Renewable Energy

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An unprecedented, yearslong surge in renewable energy project development has left many gigawatts of solar energy, wind energy, and battery energy storage system projects under development awaiting interconnection to the United States power grid. The growing queue of clean energy project developers seeking interconnection services continues to overwhelm transmission owners and independent system operators and creates additional uncertainty for developers already facing onerous supply chain challenges. Coincident with this growing backlog of renewable projects, energy demand is rapidly increasing, driven by the growth of artificial intelligence and related data center development, as well as electrification of the broader economy. Despite this growing demand, many baseload generation resources are being retired earlier than anticipated due to state and federal environmental policies. Those responsible for maintaining the electric systems across many regions are increasingly concerned about their ability to maintain system reliability going forward.

In response to reliability concerns, several independent system operators/regional transmission operators (ISOs/RTOs) recently sought and received Federal Energy Regulatory Commission (FERC or Commission) authorization to implement novel expedited interconnection initiatives that will allow small groups of qualifying new generation facilities to interconnect on a significantly accelerated schedule, while most other types of generation projects remain subject to the preexisting slower interconnection procedures. FERC's acceptance of ISO/RTO programs implementing accelerated or fast-track interconnection time frames for qualifying generation projects (anticipated to be largely fossil-fuel facilities) is expected to increase the prevalence and pace of fossil-fuel-generation

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interconnection across large portions of the United States. Whether these expedited interconnections will be at the expense of renewable energy project interconnections remains to be seen, but, in the interim, it appears that fossil-fuel project developers stand to benefit most from the new FERC-accepted fast-track interconnection programs.

Separately, FERC has sought to ensure the interconnection and availability of generation resources in other ways, such as granting waivers of interconnection agreement and tariff provisions for commercial operation deadlines for renewable energy projects that can demonstrate that the delays they face are outside of their control and that they exercised due diligence in good faith throughout the relevant project's interconnection process. Renewable generation developers seeking such waivers successfully pointed to tariff-related supply chain delays and other challenges outside of their control that threaten developers' abilities to satisfy milestone deadlines related to their interconnections. Both the fast-track interconnection programs and FERC's willingness to grant interconnection agreement and tariff waivers for renewable energy developers reflect some of the headwinds facing renewable-energy project development.

A. Independent System Operators' Proposals to Expedite New Resource Interconnection

Although FERC recently updated and materially modified required interconnection requirements to mitigate ongoing interconnection issues,[1] ISOs and RTOs continue to face growing concerns about their ability to support reliable operations with adequate generation capacity. Recently, FERC accepted several RTO-proposed initiatives that result in the expedited study and interconnection of fossil-fuel-fired baseload generation units. Specifically, PJM Interconnection, LLC (PJM), Midcontinent Independent System Operator, Inc. (MISO), and Southwest Power Pool, Inc. (SPP) each proposed such a program.

1. PJM Interconnection, LLC's Resource Reliability Initiative

On December 13, 2024, PJM submitted a tariff filing, seeking FERC acceptance of its Reliability Resource Initiative (RRI). The RRI is an accelerated interconnection program designed to move highly viable, high-reliability projects into the final transition cycle of PJM's interconnection process, rather than waiting for a new cycle of the interconnection process to be fully implemented over another

1. FERC Order No. 2023 mandates that Regional Transmission Organizations (RTOs), Independent System Operators (ISOs), and Transmission Owners adopt stricter interconnection study deadlines, implement cluster-based study models, and require higher financial commitments from developers to ensure only viable projects proceed. *Improvements to Generator Interconnection Procs. & Agreements*, Order No. 2023, 184 FERC ¶ 61,054 (2023).

year.[2] The RRI provides accelerated interconnection review for up to fifty generation projects that meet scoring criteria for market impact and commercial operation date viability.[3] PJM opened the RRI application process to all resource types with 10 MW Unforced Capacity (UCAP), but the program apparently targets thermal resources.

PJM's application to implement the RRI program expressed PJM's concern about overreliance on renewable energy to meet rapidly growing load. PJM noted that its resource adequacy concerns were "driven by . . . accelerated premature retirement of generation due to state and federal policies; new resource additions being placed in serve more slowly than anticipated due to supply chain, permitting, and other issues; and certain intermittent resources in the interconnection queue having lower reliability values . . . ."[4] Indeed, PJM designed the RRI reforms to respond to "[t]he combined effect of thermal generation retirements, their replacement by intermittent renewable resources with low completion rates, and greatly increased load growth," resulting in "the projected total reserve capacity provided by generating resources in PJM [to] fall below the required 17.8 percent reserve margin . . . ."[5] PJM estimates the RRI could bring about 10 GW of new generation online at least eighteen months earlier than if the projects followed the grid operator's standard interconnection process.[6]

PJM's proposal faced significant opposition from the renewable energy industry and environmental groups. Several leading trade organizations and renewable project developers argued that PJM's proposed scoring system is not technology-neutral, with 55 out of one 100 possible points tied to UCAP and Effective Load Carrying Capacity—metrics that these parties argued favored thermal resources over wind, solar, and battery storage resources.[7] Other opponents to the proposal noted that the RRI's framework fails to recognize battery storage system additions as legitimate project upgrades, further disadvantaging storage-enhanced clean energy projects.[8] Most prevalently, however, opponents to the RRI argued that the RRI would effectively result in interconnection queue-jumping and further interconnection delays for renewable projects. For instance, Invenergy argued that the RRI would allow newer projects from 2025 to advance before projects that developers submitted to PJM as early as 2020 and 2022, limiting the priority

2. PJM Interconnection, LLC, Tariff Revisions for Reliability Resource Initiative, Docket No. ER25-712-000, at 1, 22–23 (filed Dec. 13, 2024), https://elibrary.ferc.gov/eLibrary/docinfo?accession_number=20241213-5271.

3. *Id.* at 1.

4. *Id.* at 2.

5. *Id.* at 9–10.

6. *Id.* at 21.

7. *See* PJM Interconnection, LLC, Protest of the American Council on Renewable Energy, Docket No. ER25-712-000, at 2 (filed Jan. 8, 2025); PJM Interconnection, LLC, Protest of the AES Corp., Docket No. ER25-712-000, at 15 (filed Jan. 8, 2025); PJM Interconnection, LLC, Protest of Invenergy Renewables LLC, Docket No. ER25-712-000, at 27 (filed Jan. 8, 2025).

8. *See* Protest of the Clean Energy Ass'ns, Docket No. ER25-712-000, at 33 (filed Jan. 8, 2025).

of long-standing interconnection requests in violation of fair access principles.[9] Invenergy contended that, in addition to providing the RRI projects with a preferential timeline for interconnection and commercial operations, the RRI's "queue-jumping" also unfairly consumes existing headroom—possibly increasing network upgrade costs for earlier interconnection customers and placing undue burden on these earlier developers that complied with the standard timeline.[10]

Despite the renewable energy industry's opposition, FERC accepted the RRI proposal on February 11, 2025.[11] The Commission held that the RRI "reasonably addresses" PJM's resource adequacy concerns.[12] In a concurrence, Democratic Commissioners David Rosner and Willie Phillips wrote that they accepted the proposal because it is "a one-time, extraordinary measure that its only needed because of the equally extraordinary circumstances PJM finds itself in today."[13] FERC deemed the scoring criteria not unduly discriminatory as they were "facially neutral and allow for potential inclusion of any resource regardless of technology."[14] Addressing developers' concerns about further delays for non-RRI projects, FERC found that the 50-project cap "strikes a reasonable balance between allowing [RRI] project developers to help address the resource adequacy needs of the PJM region, while avoiding an influx of projects that could overwhelm Transition Cycle #2 and lead to further delays . . . ."[15] PJM's proposal—a first of its kind—set the stage for similar proposals.

2. MISO's Expedited Resource Addition Study

Against the backdrop that shifting circumstances in both supply and demand factors will lead to a 4.7 GW shortfall on MISO's system by 2028, FERC also accepted an expedited interconnection program for MISO.[16] On March 17, 2025, MISO proposed an Expedited Resource Addition Study (ERAS) program "to allow 'shovel ready' projects to quickly enter commercial operation on a separate, accelerated track."[17] Under MISO's proposed ERAS program, a Relevant Electric Retail Regulatory Authority (RERRA) (i.e., a state public utility commission or other such entity) would refer to MISO the projects that should be studied expeditiously to meet resource needs. To be eligible for an ERAS interconnection,

9. Protest of Invenergy Renewables LLC, *supra* note 7, at 32.
10. *Id.* at 33.
11. *PJM Interconnection, LLC*, 190 FERC ¶ 61,084 (2025). Democratic Commissioner Judy Chang dissented from the order, stating that she supported rejection of PJM's filing and suggested that a rejection order could include "targeted guidance to place greater weight on the Commercial Operation Viability criteria . . . and thereby better align PJM's reforms with its demonstrated needs." *PJM Interconnection, LLC*, 190 FERC ¶ 61,084, at 1 (Chang, Comm'r, dissenting), https://www.ferc.gov/news-events/news/commissioner-changs-dissent-pjms-rri-er25-712.
12. *PJM Interconnection, LLC*, 190 FERC ¶ 61,084, at P 6.
13. *Id.* at P 1 (Rosner & Phillips, Comm'rs., concurring), https://www.ferc.gov/news-events/news/commissioner-phillips-and-commissioner-rosner-concurrence-regarding-pjms.
14. *Id.* at P 123.
15. *Id.* at P 242.
16. *Midcontinent Indep. Sys. Operator, Inc*., 191 FERC ¶ 61,131, at P 8 (2025).
17. *Id.* at P 1.

developers of these projects would need to make certain deposits, demonstrate full site control, and propose a project capable of reaching commercial operation within three years.[18] The proposed ERAS program would be available until the queue-cycle timeline was reduced to one year, with the intent to sunset the program by 2029.[19]

Opponents of the MISO proposal made similar arguments to those that opposed PJM's RRI proposal. Some clean energy proponents characterized the MISO ERAS process as a "queue-jump first" and an "assess resource adequacy" second approach, because the eligibility requirements for designation as a RERRA referral project do not require a MISO determination on how added generation capacity from a proposed generation project will contribute to meeting resource adequacy.[20] Instead of analyzing how each unique project would meet a resource-adequacy need from the onset, the clean energy associations asserted that the proposal did not obligate MISO to verify resource-adequacy criteria until after a project has already received ERAS designation.[21]

On May 16, 2025, FERC rejected MISO's ERAS proposal by two-to-one vote,[22] reasoning that the ERAS program's failure to limit the number of projects participating made the program unrestrained and the program included only vague parameters to determine how each interconnection request would satisfy reliability and resource adequacy needs.[23] The Commission contrasted the ERAS proposal with PJM's RRI proposal, which had a cap of 50 projects on a one-time basis. Moreover, the Commission favored PJM's RRI proposal because it included a location criterion that factored for how resource adequacy would be achieved in a locational deliverability area, while the MISO ERAS proposal lacked explicit linkage between a project and its resource adequacy contributions. Chairman Mark Christie dissented from the rejection order, stating that he would have provided MISO the benefit of the doubt that it would implement the ERAS program properly, given that the country and MISO are "heading for a reliability crisis."[24]

MISO filed a revised ERAS proposal with FERC on June 6, 2025, which responded to many of FERC's misgivings with the original proposal.[25] The revised ERAS filing featured a targeted scope and duration, limited participation to no more than 68 generation projects (with a maximum of 10 generation projects

18. *Id.* at P 32.

19. *Id.* at P 11.

20. Midcontinent Indep. Sys. Operator, Inc., Motion for Leave to Answer and Answer of Clean Energy Ass'ns, Docket No. ER25-1674-000, at 3 (filed May 5, 2025).

21. *Id.* at 5.

22. *Midcontinent Indep. System Operator, Inc*., 191 FERC ¶ 61,131, at P 1 (Rosner & See, Comm'rs, concurring, and Christie, Ch. Comm'r, dissenting), *available at* https://www.sierraclub.org/sites/default/files/2025-05/ferc-reject-eras-20250516-3074.pdf.

23. *Id.* at P 200.

24. *Midcontinent Indep. Sys. Operator, Inc.*, 191 FERC ¶ 61,131, at P 2 (2025) (Christie, Comm'r, dissenting).

25. Midcontinent Indep. Sys. Operator, Inc., Revisions to the Open Access Transmission, Energy and Operating Reserve Tariff, Expedited Resource Addition Study Filing, Docket No. ER25-2454-000 (filed June 6, 2025).

studied per quarter), and set a sunset date of August 31, 2027.[26] MISO further proposed to require each project to target a specific load addition or resource adequacy deficiency and be commercially operable within three to six years of the ERAS submission.[27] Finally, the RERRA referring the project is required to verify the resource adequacy or reliability need for the project.[28] MISO attributed its resource-adequacy challenges to the "continued electrification efforts, a resurgence in manufacturing, an unexpected demand for energy-hungry data centers to support artificial intelligence, the growing preference for low or no carbon emissions resources, and the accelerated early retirement of generation."[29]

FERC accepted MISO's revised ERAS proposal by order dated July 21, 2025, after concluding that MISO's revised ERAS proposal "represents a just and reasonable and not unduly discriminatory or preferential approach for addressing MISO's urgent, near-term resource adequacy needs."[30] FERC concluded that MISO's revisions to the ERAS proposal were sufficient to ensure that the program would be limited in scope and "swiftly address discrete, demonstrated resource adequacy needs in a narrowly tailored fashion, and on a temporary, time-limited basis."[31] Dismissing claims that the ERAS program impedes open access for renewable energy projects, FERC found the proposed ERAS process to be open, competitive, and technology/fuel agnostic, and noted that the program does not involve MISO favoring or selecting certain projects over others.[32]

3. SPP's ERAS

On May 22, 2025, SPP submitted for FERC acceptance its own proposed regional ERAS program.[33] Expecting a 17 GW capacity shortfall by 2030, SPP proposed an ERAS program that would be a one-time "limited process aimed at closing the forecasted resource adequacy gap."[34] SPP's proposed ERAS process would be conducted outside of, but concurrently with, the regular generator interconnection process and on a shortened timeframe to evaluate projects with a proposed commercial operation date within five years of the closing of the ERAS window.[35] The generation projects to be included in the SPP ERAS would be selected and verified by SPP Load Responsible Entities (LREs), which must attest that the output of the generator is needed to satisfy the LRE's resource adequacy

26. *Id.* at 12. If all sixty-eight ERAS interconnection requests have been studied prior to August 31, 2027, ERAS will sunset when the last ERAS interconnection request is studied.
27. *Id.* at 33–34, 36–37.
28. *Id.* at 9, 23.
29. *Id.* at 5.
30. *Midcontinent Indep. Sys. Operator, Inc.*, 192 FERC ¶ 61,064, at P 81 (2025).
31. *Id.* at P 195.
32. *Id.* at P 204.
33. Sw. Power Pool, Inc., Tariff Filing, Transmittal Letter Docket No. ER25-2296-000, at 1 (filed May 22, 2025).
34. *Id.* at 2–3.
35. *Id.* at 25.

obligations established by SPP policy and that the LRE has determined that no suitable available replacements are in operation or in the queue.[36]

As with PJM's and MISO's expedited interconnection programs, renewable-energy opponents characterized the SPP ERAS proposal as a queue-jumping measure for fossil fuel resources and as a vehicle designed for LREs to prioritize interconnection of their preferred projects.[37] Opponents also raised concerns that SPP ERAS participants may pass on additional interconnection upgrade costs to those projects "stuck" in the traditional study lane (including renewable energy projects).[38] Further, opponents emphasized that the SPP ERAS proposal shared the original MISO proposal's infirmity of placing no express limit on the number of projects that may enter the expedited study track.

On July 21, 2025, FERC issued an order accepting SPP's ERAS program subject to conditions.[39] FERC concluded that SPP sufficiently supported the urgency of its near-term resource adequacy needs and that its ERAS proposal would allow SPP to accelerate the study of interconnection requests that are uniquely shovel-ready and that have been identified to meet an LRE's near-term resource adequacy requirements.[40] Addressing concerns that SPP's ERAS proposal was not sufficiently limited in scope, FERC found that SPP's proposal included a mechanism to ensure that only the amount of generation required to meet the identified shortfall is able to participate in the ERAS process. Writing in concurrence, Democratic Commissioner Judy Chang stated that "interconnection queue proposals that grant priority access to the system are, at minimum, in tension with competition and open access to the transmission system,"[41] but characterized ensuring reliability as "paramount."[42] Specifically, she stated that she will remain open to "considering region-specific deviations from generally applicable interconnection queue procedures, given the Commission's paramount obligation to ensure that system operators can reliably serve their loads."[43]

B. Renewable Generation Project Developers Seek Waivers to Preserve Queue Positions

Separately, interconnection delays and changing regulatory and market conditions have strained renewable project developers' abilities to meet key development milestones. Developers of renewable generation and battery energy storage

36. *Id.*
37. *See, e.g.*, Sw. Power Pool, Inc., Public Interest Organizations Comment on Filing, Docket No. ER25-2296-000, at 1 (filed June 12, 2025); *see also* Motion for Leave to Answer and Answer of the Sw. Power Pool, Docket No. ER25-2296-000 (filed July 11, 2025).
38. Sw. Power Pool, Inc., Public Interest Organizations Comment on Filing at 8; *see also* Motion for Leave to Answer and Answer of the SPP Indep. Power Producers, Docket No. ER25-2296-000, at 7–9 (filed July 18, 2025).
39. *Sw. Power Pool, Inc.*, 192 FERC ¶ 61,062 (2025).
40. *Id.* at PP 104–05.
41. *Id.* at P 3 (Chang, Comm'r, concurring).
42. *Id.* at P 4 (Chang, Comm'r, concurring).
43. *Id.*

projects are facing supply-chain disruptions and delays, delayed permitting processes, obstacles associated with navigating geopolitical, economic, and regulatory dynamics that remain in a constant state of flux. As a result, renewable energy project developers have increasingly sought (and thus far many have received) FERC waivers of commercial operation deadlines and other key Generator Interconnection Agreement (GIA) and ISO or RTO tariff deadlines. Such waiver allows a project developer to remain in the interconnection queue, effectively preventing the abandonment of the project altogether.

As of July 24, 2025, FERC has approved such waiver requests in 2025, for at least seven solar generation projects, one wind project, and one nuclear energy facility.[44] FERC granted such waiver of GIA commercial operation and ISO and RTO tariff deadlines pursuant to the Commission's standard waiver criteria: "(1) the applicant acted in good faith; (2) the waiver is of limited scope; (3) the waiver addresses a concrete problem; and (4) the waiver does not have undesirable consequences . . . ."[45] In every case, the applicants sought narrowly tailored, one-time waivers to extend their commercial operation deadlines, ranging from six months to two years.[46] Developers requesting waiver described the requested milestone extensions as necessary to avoid termination of interconnection rights—a concrete problem that, in most cases, would prohibit a project from reaching operation at all.[47]

These waivers did not establish blanket exceptions and, instead, provided relief for acute project-specific setbacks including changes in local requirements, supply chain disruptions resulting in a difficulty in obtaining necessary equipment or resulting in changes to project design that caused delays, increased construction costs, a solar moratorium, and unexpected litigation.[48] For example, Badger State Solar, LLC sought waiver on the basis that although it invested $28 million in interconnection costs and executed a long-term power-purchase agreement, it could not meet its commercial operation deadline due to supply chain delays and delays caused by environmental reviews.[49] Similarly, Beecher Solar, LLC sought a FERC waiver because it encountered local zoning and utility-side setbacks in the development of its project, but still secured the requisite land, permits, and transformers, and thus qualified for waiver of its commercial operation milestone

44. *See N. Hills Wind Project, LLC*, 192 FERC ¶ 61,068 (2025); *Washtenaw Solar Energy, LLC*, 191 FERC ¶ 61,060 (2025); *Ratts 2 Solar LLC*, 191 FERC ¶ 61,043 (2025); *Holtec Palisades, LLC*, 190 FERC ¶ 61,132 (2025); *Chalk Bluff Solar Energy*, LLC, 190 FERC ¶ 61,189 (2025); *Mustang Mile Solar Energy*, LLC, 191 FERC ¶ 61,039 (2025); *Beecher Solar, LLC*, 191 FERC ¶ 61,041 (2025); *Badger State Solar, LLC*, 190 FERC ¶ 61,072 (2025); *Mastodon Solar Ctr., LLC*, 190 FERC ¶ 61,151 (2025).

45. *N. Hills Wind Project, LLC*, 192 FERC ¶ 61,068, at P 19.

46. *See, e.g.*, *Chalk Bluff Solar Energy, LLC*, 190 FERC ¶ 61,189 (2025); *Mustang Mile Solar Energy, LLC,* 191 FERC ¶ 61,039.

47. *See, e.g.*, *Holtec Palisades, LLC*, 190 FERC ¶ 61,132, at P 20; *Washtenaw Solar Energy, LLC,* 191 FERC ¶ 61,060, at P 19 (2025).

48. *Holtec Palisades, LLC,* 190 FERC ¶ 61,132; *Washtenaw Solar Energy, LLC,* 191 FERC ¶ 61,060; *Badger State Solar, LLC*, 190 FERC ¶ 61,072; *Ratts 2 Solar LLC*, 191 FERC ¶ 61,043; *Mustang Mile Solar Energy, LLC*, 191 FERC ¶ 61,039.

49. *Badger State Solar, LLC*, 190 FERC ¶ 61,072.

deadline.[50] In another case, North Hills Wind Project, LLC explained that it originally obtained necessary Designations of No Hazard from the Federal Aviation Administration (FAA), but that supply-chain challenges necessitated changes to the project design requiring a further FAA ruling that was "tied up" at the FAA.[51]

FERC has not granted every waiver request. On April 23, 2025, FERC denied a solar developer's waiver request for a twenty-four-month extension of its commercial operation deadline.[52] Oxbow Solar, LLC asserted it was unable to negotiate financing and offtake agreements due to "market conditions" including "rapid increases in insurance, engineering, procurement, and construction costs and difficulties in securing solar components."[53] FERC held that Oxbow Solar failed to demonstrate it had acted in good faith, stating that "it appears that Oxbow Solar's need for the instant waiver may have been caused, in part, by its own inaction," largely due to failure to meet prior GIA milestones.[54] FERC also held that Oxbow Solar failed to demonstrate a waiver would remedy a concrete problem as the justification that "the market [had] corrected for increased project costs" was not a "detailed explanation in the record of how the extension will allow Oxbow Solar to secure financing and achieve commercial operation."[55] FERC denied Oxbow Solar's request for rehearing of its ruling.[56]

These 2025 waiver rulings indicate that, while FERC has remained largely amenable to granting waiver of commercial operation deadlines when good cause exists, the Commission is unlikely to grant waiver when delays may be attributable to the developer. These commercial operation deadline waivers have served as a lifeline for renewable energy projects facing long interconnection queues. If FERC were to change its policy of granting these waivers, some renewable project developers could be forced to withdraw their projects or otherwise risk losing their place in the queue.

C. Conclusion

Between system operators' implementation of new fast-track interconnection processes for baseload generation units and the shifting supply chain and regulatory landscapes underpinning project development, renewable energy project developers are facing new headwinds in their efforts to reach commercial operation. Recent developments indicate that, in the near-term, system operators will prioritize the interconnection of facilities most likely to solve resource adequacy problems because reliability should be paramount. Such an approach may be to the detriment of renewable energy projects, which remain in the standard,

50. *Beecher Solar, LLC*, 191 FERC ¶ 61,041.
51. *N. Hills Wind Project, LLC*, 192 FERC ¶ 61,068, at PP 6–9 (2025).
52. *Oxbow Solar, LLC*, 191 FERC ¶ 61,057 (2025).
53. *Id*. at P 3.
54. *Id*. at P 9.
55. *Id*.
56. *Oxbow Solar, LLC*, 191 FERC ¶ 62,176 (2025).

slower-paced interconnection queue process. Separately, while FERC has been willing to extend the deadlines (and thereby the viability) associated with renewable energy projects awaiting interconnection through the waiver process, such extensions are discretionary and in no way "guaranteed."