



On March 21, 2024, FERC issued Order No. 2023-A, in which it acted on requests for rehearing or clarification related to nearly all of its landmark reforms to the *pro forma* generator interconnection processes (GIP) and generator interconnection agreements (GIAs) adopted last year in Order No. 2023.

[1] In Order No. 2023, FERC sought to address interconnection queue backlogs, improve certainty, and prevent undue discrimination for new technologies by adopting major changes to its *pro forma* GIP and GIA for both large and small projects seeking to connect to the grid. In Order No. 2023-A, FERC largely affirmed its decisions in Order No. 2023. These changes apply to all transmission providers across the United States, and FERC requires transmission providers to submit compliance filings adopting its changes. These compliance filings are now due May 16, 2024, the effective date of Order No. 2023-A.

Recent data suggests that the problems FERC targets in Order No. 2023 and Order No. 2023-A have only grown over time. On April 10, 2024, the Lawrence Berkeley National Lab released an update to its study of trends in interconnection queues across the country.<sup>[2]</sup> The study found that nearly 2,600 gigawatts of generating and storage capacity is sitting in interconnection queues, more than twice the total installed capacity of existing resources on the grid. Over 95% of the queue was comprised of solar, wind, and battery storage as of the end of

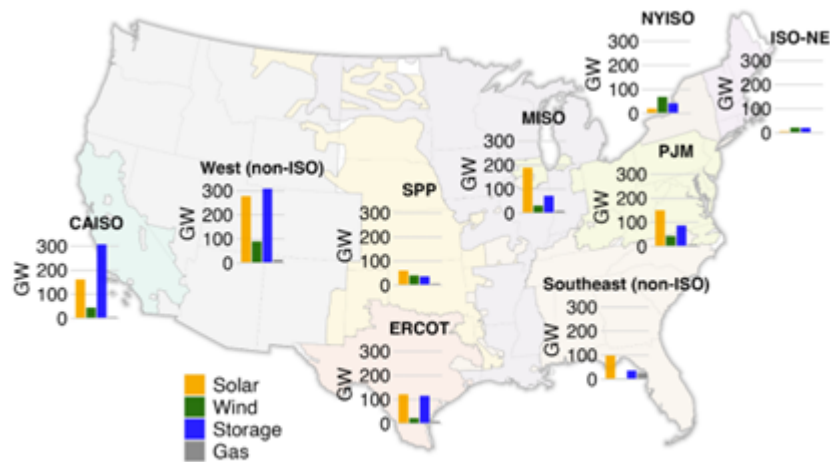


Figure 2: Active capacity in interconnection queues by transmission grid operating region

This explosive growth is already causing havoc beyond extending the timeline for a project to work its way through the interconnection queue, as Midcontinent Independent System Operator (MISO), PJM Interconnection (PJM), and California Independent System Operator (CAISO) have each implemented extended pauses in accepting new applications, and some grid operators have experimented with caps on annual additions to their interconnection queues and other mechanisms to manage ballooning queue sizes. The approach transmission providers take to preparing Order No. 2023 compliance filings, as well as the efficiency of FERC's process to vet them, will be important to FERC's Order No. 2023 goal of ensuring that generation resources can connect to the transmission system in a reliable, efficient, transparent, and timely manner.<sup>[3]</sup>

## FERC's Interconnection Queue Reforms

FERC's reform efforts focused on three areas: reforms to implement a first-ready, first-served cluster study process; reforms to increase the speed of queue processing; and reforms to incorporate technological advancements into the interconnection process.

### Reforms to implement a first-ready, first-served cluster study process.

Prior to Order No. 2023, there was a wide range of interconnection queue processes. Some transmission providers utilize a first-come, first-served process that prioritizes the order in which projects enter the queue for processing. This can lead to significant delays and unwieldy restudy requirements as earlier queued projects that may not be viable (e.g., lacking offtake commitments for purchase of product once operational) withdraw. Other transmission providers migrated to a cluster study process, analyzing projects in groups by class year, which can

speed up processing somewhat but is still subject to restudy logjams as less developed projects stall out. FERC now requires all transmission providers to implement a cluster study process that follows a "first-ready, first served" paradigm. FERC adopted reforms that increased the financial commitments and readiness requirements imposed on developers, including higher study deposits and increased requirements for project site control, and also instituted penalties for withdrawn interconnection requests.

In order to address developers' concerns about access to critical information about congestion on the transmission grid at various locations—concerns that often lead to submission of multiple interconnection requests for a single project to learn the most efficient connection point—FERC also required transmission providers to post public interconnection information in an interactive heatmap to provide interconnection customers information before they enter the queue. Finally, FERC also imposed improvements to the cluster study process itself, creating a range of permitted allocations of study costs within a cluster, and requiring transmission providers to use a proportional impact method to assign network upgrade costs within a cluster based on a project's proportional impact to the need for such network upgrades.

FERC affirmed its major reforms in this category in Order No. 2023-A, as well as its "authority to promulgate generic rulemakings under FPA section 206" where it "finds a systemic, nationwide problem that renders the rates, terms, and conditions for Commission-jurisdictional services unjust, unreasonable, unduly discriminatory, or preferential."<sup>[4]</sup> FERC "note[d] that some of the critical reforms of Order No. 2023 could only have been achieved through a nationwide rulemaking[.]"<sup>[5]</sup> FERC clarified aspects of its approach to transitioning existing queue processes to the new first-ready, first-served cluster process, particularly in the context of transmission providers that are in the midst of already-approved transitions to cluster study processes.<sup>[6]</sup>

With regard to the requirement to provide more information to developers in the form of heatmaps, FERC clarified that "Order No. 2023 does not preclude transmission providers from proposing on compliance to develop joint, regional heatmaps."<sup>[7]</sup> FERC also clarified developers' right to cure a deficient interconnection request, explaining that developers should receive as many cure periods as needed to fix a deficient request during the application window for a cluster, but that all requests that remain deficient at the end of the application window must be deemed withdrawn.<sup>[8]</sup> FERC clarified the acceptable forms of security for the commercial readiness deposit and other deposits "should include not only 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."<sup>[9]</sup> Order No. 2023-A also offered several clarifications regarding withdrawal penalties, in particular that they cannot exceed the dollar amount collected from withdrawing interconnection customers,<sup>[10]</sup> and that no withdrawal penalty should be assessed if the withdrawal does not have a material impact on any interconnection request in the same cluster.<sup>[11]</sup> Lastly, Order No. 2023-A clarified that transmission providers are required to use any collected withdrawal penalties first to fund all the interconnection studies conducted for interconnection customers in the cluster—including cluster restudies and the interconnection facilities study.<sup>[12]</sup>

### **Reforms to increase the speed of interconnection queue processing.**

In Order No. 2023, FERC adopted significant changes to speed the processing time for interconnection requests. FERC eliminated the "reasonable efforts" standard for completing cluster studies, cluster restudies, facilities studies, and affected system studies by tariff-specified deadlines, thereby increasing the accountability of transmission providers for study delays. FERC further adopted study delay penalties applicable when transmission providers fail to complete interconnection studies by the deadlines set in their tariffs. In addition, FERC adopted a specific study process for affected system studies that assess the impact of a project's interconnection on neighboring systems. The improvements to transparency in and modeling standards for the affected system studies, including *pro forma* affected system agreements and uniform modeling standards, are

intended to address delays and cost uncertainty created by this additional layer of study process.

Here, too, FERC largely retained unchanged its reforms in Order No. 2023-A, despite continued opposition from some transmission providers to the elimination of the "reasonable efforts" standard. FERC upheld its prior determination that replacing this standard with firm steady deadlines was "warranted as part of a package of comprehensive reforms to address interconnection queue delays and backlogs."[\[13\]](#) Order No. 2023-A clarifies, among other things, the deadlines for determining that an affected system study will be conducted and provides guidance on when the affected system transmission provider is required to provide notice that interconnection requests may impact the transmission system.[\[14\]](#)

### **Reforms to incorporate technological advancements into the interconnection process.**

Order No. 2023 adopted a collection of reforms designed to update the interconnection process in light of technological advancements since it was last overhauled. For example, Order No. 2023 required transmission providers to allow more than one generating facility to co-locate on a shared site behind a single point of interconnection and share a single interconnection request, an important reform for hybrid facilities combining storage with solar or wind resources that had been adopted inconsistently across transmission systems. FERC also required transmission providers, at the request of the interconnection customer, to use operating assumptions in interconnection studies that reflect the proposed charging behavior of electric storage resources. FERC also introduced a variety of modeling improvements and grid reliability requirements for nonsynchronous generating facilities such as solar or wind. FERC sustained these reforms in Order No. 2023-A.

### **Ongoing Challenges in Interconnection Queues Nationwide**

The Lawrence Berkeley National Lab's updated study puts an exclamation point on the need for interconnection queue reform. FERC's emphasis on speeding viable projects through the queue, increased accountability for transmission providers, developer access to more information prior to entering the queue, and specific improvements to modeling around nonsynchronous resources is reinforced by the study's finding that solar, storage, and wind resources make up 95% of active queue capacity. The study also found that the average time a project spends in the interconnection queue prior to commercial operation has increased from three years in 2015 to nearly five years in 2023. The data further indicates that the number of new interconnection requests continues to increase year over year, with over 900 GW of projects added to the queue in 2023 alone.[\[15\]](#) However, only 19% of requests submitted between 2000-2018 had been built by the end of 2023; the vast majority of interconnection requests during that period were withdrawn (over 70%).[\[16\]](#)

The study also noted that the average size of solar, wind, and battery storage facilities seeking to interconnect has increased dramatically over time,[\[17\]](#) which could exacerbate pressure on the study process as larger proposed projects could result in more significant upgrade costs absent reforms to make better data available to developers in advance of joining the queue and modeling reforms such as those included in Order No. 2023. The study also finds a growing trend in "hybrid" projects that pair wind or solar facilities with battery storage; these hybrid projects may benefit from multiple reforms FERC adopted in Order No. 2023.

FERC made clear in Order No. 2023-A that transmission providers will need to provide item-by-item justification for each variation from the *pro forma* reforms required; FERC does not intend to presume that any transmission providers, even those that recently reformed their queue processes, are in compliance with Order

No. 2023. That said, FERC also recognized that region-specific concerns and other need for individual variations could justify, on a case-by-case basis, a deviation from the requirements of Order No. 2023. There will be continued intense pressure on transmission providers and FERC to implement quickly the reforms adopted by FERC in Order No. 2023 and Order No. 2023-A.

## Endnotes

[1] *Improvements to Generator Interconnection Procs. & Agreements*, Order No. 2023-A, 186 FERC ¶ 61,199 (March 21, 2024) ("Order No. 2023-A").

[2] Rand, Joseph et al., "Queued Up: 2024 Edition, Characteristics of Power Plants Seeking Transmission Interconnection as of the End of 2023," Lawrence Berkeley National Laboratory (April 2024), available at <https://emp.lbl.gov/news/grid-connection-backlog-grows-30-2023-dominated-requests-solar-wind-and-energy-storage> ("Study").

[3] *Improvements to Generator Interconnection Procs. & Agreements*, Order No. 2023, 88 Fed. Reg. 61,014 (Sept. 6, 2023), 184 FERC ¶ 61,054 (2023) ("Order No. 2023").

[4] Order No. 2023-A at P 38.

[5] *Id.* at P 46.

[6] *Id.* at P 73.

[7] *Id.*

[8] *Id.* at PP 157-159.

[9] *Id.* at P 185.

[10] *Id.* at P 231.

[11] *Id.* at P 233.

[12] *Id.* at P 237.

[13] *Id.* at P 286.

[14] *Id.* at P 492.

[15] Study at 8.

[16] *Id.* at 27.

[17] *Id.* at 17.

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