission adopted revisions to the *pro forma* LGIP and *pro forma* LGIA to add more stringency to the site control requirements and to help prevent speculative interconnection requests from entering the interconnection queue, including new definitions for "site control" and providing for deposits in lieu of demonstrations of site control.[99] On rehearing, the Commission:

- Determined that the record was insufficient to assess alternative site control requirements for interconnection facilities and impose them on a nationwide basis;[100]
- Declined to modify the definition of "site control" to avoid imposing term limits;[101]
- Found that the interconnection customer has responsibility to obtain exclusive site control over the term of expected operation of the generating facility and that allowing interconnection customers to submit site control documentation for a term shorter than the operation of the generating facility would increase risks for all parties;[102]
- Declined to clarify that transmission providers may increase the number of options for interconnection customers to submit a deposit in lieu of demonstrating site control, beyond

regulatory limitations, because the Commission believed that this would not prevent speculative, commercially non-viable interconnection requests from entering the queue;[103] and

- Clarified that if regulatory limitations require a change to the POI that cannot be accommodated and results in a withdrawn interconnection request, then any deposits submitted by the interconnection customer in lieu of site control would be refundable, but that the interconnection customer may still be subject to a withdrawal penalty.[104]

Commercial Readiness

The Commission stated that since it did not adopt non-financial commercial readiness demonstrations in Order No. 2023, that it did not need to respond to any arguments that such demonstrations could be unduly discriminatory.[105]

Withdrawal Penalties

On rehearing, the Commission maintained the withdrawal penalty structure adopted in Order No. 2023 and disagreed with assertions that the structure is "unnecessarily complicated and burdensome on transmission providers."[106] The Commission also declined to modify the tracking of withdrawal penalty funds, stating that tracking was necessary to ensure that individual interconnection customers' withdrawals are appropriately allocated.[107] The Commission explained that any perceived burden to transmission providers to track the funds are outweighed by the assurance of transparency to interconnection customers and provides valuable information to transmission providers.[108] The Commission also retained the penalty-free withdrawal threshold exemptions from Order No. 2023 and disagreed with arguments that the thresholds for penalty-free withdrawal exposes interconnection customers to unjust and unreasonable cost increases, stating that the thresholds provide sufficient room for estimates to change as the cluster evolves while also reducing the impact of the withdrawal penalties when such estimates change by a significant amount.[109] The Commission also declined to define materiality, finding that such a definition was unnecessary because "the materiality of the impact caused by a withdrawal could depend on the factors pertaining to the individual project (size, location, type) and other projects in the cluster (proximity to the withdrawing project, size of remaining projects relative to the withdrawing project), as well as the configuration of the transmission provider's transmission system."[110] Instead, FERC will allow transmission providers to make the determination of materiality in the context of the withdrawal penalty exceptions in *pro forma* LGIP Section 3.7.1.[111]

The Commission did, however, make several clarifications to the withdrawal penalty requirements. First, the Commission clarified that withdrawal penalties cannot exceed the dollar amount collected from an interconnection customer that has withdrawn from the interconnection study process secured by transmission providers.[112] As such, the Commission modified Section 3.7.1.2.1 of the *pro forma* LGIP, which provides that withdrawal penalty funds are collected from the cluster for the purposes of (1) funding studies conducted under the cluster study process for interconnection customers in the same cluster that have executed the LGIA or requested the LGIA to be filed unexecuted, and (2) reducing net increases, for interconnection customers in the same cluster, in interconnection customers' network upgrade cost assignment and associated financial security requirements.[113] The Commission modified the Section to explain that the total amount of funds used for (1) and (2) must not exceed the total amount of withdrawal penalty funds collected from the cluster.[114]

Second, the Commission clarified that using withdrawal penalties to offset financial security payment amounts provided to the transmission provider by the remaining interconnection customers would not reduce the total network upgrade cost that a transmission provider places in a rate base.[115]

Next, the Commission clarified the timeframes for the specific withdrawal penalty application process steps. The Commission explained that the transmission provider must complete the following steps within 30

calendar days of all interconnection customers in the cluster having either withdrawn or been deemed withdrawn, executed an LGIA, or requested the LGIA be filed unexecuted:[116] The application process steps include:

1) Apply a refund to invoiced study costs for interconnection customers that remain in the cluster;[117]

2) Determine whether withdrawn interconnection customers, at any point in the cluster study process, shared cost assignment for one or more network upgrades with any remaining interconnection customers in the same cluster;[118]

3) Where the withdrawn interconnection customers have shared a cost assignment for one or more network upgrades with any remaining interconnection customers in the same cluster, the transmission provider is to perform the calculations described in *pro forma* LGIP subsection 3.7.1.2.3(a) to determine the reduction in the remaining interconnection customers' net increase in network upgrade costs and associated financial security requirements;[119] and

4) Where applicable, provide interconnection customers with an amended LGIA that provides the reduction in network upgrade cost assignment and associated reduction to the interconnection customer's financial security requirements.[120]

The Commission further clarified that where the transmission provider conducts step 2 and determines that a withdrawn interconnection customer did not share cost assignments with remaining interconnection customers or cause a net increase in the cost assignment for any remaining interconnection customers in the same cluster, the transmission provider must return any remaining withdrawal penalty funds to the withdrawn interconnection customer(s) within 60 calendar days of all interconnection customers in the cluster having either withdrawn or been deemed withdrawn, executed an LGIA, or requested the LGIA be filed unexecuted.[121] The Commission stated that the 60-day period would allow transmission providers to have time to focus on steps 1-4 before it disburses funds to withdrawn interconnection customers.[122]

Fourth, the Commission clarified that Section 3.7.1.2.1 of the *pro forma* LGIP requires transmission providers to use the collected withdrawal penalties to first fund all interconnection studies conducted for the interconnection customers in the cluster, including cluster restudies and the interconnection facilities study.[123] The Commission also clarified the difference between the requirements to return withdrawal penalty funds to withdrawn interconnection customers under *pro forma* LGIP Section 3.7.1.2.2 (where an interconnection customer's withdrawal *does not cause* a net increase in the shared cost assignment for network upgrades in the same cluster, the withdrawal penalty funds returned to the withdrawn interconnection customers will be net of the amount used to pay the study costs for the interconnection customers in the same cluster that did not withdraw) and Section 3.7.1.2.5 (where any interconnection customer's withdrawal *does cause* a net increase in the shared cost assignment for network upgrades, the withdrawal penalty funds returned to the withdrawn interconnection customers will be net of both the study costs and the amount paid to offset net increases in shared cost assignments for network upgrades).[124]

Lastly, regarding penalties associated with the transition process, the Commission defined "transitional withdrawal penalty" in order to distinguish this penalty from the withdrawal penalty assessed under the normal cluster study process.[125] The Commission also clarified that the term "study cost" as used in the calculation of the transitional withdrawal penalty, includes all costs incurred by the interconnection customer in the transmission provider's existing interconnection study process prior to the Commission-approved effective date of the transmission provider's Order No. 2023 compliance filing.[126] Lastly, the Commission declined to clarify that penalty-free withdrawal thresholds apply to transitional projects because the penalty-free exemption provisions are more appropriate for the normal cluster study process where the withdrawal

penalty could be much higher than nine times study costs amount assessed as the transitional withdrawal penalty and that interconnection customers can also choose to not enter the transition process.[127]

6. Transition Process

In Order No. 2023, the Commission introduced a transition process to implement the new cluster study process.[128] Among other requirements in the Order No. 2023 transition process, transmission providers must offer existing interconnection clients three transition options depending on the stage of their interconnection requests: (a) a transitional serial study, (b) a transitional cluster study, and (c) withdrawal from the interconnection queue without penalty.[129] The Commission also established transition process deposits, withdrawal penalties, and deadlines, requiring that: (1) interconnection customers electing the transitional serial study (*i.e.,* proceeding to the facilities study phase) must provide a deposit equal to 100% of the interconnection facility and network upgrade cost allocated to the interconnection customer in the system impact study; and (2) interconnection customers electing the transitional cluster study must provide a deposit equal to $5 million.[130] Notably, existing interconnection customers currently in an interconnection queue may opt to withdraw their interconnection requests without penalty.[131]

Clean Energy Associations requested rehearing to revise the deposit amounts required for customers participating in the transition process.[132] Clean Energy Associations also challenged the transitional deposit amounts and withdrawal penalties as excessive and/or unsupported.[133] Additionally, Clean Energy Associations and Shell requested that the Commission revise the transitional cluster study process and Sections 5.1.1.2 to set the July 28, 2023 issuance date of Order No. 2023 as the date of eligibility for transitional cluster study participation because, as asserted by Shell, the transition process was too broad and unfairly groups newer interconnection customers with those who had been waiting in queues for much longer.[134]

The Commission denied the rehearing requests of Shell and Clean Energy Associations, and asserted that the date decided in the Order No. 2023 was reasonable.[135] The Commission also noted that any concerns about an inflated transitional cluster due to the inclusion of more recent interconnection requests were speculative.[136] The Commission emphasized that the stricter requirements to join a transitional cluster are likely to prevent nonready projects from joining, thus controlling the rush into transitional clusters.[137]

C. Reforms to Increase the Speed of Interconnection Queue Processing

1. Elimination of the Reasonable Efforts Standard; Study Deadlines and Retention of Study Delay Penalties

Elimination of Reasonable Efforts Standard

In Order No. 2023, FERC eliminated the reasonable efforts standard for conducting cluster studies, cluster restudies, facilities studies, and affected system studies by the tariff-specified deadlines from the *pro forma* LGIP.[138] FERC explained that the lengthy interconnection study delays and queue backlogs support terminating the reasonable efforts standard to encourage transmission providers to timely complete studies.[139] In place of the reasonable efforts standard, FERC implemented a study delay penalty regime, with certain "safeguards" for transmission providers to mitigate the impacts of such penalties.[140]

In Order No. 2023-A, FERC denied rehearing requests to modify or reinstate the reasonable efforts standard,[141] finding that its elimination is one of many solutions proposed in Order No. 2023's package of reforms aimed at reducing interconnection queue backlogs.[142] FERC also found the flexibility afforded by the standard "do[es] not demonstrate that this standard remains just and reasonable."[143] FERC also disagreed with arguments that it failed to demonstrate that there are steps that transmission providers can take to improve the timeliness of study processing, and suggested that transmission providers can allocate additional personnel or consultants, as appropriate, to ensure the timely completion of studies and noted

that "interconnection customers, rather than transmission providers, ultimately bear the costs of interconnection studies."[144] Finally, FERC acknowledged the burdens that the new deadline and penalty regime imposes on transmission providers, but reasonable safeguards, such as the ability to appeal a penalty, balance these burdens.

Study Deadlines

Order No. 2023 imposed a fixed, uniform study deadline of 150 days for all transmission providers without procedures to extend this deadline in the case of restudies or other circumstances.

Several rehearing requests challenged the "one-size-fits-all" study deadlines because they fail to account for the specific circumstances of each cluster being studied.[145] PJM transmission owners (TOs) argued that the uniform deadline and the penalty framework discriminate against transmission owners in regions with substantial renewable generation development, as these regions are more likely to face penalties due to factors they cannot control.[146] Dominion argued that there might be disparate outcomes in difference zones because of an uneven distribution of interconnection requests such that different transmission owners or providers will face different risks.[147] Other rehearing requests argued that the 150-day cluster study deadline is unsupported and risks a less efficient interconnection process.[148] PacifiCorp asserted that the Commission should extend study and restudy deadlines by 45 days to provide transmission providers adequate time to address third-party delays.[149]

The Commission was not persuaded by these arguments.[150] Instead, the Commission affirmed that the timelines set forth in Order No. 2023 appropriately address transmission providers' role and control in the interconnection study process and strike a reasonable balance between the transmission provider and other interests.[151]

With regard to some of FERC's proposed study delay penalty "safeguards," Dominion, MISO TOs, and NYISO argued against the 30-day mutual agreement extension, asserting that interconnection customers lacked incentive to agree to extensions, given that they would benefit from imposed delay penalties.[152] FERC disagreed and found that because interconnections have a particular interest in reliable interconnection studies and in a properly functioning study process and thus, FERC was not persuaded that customer would adopt an unreasonably adversarial approach for modest extensions.[153] The Commission was also unpersuaded by NYISO's challenge to the 10-day grace period "safeguard" that precluded penalties for delays less than 10 business days.[154] The Commission maintained that this "safeguard" was one among several that collectively strike a balance between creating an incentive for transmission providers to help ensure that interconnection studies are completed in a timely fashion.[155]

Upholding Study Delay Penalties

Having eliminated the reasonable efforts standard in Order No. 2023, FERC implemented a replacement rate, which created firm study deadlines subject to the assessment of penalties to transmission providers that breach these deadlines.[156] The Commission recognized that queue backlogs, which had led to unjust and unreasonable rates, are driven, in part, by study delays.[157] On rehearing, parties challenged the study delay penalties, as a violation of due process, and an inequitable strict liability structure.[158]

In Order No. 2023-A, FERC upheld the penalties.[159] The Commission held that the penalties were not a "strict liability" scheme because of the appeal process, whereby transmission providers can provide case-specific facts or circumstances to demonstrate good cause for FERC to grant relief from any penalty assessed.[160] FERC also found no due process violations because, as FERC argued, it provided "fair notice" of the conduct giving rise to penalties, the penalty amount, the ability to seek relief through appeal, and the factors most likely (though not exhaustive) to demonstrate good cause for relief.[161] FERC also found that transmission providers have an "extensive opportunity to be heard" through the rulemaking, appeal, and rehearing of any appeal taken.[162] FERC held that it is reasonable to put the burden on transmission

providers to show good cause for relief from a penalty because they have the most knowledge and control over the study process.[163] Finally, the Commission clarified that the appeal process is not meant to remove the transmission provider's rights under Section 206 of the FPA, but is only meant to supplement those rights by providing a more flexible and less burdensome standard of "good cause."[164] Furthermore, FERC upheld its prior decision to not create generic exceptions to the penalties, including for *force majeure* events, finding a lack of industry consensus over what is within the transmission provider's control.[165]

FERC rejected arguments that the penalty structure was unjust and unreasonable for only applying to transmission providers and not also other entities that could cause delays, such as interconnection Customers. As FERC argued, transmission providers and interconnection customers are not similarly situated because transmission providers control and are ultimately responsible for studies and interconnection customers are already subject to significant incentives to avoid delaying interconnection studies.[166]

2. Affected System Issues

In Order No. 2023, FERC found reformed and standardized the affected systems study process in three major areas: (1) affected systems study processes, (2) affected systems *pro forma* agreements, and (3) miscellaneous.[167] As for the study process, FERC established a schedule governing the host transmission provider's obligations to the affected system transmission provider with respect to notice and report deadlines, as well as the tendering of relevant affected system agreements.[168] Order No. 2023 also adopted the new *pro forma* affected system facilities construction agreement, which standardizes the terms and conditions for construction of network upgrades on affected systems.[169] This *pro forma* agreement included a provision regarding the recommencement of work, resulting impacts to priority following a suspension of work, restudy procedures following suspension, and payment responsibility.[170] This agreement also included a provision granting transmission providers the right to suspend due to default by an affected system interconnection customer.[171]

Order No. 2023-A made several changes to the prior Order's *pro forma* LGIP to clarify the timing and notice obligations of relevant parties. To that end, Order No. 2023-A adds clarifying language to Section 3.6.2 (Notification of Cluster Restudy), Section 9.2.2 (Response to Notification of Cluster Restudy), Section 3.6.3 (Notification of Cluster Restudy Completion), and modifies language at Section 9.5 (Execution of Affected System Study Agreement/Multiparty Affected System Study Agreement). Order No. 2023-A also renames Section 9.2 (Response to Initial Notification) to "Response to Notifications," moves the requirements into a new Section 9.2.1 (Response to Initial Notification), and revises the requirements to make certain clarifications regarding the applicability of LGIP Section 9's provisions to the affected system transmission provider.[172] Finally, Order No. 2023-A adds language to *pro forma* LGIP Section 3.6.2 (Notification of Cluster Restudy) to require that the host transmission provider notify any relevant affected system operators of a cluster restudy at the same time that it notifies the interconnection customers in the cluster restudy.[173] As for the affected systems *pro forma* agreements, in Order No. 2023-A, the Commission, *sua sponte*, modified the *pro forma* affected system facilities construction agreement by removing in their entirety the two provisions addressing the recommencing of work and the right to suspend due to default following a finding that those provisions are inconsistent with the *pro forma* LGIA and, accordingly, are unnecessary.[174]

D. Reforms to Incorporate Technological Advancements Into the Interconnection Process

1. Increasing Flexibility in the Generator Interconnection Process

Co-Located Generating Facilities Behind One Point of Interconnection

Order No. 2023 required transmission providers to allow more than one generating facility to co-locate on a shared site behind a single POI and share a single interconnection request.[175] Interconnection customers are not required to share a single interconnection request for multiple generating facilities on the same site, and may submit separate requests to have each device studied separately.[176]

In Order No. 2023-A, FERC denied requests for rehearing that claimed that the requirement to allow co-located resources to share an interconnection request should be limited to co-located resources owned by the same interconnection customer.[177] FERC reasoned that the Order No. 2023 approach will reduce the number of interconnection requests in the queue and will reduce costs for interconnection customers because they will only submit a single set of deposits to enter the queue.[178] To the extent one co-located resource wishes to withdraw while others wish to proceed with their interconnection request, FERC said that transmission providers should determine whether the entire interconnection request should proceed or be withdrawn using the existing LGIP procedures.[179] FERC also suggested that transmission providers could propose language that would allow one co-located resource sharing an interconnection request to withdraw while allowing other co-located resources sharing the same interconnection request to proceed.[180]

Revisions to the Modification Process to Require Consideration of Generating Facility Additions

Order No. 2023 required transmission providers to evaluate the proposed addition of a generating facility to an interconnection request prior to deeming such addition to be a material modification provided that the addition does not change the originally requested interconnection service level.[181] Order No. 2023 limited this requirement solely to requests received prior to the interconnection customer's return of the executed Facilities Study Agreement to the transmission provider.[182] FERC also created an exception for transmission providers that employ fuel-based dispatch assumptions.[183]

Additionally, in Order No. 2023, FERC clarified that, before the return of the cluster study agreement from the interconnection customer, a decrease of up to 60% of electrical output (in MW) must not be considered a material modification.[184] Furthermore, prior to the return of the executed interconnection Facilities Study Agreement, an additional 15% decrease of electrical output of the proposed project must not be considered a material modification if the change occurred either through a decrease in plant size (MW) or a decrease in interconnection service level accomplished by applying transmission provider-approved injection-limiting equipment.[185]

On rehearing, FERC dismissed concerns that locating an additional facility to an interconnection request could affect other interconnection customers, noting that in requiring the evaluation of the additional facility, FERC is not dictating the substantive outcome of the analysis.[186] Similarly, FERC continued to find that transmission providers automatically deeming a request to add a generating facility to an existing interconnection request to be a material modification creates a significant barrier to access to the transmission system and renders existing interconnection processes unjust and unreasonable.[187]

FERC also rejected requests to allow a 60% size reduction after the initial cluster study report is issued and prior to the start of the subsequent cluster re-study or facilities study.[188] FERC did clarify, however, that the allowable decrease of up to 60% of a generating facility's electrical output may occur during the customer engagement window (*i.e.*, prior to the return of the cluster study agreement from the transmission provider to the interconnection customer).[189] Lastly, FERC found that requested clarifications regarding changing solar modules or wind turbines, adding storage capacity, or making minor adjustments to inverter

performance are presumptively immaterial if the project's planned export and import capacity remains the same to be outside the scope of the proceeding.[190]

Availability of Surplus Interconnection Service

In Order No. 2023, FERC required transmission providers to allow interconnection customers to access the surplus interconnection service process once the original interconnection customer has an executed LGIA or requests the filing of an unexecuted LGIA.[191] FERC reiterated that the original interconnection customer must have an LGIA in place, either executed or requested to be filed unexecuted, before tendering any LGIA for surplus interconnection service.[192]

Order No. 2023-A rejected arguments that this reform would detract from the timely completion of interconnection studies without providing any measurable benefit to interconnection customers, reiterating that the reform solely modifies when an interconnection customer can submit a request for surplus interconnection service.[193] FERC also declined to clarify that certain regional transmission organizations/independent system operators are entitled to an independent entity variation to not provide surplus interconnection service.[194] FERC did clarify, however, that Order No. 2023 requires transmission providers to allow interconnection customers to *apply for* surplus interconnection service once the underlying LGIA is executed or filed unexecuted, not that transmission providers must allow interconnection customers to begin receiving surplus interconnection service at that point.[195]

Operating Assumptions for Interconnection Studies

Order No. 2023 also required transmission providers, at the request of the interconnection customer, to use operating assumptions in interconnection studies that reflected the proposed charging behavior of electric storage resources, whether they are standalone, co-located generating facilities, or part of a hybrid generating facility.[196] FERC stated that, if an interconnection customer fails to operate its electric storage resource in accordance with the operating assumptions memorialized in the LGIA for the interconnection customer, the LGIA's termination procedures are appropriate, but the customer must not be considered to be in breach of its LGIA if its operation is at the direction of the transmission provider to maintain the reliable and efficient operation of the transmission system.[197] FERC also found that the charging of electric storage resources should not be modeled equivalently to firm customer end-use load in interconnection studies if the interconnection customer agrees to operating parameters in the LGIA and installs control technologies, if required, to limit its operations as specified. FERC further clarified that the transmission provider must not assign network upgrade costs to the interconnection customer based on the worst-case operating assumptions if the interconnection customer has agreed to implement operating restrictions to limit its operations during peak load conditions.[198] Additionally, FERC declined to extend this reform to additional generating facility technologies, such as natural gas, solar, or wind, or to other operating assumptions, including the injection of power.[199]

In Order No. 2023-A, among other responses to rehearing and clarification requests, FERC disagreed with arguments on rehearing that FERC did not sufficiently articulate how electric storage resources are distinct from other types of generating facilities, why this reform is needed to ensure just and reasonable rates, and why this reform is not unduly discriminatory or preferential.[200] Accordingly, FERC affirmed its reforms from Order No. 2023. FERC did clarify that the instant reform does not require transmission providers to develop new base cases for each interconnecting electric storage resources to reflect when that resource intends to charge; rather, the reform requires the transmission provider to reflect whether an electric storage resource will or will not charge in any studies of peak load conditions in the interconnection process.[201] FERC also reiterated that this reform does not require transmission providers to study charging as part of the interconnection process if they do not already do so.[202]

2. Incorporating Alternative Transmission Technologies Into the Generator Interconnection Process

Consideration of Alternative Transmission Technologies in Interconnection Studies Upon Request of the Interconnection Customer

In Order No. 2003, the Commission required transmission providers to evaluate the following alternative transmission technologies during the cluster study, including restudies, in all instances: static synchronous compensators, static VAR compensators, advanced power flow control devices, transmission switching, synchronous condensers, voltage source converters, advance conductors, and tower lifting.[203] In evaluating these technologies, transmission providers must determine whether it should be used, consistent with good utility practice, applicable reliability standards, and other applicable regulatory requirements.[204] Finally, transmission providers must include an explanation of the results of the evaluation of the alternative transmission technologies for feasibility, cost, and time savings in the *pro forma* LGIP cluster study report.[205] The Commission adopted similar changes to the *pro forma* SGIP.[206]

In Order No. 2003-A, the Commission upheld its determination that transmission providers have sole discretion in determining whether to use an alternative transmission technology.[207] Consistent with the level of discretion afforded to transmission providers regarding reliability, the Commission stated that transmission providers do not have unfettered discretion to disregard alternative transmission technologies, because their evaluations must be consistent with good utility practice, applicable reliability standards, laws, and regulations.[208] The Commission noted that an interconnection customer may contest a transmission provider's determinations.[209]

In Order No. 2003-A, the Commission made several clarifications with respect to the performance standards, as follows:

- The Commission modified the *pro forma* SGIP to define "Applicable Reliability Standards" as "the requirements and guidelines of the Electric Reliability Organization and the Balancing Authority Area of the Transmission System to which the generating facility is directly interconnected;"[210]
- The Commission added "applicable reliability standards" to the *pro forma* LGIP Section 7.3 and *pro forma* SGIP Sections 3.3.6 and 3.4.10, which were inadvertently omitted from these sections;[211]
- Finding the current language vague, the Commission replaced "other applicable regulatory requirements" with the term "applicable laws and regulations,"[212] and defined "applicable laws and regulations" as "all duly promulgated applicable federal, state and local laws, regulations, rules, ordinances, codes, decrees, judgments, directives, or judicial or administrative orders, permits and other duly authorized actions of any Governmental Authority"[213] to the *pro forma* SGIP; and
- Finally, the Commission found that although Order No. 2023 applies the performance standards to both the transmission provider's evaluation of the enumerated alternative transmission technologies *and* the determination to use the technology, *pro forma* LGIP Section 7.3 does not apply the standards to the former.[214] The Commission therefore modified *pro forma* LGIP Section 7.3 to remedy this deficiency.[215]

The Commission also clarified that there are a range of permissible present and future "advanced conductor technologies" that fall within this class of technologies that transmission providers are required to evaluate pursuant to Order No. 2023.[216] The Commission stated that the term "advanced conductors" includes present and future transmission line technologies whose power flow capacities exceed the power flow capacities of conventional transmission line technologies.[217] The Commission further clarified that advanced conductors are advanced relative to conventional aluminum conductor steel reinforced conductors and

include, but are not limited to, superconducting cables, advanced composite conductors, high temperature low-sag conductors, fiber optic temperature sensing conductors, and advanced overhead conductors.[218]

3. Modeling and Ride-Through Requirements for Nonsynchronous Generating Facilities

Modeling Requirements

Order No. 2023 revised the *pro forma* LGIP and *pro forma* SGIP to require each interconnection customer requesting to interconnect a non-synchronous generating facility to submit to the transmission provider:

- A validated user-defined root mean square (RMS) positive sequence dynamic model;
- An appropriately parameterized generic library RMS positive sequence dynamic model; and
- A validated electromagnetic transient (EMT) model, if the transmission provider performs an EMT study.[219]

FERC also adopted the NOPR proposal to:

- Define a user-defined model as any set of programming code created by equipment manufacturers or developers that captures the latest features of controllers that are mainly software-based and represent the entities' control strategies but does not necessarily correspond to any particular generic library model;
- Revise Attachment A to Appendix 1 of the *pro forma* LGIP and Attachment 2 of the *pro forma* SGIP to add a table of acceptable generic library models, based on the current WECC list of approved dynamic models for renewable energy generating facilities; and
- Revise the *pro forma* LGIP and the *pro forma* SGIP to require that any proposed modification of the interconnection request be accompanied by updated models of the proposed generating facility.[220]

In Order No. 2023-A, FERC upheld Order No. 2023's modeling requirements and denied requests for rehearing challenging certain aspects of those requirements.[221] For example, FERC denied a request for rehearing regarding potential barriers to validation of EMT models at the time of the interconnection application, finding that the interconnection customer has a number of options to validate a model.[222] FERC also denied a request for clarification regarding how to provide a validated model for equipment that does not yet exist, noting that Section 4.6 of the *pro forma* LGIP contains the transmission provider's technological change procedure, which is designed to allow transmission providers to evaluate equipment changes to an interconnection request.[223]

Ride Through Requirements

In Order No. 2023, FERC adopted, with modification, the NOPR's "ride through" requirements for nonsynchronous generating facilities, which requires all newly interconnecting large generating facilities provide ride-through capability consistent with any standards and guidelines that are applied to other generating facilities in the balancing authority area on a comparable basis.[224] FERC explained that this will address the gap in ride-through requirements for large generating facilities.[225] Additionally, to ensure that large generating facilities are capable of meeting the ride through requirements adopted in the LGIA and SGIA, Order No. 2023 adopted the NOPR's proposed revisions to Article 9.7.3 of the *pro forma* LGIA to include in the definition of "ride through" the large generating facility's ability to stay connected to and synchronized with the system during disturbances within under-voltage and over-voltage conditions.[226]

Order No. 2023 also adopted, with modifications, the NOPR proposal to require newly interconnecting non-synchronous generating facilities to continue current injection inside the "no trip zone" of the frequency and voltage ride-through curves of Reliability Standard PRC-024-3 or its successor standards.[227] FERC required that during abnormal frequency and voltage conditions, but within the physical limitations of the generating

facility, a non-synchronous generating facility must configure its control and protection settings to (i) continue active power production during the disturbance and post-disturbance periods at pre-disturbance levels, unless it is providing primary or fast frequency response; (ii) minimize reductions in active power where reactive power priority mode is enabled, unless providing primary or fast frequency response; (iii) not artificially limit dynamic reactive power capability during disturbances; and (iv) unless providing primary or fast frequency response, return to pre-disturbance active power levels without artificial ramp rate limits when active power is reduced.[228]

In Order No. 2023-A, FERC largely upheld Order No. 2023's ride-through requirements. FERC denied a request to limit the prioritization of active power to frequency response disturbances and clarify that the default ride-though rule for other disturbances can be prioritizing reactive power, finding that such priority determinations regarding real or reactive power are best handled on a case-by-case basis based on the transmission provider's evaluation of the reliability needs of its system.[229] FERC, however, did grant a request for clarification regarding the physical limitations of nonsynchronous generating facilities to provide for reductions in active power to prioritize reactive power. FERC revised Section 9.7.3 of the *pro forma* LGIA and Article 1.5.7 of the *pro forma* SGIA to state that a non-synchronous generating facility must ensure that, within any physical limitations of the generating facility:

> … its control and protection settings are configured or set to (1) continue active power production during disturbance and post disturbance periods at pre-disturbance levels, *unless reactive power priority mode is enabled* or unless providing primary frequency response or fast frequency response… .[230]

4. Compliance Procedures

- Compliance filings are due within 30 calendar days of Order No. 2023-A's publication in the *Federal Register*.
- Transmission providers proposing deviations from the Final Rule will be held to the "consistent with or superior to" standard (for non-RTO/ISO providers) and "independent entity variation" standard for RTOs/ISOs.

[1] *Improvements to Generator Interconnection Procs. & Agreements*, Order No. 2023-A, 186 FERC ¶ 61,199 at P 73 (2024).
[2] *Id.* P 78.
[3] *Id.* P 74.
[4] *Id.* PP 75-76.
[5] *Id.* P 79.
[6] *Id.* P 95.
[7] *Id.* P 101.
[8] *Id.* P 102.
[9] *Id.* P 106.
[10] *Id.* PP 141-43.
[11] *See id.* P 150.
[12] *Id.* P 157.
[13] *Id.* P 159.
[14] *Id.* P 163.
[15] *Id.* P 175.
[16] *Id.* P 178.
[17] *Id.* P 181.
[18] *Id.*; *see also id.* P 165 (making similar statement regarding previously-approved generator replacement schemes).
[19] *Id.* P 185.
[20] *Id.* P 188 (modifying LGIP Section 3.1.1.1 accordingly because "interconnection customers developing small generating facilities requesting NRIS submit their interconnection requests under the relevant transmission providers' LGIP") (citing *Small Generator Interconnection Agreements & Procs.*, Order No. 792, 145 FERC ¶ 61,159, at PP 232, 235 (2013)).
[21] Order No. 2023-A, 186 FERC ¶ 61,199 at P 188-89.
[22] *Id.* P 200.
[23] *Id.* P 205.
[24] *Id.* PP 231, 233-35, 237-38, 240-41.
[25] *Id.* P 263.
[26] *Id.* PP 264-465.
[27] *Id.* P 452.
[28] *Id.* P 454.
[29] *Id.* P 455.
[30] *Id.* P 461.
[31] *Id.* P 462.
[32] *Id.* P 497.
[33] *Id.* P 529.
[34] *Id.* PP 545-47.
[35] *Id.* PP 554-56.
[36] *Id.* PP 575-87.
[37] *Id.* P 562.
[38] *Id.* PP 615-40.
[39] *Id.* PP 623-27.
[40] *Id.* P 631.
[41] *Id.* PP 650-55, 659-62.
[42] *Id.* PP 660-62.
[43] P 669.
[44] *Improvements to Generator Interconnection Procs. & Agreements*, Order No. 2023, 184 FERC ¶ 61,054 at P 814 (2023).
[45] Order No. 2023-A,186 FERC ¶ 61,199 at P 52.
[46] *Id.* P 73.
[47] *Id.* P 75.
[48] *Id.*

[49] *Id.*

[50] 5.1.2 Transmission providers with Existing Cluster Study Processes or Currently in Transition. If transmission provider is not conducting a transition process under Section 5.1.1, it will continue processing interconnection requests under its current Cluster Study Process. Within 60 calendar days of the Commission-approved effective date of transmission provider's Order No. 2023 compliance filing, Interconnection Customers that have not executed an LGIA or requested an LGIA to be filed unexecuted must meet the requirements of Sections 3.4.2, 7.5, or 8.1 of this LGIP, based on interconnection customer's queue position. Any interconnection customer that fails to meet these requirements within 60 calendar days of the Commission-approved effective date of this LGIP shall have its Interconnection Request deemed withdrawn by transmission provider pursuant to Section 3.7 of this LGIP. In such case, transmission provider shall not assess the interconnection customer any withdrawal penalty.

[51] Order No. 2023-A, 186 FERC ¶ 61,199 at P 75.

[52] *Id.* P 80.

[53] *Id.*

[54] *Id.*

[55] *Id.* P 95.

[56] *Id.*

[57] *Id.* P 97.

[58] *Id.* P 98.

[59] *Id.* P 102.

[60] *Id.* 106.

[61] *Id.* P 99.

[62] *Id.* P 107.

[63] *Id.* P 141-42.

[64] *Id.* P 143.

[65] *Id.* P 150.

[66] *Id.* P 151.

[67] *Id.*

[68] *Id.* P 155.

[69] *Id.* P 157.

[70] *Id.*

[71] *Id.* P 158.

[72] *Id.* P 159.

[73] *Id.*

[74] *Id.* P 160.

[75] *Id.* P 163.

[76] *Id.*

[77] *Id.* P 165.

[78] *Id.*

[79] *Id.* P 167.

[80] *Id.*

[81] Order No. 2023, 184 FERC ¶ 61,054 at P 453.

[82] Order No. 2023-A,186 FERC ¶ 61,199 at P 176.

[83] *Id.* P 169 (citing Order No. 2023, 184 FERC ¶ 61,054 at P 462).

[84] Order No. 2023-A, 186 FERC ¶ 61,199 at P 175.

[85] *Id.* P 176.

[86] *Id.* P 177.

[87] *Id.* P 178.

[88] *Id.* P 179.

[89] *Id.* P 180 (citing Shell Rehearing Request at 14-15).

[90] Order No. 2023-A, 186 FERC ¶ 61,199 at P 180.

[91] *Id.* P 181.

[92] *Id.* P 181.

[93] Order No. 2023, 184 FERC ¶ 61,054 at P 690.

[94] Order No. 2023-A, 186 FERC ¶ 61,199 at P 185. The Commission modified Sections 3.4.2, 5.1.1.1, 5.1.1.2, 7.5, and 8.1 of the *pro forma* LGIP to reflect this change.

[95] *Id.* P 186.
[96] *Id.* P 188.
[97] *Id.*
[98] *Id.* P 189.
[99] Order No. 2023, 184 FERC ¶ 61,054 at PP 583-84, 605.
[100] Order No. 2023-A, 186 FERC ¶ 61,199 at P 197.
[101] *Id.* P 198.
[102] *Id.*
[103] *Id.* P 199.
[104] *Id.* P 200.
[105] *Id.* P 205.
[106] *Id.* P 230.
[107] *Id.*
[108] *Id.*
[109] *Id.* P 232.
[110] *Id.* P 233.
[111] *Id.*
[112] *Id.* P 231.
[113] *Id.*
[114] *Id.*
[115] *Id.* P 234.
[116] *Id.* P 235.
[117] *Id.* at Appendix C: Changes to the *pro forma* LGIP § 3.7.1.2.1.
[118] *Id.* P 235. Per Appendix C § 3.7.1.2.2.
[119] *Id.* Per Appendix C § 3.7.1.2.4.
[120] *Id.*
[121] *Id.* P 236. Per Appendix C § 3.7.1.2.2.
[122] *Id.*
[123] *Id.* P 237.
[124] *Id.* P 238.
[125] *Id.* P 240. Transitional withdrawal penalty shall mean the penalty assessed by transmission provider to an interconnection customer that has entered the Transitional Cluster Study or Transitional Serial Interconnection Facilities Study and chooses to withdraw or is deemed withdrawn from transmission provider's interconnection queue or whose generating facility does not otherwise reach commercial operation. The calculation of the transitional withdrawal penalty is set forth in §§ 5.1.1.1 and 5.1.1.2 of this LGIP. *Id.* at n.365.
[126] *Id.* P 241.
[127] *Id.* P 242.
[128] *Id.* P 244 (citing Order No. 2023, 184 FERC ¶ 61,054 at P 855).
[129] Order No. 2023-A, 186 FERC ¶ 61,199 at P 244.
[130] Order No. 2023, 184 FERC ¶ 61,054 at P 248.
[131] Order No. 2023-A, 186 FERC ¶ 61,199 at P 248.
[132] *Id.* P 251 (citing Clean Energy Associations Rehearing Request at 36-39).
[133] Order No. 2023-A, 186 FERC ¶ 61,199 at PP 252-53 (citing Clean Energy Associations Rehearing Request at 36-39; *see also* Order No. 2023, 184 FERC ¶ 61,054 at P 859; *see also* Order No. 2003, 104 FERC ¶ 61,103 at PP 1, 171, 596).
[134] Order No 2023-A, 186 FERC ¶ 61,199 at P 254 (citing Order No. 2023, 184 FERC ¶ 61,054 at P 1583; *see also* Clean Energy Associations Rehearing Request at 36-39).
[135] Order No. 2023-A, 186 FERC ¶ 61,199 at P 257.
[136] *Id.* P 261.
[137] *Id.* P 262.
[138] Order No. 2023, 184 FERC ¶ 61,054 at P 962.
[139] *Id.* P 966.
[140] *Id.* P 965.
[141] Order No. 2023-A, 186 FERC ¶ 61,199 at P 283.
[142] *Id.* P 289.
[143] *Id.* P 300.

144 *Id.* P 302 (quoting Order No. 2023, 184 FERC ¶ 61,054 at P 1007) (internal quotations marks omitted).
145 Order No. 2023-A, 186 FERC ¶ 61,199 at P 309 (citing Avangrid Rehearing Request at 4-5; *see also* EEI Rehearing Request at 10; *see also* Indicated PJM TOs Rehearing Request at 16; *see also* NYISO Rehearing Request at 4; *see also* NYTOs Rehearing Request at 13-15, 26-27 (arguing that there are conflicting directives in Order No. 2023 that support regional flexibility but also provide for study penalties following strict deadlines that do not account for unique challenges and dynamics in different regions, which it claims could hinder ongoing regional queue reform initiatives and stifle innovation); *see also* SPP Rehearing Request at 9-10).
146 Order No. 2023-A, 186 FERC ¶ 61,199 at P 310.
147 *Id.* (citing Indicated PJM TOs Rehearing Request at 16, 30-31).
148 Order No. 2023-A, 186 FERC ¶ 61,199 at P 311 (citing EEI Rehearing Request at 9-10; *see also* MISO TOs Rehearing Request at 11-12; *see also* NYISO Rehearing Request at 5-6; *see also* NYTOs Rehearing Request at 13-15; *see also* PJM Rehearing Request at 32).
149 Order No. 2023-A, 186 FERC ¶ 61,199 at P 311 (citing PacifiCorp Rehearing Request at 5, 15).
150 Order No. 2023-A, 186 FERC ¶ 61,199 at P 314.
151 *Id.* PP 314-15 (noting that transmission providers are also allowed to propose variations from the requirements of Order No. 2023, under the applicable standard, including as to the deadlines set for the *pro forma* study processes, although FERC cannot prejudge any such filings (citing Order No. 2023, 184 FERC ¶ 61,054 at P 331)).
152 Order No. 2023-A, 186 FERC ¶ 61,199 at P 334.
153 *Id.* P 335.
154 *Id.* P 336.
155 *Id.*
156 *Id.* P 304.
157 *Id.* P 306.
158 *Id.* P 358.
159 *Id.*
160 *Id.* P 359.
161 *Id.* PP 361-62.
162 *Id.* P 361.
163 *Id.* P 364.
164 *Id.* P 367.
165 *Id.* P 369.
166 *Id.* P 372.
167 Order No. 2023, 184 FERC ¶ 61,054 at P 1032.
168 *Id.* PP 1120, 1154-55, 1165-66, 1170-71.
169 Order No. 2023-A, 186 FERC ¶ 61,199 at P 513; Order No. 2023, 184 FERC ¶ 61,054 at P 1199.
170 Order No. 2023, 184 FERC ¶ 61,054 at *pro forma* LGIP § 3.1.2.2.
171 *Id.* § 3.1.2.3.
172 Order No. 2023-A, 186 FERC ¶ 61,199 at P 501.
174 *Id.* P 533.
175 *Id.* P 541.
176 *Id.*
177 *Id.* P 545.
178 *Id.*
179 *Id.* P 546.
180 *Id.*
181 *Id.* P 548.
182 *Id.* P 549.
183 *Id.*
184 *Id.* P 550.
185 *Id.*
186 *Id.* P 554.
187 *Id.*
188 *Id.* P 555.
189 *Id.*
190 *Id.* P 556.

191 *Id.* P 557.
192 *Id.*
193 *Id.* P 560.
194 *Id.* P 561.
195 *Id.* P 562.
196 *Id.* P 563.
197 *Id.* P 564.
198 *Id.* P 567.
199 *Id.* P 568.
200 *Id.* P 575.
201 *Id.* P 577.
202 *Id.* P 585.
203 Order No. 2003, 184 FERC ¶ 61,054 at P 1578.
204 *Id.*
205 *Id.*
206 *Id.* PP 1580-81.
207 Order No. 2003-A, 186 FERC ¶ 61,199 at PP 618-20.
208 *Id.* P 619.
209 *Id.*
210 *Id.* P 623.
211 *Id.*
212 *Id.* P 624.
213 *Id.*
214 *Id.* P 625.
215 *Id.*
216 *Id.* P 631.
217 *Id.*
218 *Id.*
219 Order No. 2023, 184 FERC ¶ 61,054 at P 1659.
220 *Id.* P 1660.
221 Order No. 2023-A, 186 FERC ¶ 61,199 at PP 641-55.
222 *Id.* P 650.
223 *Id.* P 652.
224 Order No. 2023, 184 FERC ¶ 61,054 at P 1733.
225 *Id.*
226 *Id.* P 1718.
227 *Id.* P 1711.
228 *Id.* P 1715.
229 Order No. 2023-A, 186 FERC ¶ 61,199 at P 659.
230 *Id.* P 660.