INTERCONNECTION QUEUES: GATEKEEPING RENEWABLE ENERGY

by Mari Reott

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SUMMARY

Interconnection queues across the United States prevent renewable energy projects from connecting to the grid because of their years-long backlog. Current procedures are increasing the number of projects that withdraw from the queue and the time it takes for renewable projects to seek approval. This Article examines the recent reforms taken by two regional grid operators, the Pennsylvania-New Jersey-Maryland Interconnection (PJM) and the Midcontinent Independent System Operator. By analyzing and comparing these reforms, it provides five recommendations for PJM to further reform its procedures. It also offers recommendations outside of interconnection queue procedures. These proposed recommendations comply with Order 2023 and Order 1920, recently enacted by the Federal Energy Regulatory Commission. The Article takes a comprehensive approach to reform, providing regional grid operators a way to reduce the queue backlog and help connect renewable projects.

Renewable energy sources are key to meeting the United States' climate goals because they replace fossil fuels—the largest contributor to climate change.[1] Currently, 200 gigawatts (GW) of renewable energy are operating in the United States.[2] However, more renewable energy projects must be connected to the electric transmission grid to meet climate goals.

Before an energy project provides energy through the grid, the project must go through the regional interconnection queue.[3] The queue requires every new energy project to complete a series of studies before attaining approval to connect to the grid.[4] These studies assess how and the extent to which the proposed new generation resource will impact the reliability of the interconnected grid in the region where the project is located.[5] Due to the complexity of interconnecting the grid, the studies are taking longer to complete.[6]

As a result, interconnection queues across the United States are becoming backlogged, preventing renewable energy projects from mitigating the effects of climate change.[7] In 2023, 95% of projects in the queue were renewable energy, showing the ability of renewables to replace fossil fuels.[8] More than six times the current amount of renewable energy operating in the United States is waiting in interconnection queues, and this demand is projected

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1. *See* Noah Long & Kevin Steinberger, *Renewable Energy Is Key to Fighting Climate Change*, NRDC (July 26, 2016), https://www.nrdc.org/bio/noah-long/renewable-energy-key-fighting-climate-change. *See also* Lora Shinn, *Renewable Energy: The Clean Facts*, NRDC (June 1, 2022), https://www.nrdc.org/stories/renewable-energy-clean-facts (defining "renewable energy" as energy produced from "natural sources" that can be "replenished"). *See also* United Nations, *Renewable Energy—Powering a Safer Future*, https://www.un.org/en/climatechange/raising-ambition/renewable-energy (last visited July 7, 2024). Emissions from fossil fuel sources must be reduced "by almost half by 2030 and reach net-zero by 2050." *Id*.
2. *See* Dana Ammann, *Breaking Through the PJM Interconnection Queue Crisis*, NRDC (May 18, 2023), https://www.nrdc.org/bio/dana-ammann/breaking-through-pjm-interconnection-queue-crisis.
3. *See* Energy Technologies Area, Berkeley Lab, *Queued Up: Characteristics of Power Plants Seeking Transmission Interconnection*, https://emp.lbl.gov/queues (last visited July 7, 2024).
4. *See id*.
5. *See* Office of Policy, U.S. Department of Energy (DOE), Queued Up . . . But in Need of Transmission 2 (2022), https://www.energy.gov/sites/default/files/2022-04/Queued%20Up%E2%80%A6But%20in%20Need%20of%20Transmission.pdf (describing the purpose of the studies as "establish[ing] what new transmission upgrades are needed before a project can connect to the system, and then estimat[ing] and assign[ing] the costs of those upgrades to the project and/or transmission owner").
6. *See Grid Connection Requests Grow by 40% in 2022 as Clean Energy Surges, Despite Backlogs and Uncertainty*, Energy Techs. Area, Berkeley Lab (Apr. 6, 2023), https://emp.lbl.gov/news/grid-connection-requests-grow-40-2022.
7. *See id*.
8. *See* Tony Lenoir, *US Interconnection Queues Analysis 2023*, S&P Glob. (Aug. 28, 2023), https://www.spglobal.com/marketintelligence/en/news-insights/research/us-interconnection-queues-analysis-2023. The composition of the interconnection queue as of June 2023 is as follows: hybrid, 690 GW; solar, 497 GW; battery storage, 473 GW; wind, 299 GW; natural gas, 61 GW; and other, 32 GW. *See id*.

to continue.[9] For instance, renewable and storage resources have seen a growth rate of 72% per year since 2018.[10]

Despite the growth in demand for renewable projects, interconnection queues are the main impediments to renewable energy projects connecting to the grid.[11] From 2018-2022, proposed projects waited approximately four years to connect to the grid.[12] This length of time significantly slows the implementation of renewable projects into the energy profile. These projects face long timelines, and most will withdraw from their regional interconnection queue before completion.[13] By the end of 2022, 15,672 projects were withdrawn.[14] Renewable projects are unlikely to complete interconnection queue procedures. For example, wind has a completion rate of 20% while solar is at 16%.[15] These rates are lower than natural gas, which has a completion rate of 33%.[16]

Project developers also face cost concerns in interconnection queues that prevent developers from reaping the full economic benefit. For example, an individual project developer may be required to pay for all costs related to upgrading the grid so their project can come online, even though the upgrades will benefit later projects.[17] Because cost-sharing among future generators who would also benefit from the grid upgrades does not exist, project developers are deterred from connecting to the grid if network upgrade costs become too great.[18] If a developer cannot pay the cost of these upgrades or decides to withdraw their project for other reasons, project developers later in the queue can be negatively affected.[19]

If one project withdraws, it can trigger a series of restudies for other projects, placing the cost burden on project developers who did not previously account for these additional costs.[20] Shifting these costs to the next project can result in a domino effect of withdrawn projects.[21] Due to queue backlogs, withdrawal rates, and increased costs, interconnection queues harm renewable energy projects.

The Federal Energy Regulatory Commission (FERC), an independent federal agency responsible for regulating "the transmission and wholesale sale of electricity in interstate commerce,"[22] has noticed the issues surrounding interconnection queues. Effective November 6, 2023, Order 2023 required all public utility transmission providers to adopt revisions concerning interconnection procedures.[23] To comply, transmission providers were required to submit their proposals for compliance by April 3, 2024, and FERC will approve these filings before formal implementation.[24]

Order 2023 was a significant push in requiring providers to reform their interconnection queues. Interconnection queues, as the first step in connecting to the grid, are the greatest threat facing the implementation of renewable energy projects. To implement these projects into the grid and increase the probability of meeting climate goals, interconnection queues must be reformed.

This Article recommends how interconnection queues across the United States can be reformed, using the Pennsylvania-New Jersey-Maryland Interconnection (PJM), a coordinator of wholesale electricity among states in the Northeast,[25] as a case study. Part I provides background on interconnection generally and PJM's interconnection queue. It further evaluates PJM's recent queue reforms, following the regulations laid out by FERC. To compare PJM, a regional transmission organization (RTO), the queue reforms taken by the Midcontinent Independent System Operator (MISO) are also evaluated.

After evaluating the reforms of PJM and MISO, Part II recommends five discrete reforms that PJM should further undertake to help reduce its interconnection queue backlog. These reforms will also have a basis in MISO's actions. Part III concludes.

The proposed reforms in this Article will benefit PJM and all regional grid operators as they continue to comply with Order 2023 and attempt to reduce the backlog in interconnection queues. It also addresses further reforms that regional grid operators should engage in outside of queue procedures to comply with Order 1920 and promote the connection of renewable energy projects to the grid. By learning from the recent actions taken by two RTOs, this Article provides substantive recommendations that

9. *See* Energy Technologies Area, Berkeley Lab, *supra* note 3 ("nearly 2,600 gigawatts (GW) of total generation and storage capacity now seeking connection to the grid"). There are a few regional operators in the United States that are expected to have demand growth reach as high as 7% annually. *See* Pennsylvania-New Jersey-Maryland Interconnection, Energy Transition in PJM: Resource Retirements, Replacements & Risks 2 (2023), https://www.pjm.com/-/media/library/reports-notices/special-reports/2023/energy-transition-in-pjm-resource-retirements-replacements-and-risks.ashx [hereinafter Energy Transition in PJM].
10. Energy Transition in PJM, *supra* note 9.
11. This Article centers on interconnection queues while other scholarly articles argue that transmission is the central issue in connecting renewable projects. *See generally* Jetta Cook, *Transmission Troubles: Solving the Roadblocks to Renewable Energy*, 11 Chi.-Kent J. Env't & Energy L. 37 (2022); Divina Li, *Do Grid Operators Dream of Electric Seams?: Coordinating Interregional Transmission Stakeholders to Improve Energy Deliverability*, 13 Geo. Wash. J. Energy & Env't L. 82 (2022); Melissa Powers, *Anticompetitive Transmission Development and the Risks for Decarbonization*, 49 Env't L. 885 (2019).
12. *See* Energy Technologies Area, Berkeley Lab, *supra* note 3.
13. *See id*. Available data has shown that only 21% of the projects in the queue "from 2000 to 2017 have been built as of the end of 2022." *Id*.
14. *See* Joseph Rand et al., Berkeley Lab, Queued Up: Characteristics of Power Plants Seeking Transmission Interconnection as of the End of 2022, at 16 (2023), https://emp.lbl.gov/sites/default/files/queued_up_2022_04-06-2023.pdf.
15. *See* Office of Policy, DOE, *supra* note 5, at 2.
16. *See id*.
17. *See id*.
18. *See id*.
19. *See* Abby Fox, *Stuck in Line: FERC's Interconnection Reforms*, Nat. Res. & Env't, Spring 2023, at 56.
20. *See id*.
21. *See Tackling High Costs and Long Delays for Clean Energy Interconnection*, DOE Off. Energy Efficiency & Renewable Energy (May 11, 2023), https://www.energy.gov/eere/i2x/articles/tackling-high-costs-and-long-delays-clean-energy-interconnection.
22. FERC, *What FERC Does*, https://www.ferc.gov/what-ferc-does (last updated Feb. 12, 2024).
23. *See* Improvements to Generator Interconnection Procedures and Agreements, 88 Fed. Reg. 61014, 61015 (Nov. 6, 2023) (to be codified at 18 C.F.R. pt. 35).
24. *See* FERC, *Explainer on the Interconnection Final Rule*, https://www.ferc.gov/explainer-interconnection-final-rule (last updated Mar. 13, 2024).
25. *See* PJM, *About PJM*, https://www.pjm.com/about-pjm (last visited July 7, 2024).

regional grid operators can take to mitigate the impact of climate change.

I. Regional Grid Operators' Approach to Interconnection

Interconnection queues are complex because rules and procedures differ depending on the area of the United States in which a project developer wants to connect to the grid. This part provides a foundational understanding of how interconnection works in the United States and its necessity to provide energy to consumers. An understanding of PJM's interconnection queue and its recent actions to fix the queue is necessary. PJM is a significant player in helping the energy industry function, providing an exemplary case study. Like PJM, MISO is another RTO that covers a significant geographic area and a large energy capacity. This part will also evaluate its reforms.[26] Before considering specific entities, it is crucial to appreciate the basics of energy interconnection.

A. Interconnection

For many consumers, energy may only be thought of when flipping a light switch, but many steps exist to allow the light to turn on. The first step is interconnection—"the complex process of connecting new electricity generators . . . to the electric grid."[27] The grid is a complicated structure that requires several levels of government involvement, and is broken down into geographic regions.[28] Depending on the project's location, the interconnection process will differ because several entities throughout the United States oversee interconnection to the grid.[29]

At the broadest level, the grid is divided geographically between the Eastern Interconnection, the Western Interconnection, and the Texas Interconnected System.[30] Each of these interconnections contain wires that tend to be highly interconnected with each other, but there are fewer connections across the "seams" at each of the interconnection borders.[31] These three interconnections are further broken down into independent system operators (ISOs) and RTOs, which are the regional entities to which electricity generators will apply for interconnection.[32]

ISOs and RTOs both function to facilitate transmission systems and implement procedures for transmission, but in 2000, FERC "encouraged utilities to join" RTOs.[33] Approximately two-thirds of electricity consumers fall under the geographic area of an ISO or RTO,[34] but the other one-third of consumers fall under the jurisdiction of the individual utilities, which are responsible for every part of producing and distributing energy, including interconnection.[35] Each entity, whether an ISO, RTO, or utility, has its own rules that project developers must follow to connect to the grid.[36]

While a developer is complying with these rules, the project is said to be in the interconnection queue.[37] The interconnection queue typically requires a project to undergo a series of studies to determine if "new transmission equipment or upgrades" are required to connect to the grid.[38] Generally, electric grid upgrades are required when the current transmission lines will not be reliable, meaning that electricity is not flowing at an "even rate," if the proposed project is added to the electric grid.[39]

During the interconnection queue studies, renewable energy projects are more likely to require equipment and grid upgrades because these projects must be located near their fuel resources.[40] For example, wind turbines are located in areas with higher elevation or within valleys where wind intensifies.[41] Because these projects have fewer options for their location, the grid must come to them; therefore, renewable energy projects incur greater interconnection costs than fossil fuel projects.[42]

Additionally, because renewable projects are "intermittent and limited-duration resources," which do not continuously produce uniform, predictable amounts of electricity,

26. *See* FERC, *Electric Power Markets*, https://www.ferc.gov/electric-power-markets (last updated May 16, 2023).
27. American Clean Power, Interconnection 101, at 1 (2023), https://cleanpower.org/wp-content/uploads/2023/06/ACP_Interconnection_Fact-Sheet_0623.pdf.
28. This Article focuses on the interconnection process by RTOs and does not provide an in-depth discussion of the difficulty in creating a uniform system for electricity generation. However, for additional context, the federal government, through FERC, oversees the grid by approving and enforcing reliability standards. *See* FERC, *Reliability Explainer*, https://www.ferc.gov/reliability-explainer (last updated Aug. 16, 2023). States have control over the siting of transmission lines and electricity generators. *See* Hannah J. Wiseman, *Regional Cooperative Federalism and the U.S. Electric Grid*, 90 Geo. Wash. L. Rev. 147, 168 (2022). Lastly, RTOs and independent system operators (ISOs) provide the regional component of the electric grid by distributing the supply and demand of power to generators in their geographic area. *See* U.S. Energy Information Administration (EIA), *About 60% of the U.S. Electric Power Supply Is Managed by RTOs*, Today Energy (Apr. 4, 2011), https://www.eia.gov/todayinenergy/detail.php?id=790.
29. *See* American Clean Power, *supra* note 27.
30. *See* U.S. Environmental Protection Agency, *U.S. Grid Regions*, https://www.epa.gov/green-power-markets/us-grid-regions (last updated Jan. 15, 2024).
31. *See* MISO & Southwest Power Pool (SPP), Executive Summary: Joint Targeted Interconnection Queue Study 3 (2022), https://www.spp.org/documents/66725/jtiq%20report.pdf.
32. *See* FERC, *RTOs and ISOs*, https://www.ferc.gov/power-sales-and-markets/rtos-and-isos (last updated Jan. 17, 2024).
33. FERC, *supra* note 26. ISOs, including PJM, reformed into RTOs after FERC's recommendation. *See, e.g.*, PJM, *PJM History*, https://www.pjm.com/about-pjm/who-we-are/pjm-history (last visited July 7, 2024).
34. *See* Chris Connolly, *Markets Month: Part 3*, NW Energy Coal. (June 22, 2022), https://nwenergy.org/featured/markets-month-part-3/.
35. *See* U.S. Environmental Protection Agency, *U.S. Electricity Grid & Markets*, https://www.epa.gov/green-power-markets/us-electricity-grid-markets (last updated Mar. 27, 2024).
36. *See* American Clean Power, *supra* note 27. The focus of this Article is on RTOs.
37. *See* Energy Technologies Area, Berkeley Lab, *supra* note 3.
38. *Id.*
39. Naureen S. Malik, *Unpredictable Power Surges Threaten US Grid—And Your Home*, Bloomberg (Feb. 14, 2024, 7:00 PM), https://www.bloomberg.com/news/features/2024-02-15/us-grids-face-unpredictable-power-surges-with-potentially-dangerous-consequences.
40. *See* Dana Ammann, NRDC, Waiting Game: How the Interconnection Queue Threatens Renewable Development in PJM 4 (2023), https://www.nrdc.org/sites/default/files/2023-05/pjm-interconnection-queue-renewable-development-report.pdf.
41. *See* EIA, *Wind Explained*, https://www.eia.gov/energyexplained/wind/where-wind-power-is-harnessed.php (last updated June 12, 2024).
42. *See* Ammann, *supra* note 40, at 4.

they may incur greater interconnection costs even though they produce less energy than fossil fuel projects.[43] To control the flow of electricity, grid operators must constantly and precisely balance the quantity of load (electricity used) with generation; intermittent and unpredictable electricity flows make this complex balancing process more difficult.[44]

As renewable energy projects become more popular because of their economic viability and as a solution to climate change,[45] more renewable projects are entering interconnection queues. However, the entities governing interconnection queues fail to evaluate these projects promptly, which results in the queue becoming backlogged. This backlog is occurring at RTOs and ISOs across the United States.[46] PJM is one RTO that has experienced a backlog lasting several years.[47]

B. PJM's Role as an RTO

PJM is the largest RTO in the United States based on the population that it serves and the mileage of its transmission lines.[48] PJM coordinates wholesale electricity through some of the chief energy-producing states.[49] PJM originated in 1927, serving energy consumers in Pennsylvania and New Jersey, and added Maryland into its service in 1956.[50] Now, PJM controls the flow of wholesale electricity, either exclusively or partially, to 13 states and the District of Columbia.[51] PJM was designated as an ISO in 1996, but in 2001, it was redesignated as an RTO.[52] PJM's current energy capacity is 184,000 megawatts (MW), and PJM is responsible for allowing projects to contribute to this capacity by connecting to the regional grid.[53]

PJM uses a "new service request process" to allow generators to apply for interconnection.[54] Project developers who have submitted a new service request are in the interconnection queue. From 2018-2022, projects waited more than three years before the required studies were completed.[55] Only 1% of PJM facilities' studies were completed on time.[56] The backlog for the interconnection queue became so substantial that, in 2022, PJM "paused review of new requests until at least 2025," effectively placing a moratorium on any new projects.[57] PJM has even admitted that the current system, paired with an increasing number of interconnection requests, has resulted in a substantial backlog.[58] Currently, 290 GW are waiting in the queue,[59] and 94% of the projects are renewables, while only 6% are gas.[60]

The current composition of the queue shows the increased interest in renewable energy projects. However, only 5% of renewable energy projects are ever completed.[61] The slow trek to connect renewable projects to the grid increases the risk that existing energy sources will retire before new sources are connected.[62] It is projected that "40 GW of existing generation are at risk of retirement by 2030," which is "21% of PJM's current installed capacity."[63] While 40 GW of generation are at risk of retiring, "only 15.1 GW to 30.6 GW" will likely be connected to the grid by 2030.[64] PJM will be losing more energy generation than it is gaining. To account for the lost generation, PJM must approve more projects in the interconnection queue. The existing interconnection queue process must be reformed to increase approval rates.

C. PJM's Interconnection Queue Reforms

To reduce the number of projects currently waiting in the queue and to increase the rate of completed projects, PJM has made revisions and additions to its Open Access Transmission Tariff. These changes were approved by FERC in November 2022 and implemented in 2023.[65] The changes were intended to help energy projects enter the grid.

Because a majority of PJM's queue consists of renewable energy projects,[66] these projects will be greatly affected. The most substantial reforms include (1) separating projects into three evaluation phases based on when the project's application was submitted to PJM; (2) changing the evaluation process for projects to a first-ready, first-served system; (3) implementing readiness deposits at specific

43. Energy Transition in PJM, *supra* note 9; *see also* Ammann, *supra* note 40, at 4.
44. *See* Malik, *supra* note 39.
45. *See* Long & Steinberger, *supra* note 1.
46. *See Grid Connection Requests Grow by 40% in 2022 as Clean Energy Surges, Despite Backlogs and Uncertainty*, *supra* note 6.
47. *See* Letter from Wendy B. Warren, Counsel for PJM, Wright & Talisman, P.C., to Kimberly D. Bose, Secretary, FERC, re: PJM Interconnection, L.L.C., Docket No. ER22-___-000 Tariff Revisions for Interconnection Process Reform, Request for Commission Action by October 3, 2022, and Request for 30-Day Comment Period 4 (June 14, 2022).
48. *Compare* Ammann, *supra* note 40, at 4 (noting that PJM serves 65 million people with 88,115 miles of transmission lines), *with* MISO, Fact Sheet (2024), https://cdn.misoenergy.org/2024%20January%20Fact%20Sheet631433.pdf (noting that MISO serves 45 million people through 75,000 miles of transmission line).
49. *See* PJM, *supra* note 25. For example, Pennsylvania is the "second-largest net supplier, after Texas, of energy to other states." *See* EIA, *Pennsylvania*, https://www.eia.gov/state/analysis.php?sid=PA (last updated Dec. 21, 2023).
50. *See* FERC, *supra* note 26.
51. *See id*. These states include Delaware, Illinois, Indiana, Kentucky, Maryland, Michigan, New Jersey, North Carolina, Ohio, Pennsylvania, Tennessee, Virginia, and West Virginia.
52. *See* Ammann, *supra* note 40, at 4.
53. *See Transition to New Interconnection Process Begins July 10*, PJM Inside Lines (July 6, 2023), https://insidelines.pjm.com/transition-to-new-interconnection-process-begins-july-10/.
54. Letter from Wendy B. Warren, *supra* note 47, at 1. This process occurs before "power plants are built, are connected to the transmission system, and can participate in wholesale electricity markets." *See* Ammann, *supra* note 40, at 5.
55. *See* Rand et al., *supra* note 14, at 27.
56. *See* Order Accepting Tariff Revisions Subject to Condition, 181 FERC ¶ 61162 (Nov. 29, 2022) (Clements, concurring).
57. Rand et al., *supra* note 14, at 9.
58. *See* Letter from Wendy B. Warren, *supra* note 47, at 4.
59. *See* Ethan Howland, *PJM Launches Fast-Track Capacity Market Reform Process in Face of Shrinking Reserve Margins*, Util. Dive (Feb. 27, 2023), https://www.utilitydive.com/news/pjm-capacity-market-reform-reserve-margin/643598/.
60. *See* Energy Transition in PJM, *supra* note 9.
61. *See id*.
62. *See id*. at 1.
63. *Id*. at 2.
64. Howland, *supra* note 59.
65. *See* Energy Transition in PJM, *supra* note 9. PJM made substantial changes to its tariff, including the addition of Parts VII, VIII, and IX. *See* Letter from Wendy B. Warren, *supra* note 47, at i.
66. *See* Energy Transition in PJM, *supra* note 9.

decision points; and (4) increasing site control requirements for projects.[67]

1. Reforming the Queue Through Evaluation Phases

PJM's interconnection queue will be separated into three phases based on the date new service requests were submitted to PJM.[68] These phases are intended to address the backlog in the existing queue by grouping projects proposed before the moratorium under different procedures, and any new requests will not be addressed until the final phase has been completed.[69] The three evaluation phases will be broken down as shown in Table 1.

Table 1. The Three Evaluation Phases

New Service Request Submission Date	Applicable Rules
Before April 2018	Prior procedures (before reforms approved by FERC)
April 2018 - September 2021	Transition rules
October 2021 - March 31, 2022	New rules

The first applicant pool addresses new service requests submitted before or during March 2018 and will be reviewed under the procedures in place before the new reforms.[70] The second applicant pool includes new service requests submitted between April 2018 and September 2021, which will be reviewed under PJM's transition rules.[71] The transition rules are a new section to PJM's tariff, laid out in Part VII, and will affect new service requests submitted during the applicable time period if they "have not been tendered an Interconnection Service Agreement ('ISA') or wholesale market participant agreement as of the Transition Date."[72]

The second applicant pool is further broken down into three groups. The first group includes those in the "expedited process." To be in this group, projects must meet the following requirements: (1) show that they submitted a new service request between April 1, 2018, and September 30, 2020 (AE1-AG1 queue window); (2) provide the requisite readiness deposit; (3) not tender a service agreement[73]; and (4) require a network upgrade of $5 million or less.[74] While these projects will generally follow the procedures under the transition rules, they will be evaluated serially, rather than in a group.[75]

The second group of applicants in the transition rules is Transition Cycle #1, which includes requests that have "Network Upgrade costs in excess of $5 million."[76] The last group, Transition Cycle #2, is not categorized based on the cost of their network upgrades but on their new service request dates from October 1, 2020, until September 30, 2021 (AG2-AH1 queue window).[77] The second applicant pool is summarized in Table 2.

Table 2. Second Applicant Pool

Transition Group	New Service Request Submission Date	Requirements
Expedited Process	April 2018 - September 2020	1) Readiness deposit 2) No service agreement 3) Network upgrades < $5 million
Transition Cycle #1	April 2018 - September 2020	Network upgrades > $5 million
Transition Cycle #2	October 2020 - September 2021	None

The third applicant pool consists of new service requests submitted between October 2021 and March 31, 2022, which are subject to the new rules under Part VIII of the tariff.[78] These requests will wait several years before being evaluated, at least until 2026.[79] After these new service requests have been processed, the new rules will continue to be used.[80] In the meantime, energy project developers interested in submitting a request any time after March 2022 will await their opportunity to enter the interconnection queue once PJM lifts its moratorium.

67. *See generally* Letter from Wendy B. Warren, *supra* note 47. Even though the requirements of site control may vary by RTO or ISO, site control generally means "a documented right for one or more parcels of land for the purpose of constructing a Generating Facility, Interconnection Customer's Interconnection Facilities, and, if applicable [ ], the Transmission Owner's Interconnection Facilities and Network Upgrades." MISO, Generation Interconnection Procedures attach. X (2024).
68. *See* Ammann, *supra* note 40, at 8.
69. *See id.* at 4. Because these phases do not address a new service request that a developer could currently submit, these reforms do not lift the moratorium that PJM has implemented. *See id.* Therefore, new requests will not be evaluated anytime soon.
70. *See id.* (noting that this group of new service requests are in the queue window AD2).
71. *See id.* at 9 (noting that these new service requests fall into one of the following named categories based on their new service request submission date: AE1, AE2, AF1, AF2, AG1, AG2, and AH1). *See id.* at 9 fig.5.
72. Letter from Wendy B. Warren, *supra* note 47, at 9.
73. A "service agreement" is "the initial agreement and any amendments or supplements thereto entered into by the Transmission Customer and the Transmission Provider for service under the Tariff." PJM Open Access Transmission Tariff Definitions—R-S 7 (2024), https://pjm.com/directory/merged-tariffs/oatt.pdf.
74. *See* Letter from Wendy B. Warren, *supra* note 47, at 11-12. The cost of network upgrades will be determined based on a PJM retool study. *Id.* at 12.
75. *See id.* at 12.
76. *Id.*
77. *See id.* at 9, 12.
78. *See id.* at 34.
79. *See* Ammann, *supra* note 40, at 8.
80. *See* Letter from Wendy B. Warren, *supra* note 47, at 8.

2. First-Ready, First-Served Project Evaluation

Within these three evaluation phases, PJM is reforming how to study projects, moving from a first-come, first-served process to a first-ready, first-served evaluation process.[81] The first-come, first-served process used in the prior procedures evaluates projects through a serial approach where "each project is considered on a stand-alone basis depending on when its New Service Request is submitted, and the necessary studies to determine the transmission upgrades needed to reliably interconnect the generator to the grid are specific to that generator."[82] The three studies currently used during this process are the feasibility study, system impact study, and facilities study.[83]

The first-come, first-served process has created a backlog in the queue because each project is evaluated individually. As more projects with lower energy generation capacity seek grid connection, PJM needs to approve these studies more quickly to create the required energy output that will be lost by retiring energy sources.[84]

Under PJM's reforms, the serial approach has not been eliminated yet. As noted above, under the transition rules, projects in the expedited process will still follow the serial approach.[85] However, for the remaining projects under the transition rules and projects under the new rules, their system impact studies will be evaluated through a cluster analysis.[86] Under this cluster study analysis, any projects "that contribute to the need for a Network Upgrade will receive cost allocation for that upgrade according to each New Service Request's contribution to the reliability violation."[87]

Additionally, these projects will have facilities studies in Phases II and III of the process.[88] The facilities studies in both phases will estimate the cost "for the Interconnection Facilities and Network Upgrades that are necessary to accommodate each New Service Request,"[89] but the study in Phase II will focus on interconnection while the Phase III facility study centers on system upgrades.[90] While the studies remain a crucial part of the interconnection queue process and the overall reliability of the grid, studying projects in groups will allow completion to occur more quickly.[91]

3. Readiness Deposits

Before PJM reformed its interconnection procedures, project developers only had to submit nominal deposits while in the interconnection queue.[92] These deposits were often subject to a refund if a project withdrew from the queue,[93] and an applicant could also withdraw at any time during the process.[94] As a project progressed in the queue, the deposits did not increase.[95] Overall, these deposits did not incentivize unprepared projects to withdraw from the queue.[96] Instead, PJM's minimal requirements likely allowed unprepared projects to linger in the queue, thereby increasing the backlog because time and resources were spent on projects that were likely to withdraw.

PJM's proposed reforms attempt to create a greater deterrent for unprepared projects in the queue by increasing the deposit amount required.[97] Under the transition rules, PJM requires project developers to pay an initial readiness deposit of $4,000 per MW.[98] The transition rules include three more readiness deposits, one at each decision point. The readiness deposit increases at each decision point based on the "cost allocation for the network upgrades" determined in the prior phase.[99] However, the deposit amount is offset by the prior deposits already paid.[100]

Additionally, project developers can receive part of the deposit back if PJM determines that the project is terminated based on studies in the prior phase.[101] The refund at Decision Point I includes "50% of Readiness Deposit No. 1 and 100% of Readiness Deposit No. 2," while Decision Point II refunds "100% of Readiness Deposit No. 2, up to 100% of Readiness Deposit No. 1, and up to 90% of the study deposit, less any actual costs."[102]

Under the new rules, an initial study deposit of $75,000-$400,000, depending on the project's MW produced, is required.[103] The deposit can be refunded up to 90%, and if a project withdraws, the remaining money will go to any restudies that may occur due to the project's withdraw-

81. *See id*. at i.
82. Fox, *supra* note 19.
83. *See* Letter from Wendy B. Warren, *supra* note 47, at 29. *See also* Jason Connell & Susan McGill, PJM, Interconnection Process Overview 9-12 (2020), https://www.pjm.com/-/media/committees-groups/task-forces/iprtf/postings/interconnection-process-overview.ashx (providing further information on the three studies performed by PJM during the interconnection queue process).
84. *See* Energy Transition in PJM, *supra* note 9.
85. *See* Letter from Wendy B. Warren, *supra* note 47, at 12.
86. *See id*. at 29.
87. *Id*. at 61.
88. *See id*. at 29. PJM's reforms "group[ ] projects in three-phase Cycles for purposes of studying and allocating costs"; projects will only move forward if they meet the requisite information required in each phase. *Id*. at 7. At the end of each phase, a project developer has the option to withdraw based on the results of the studies. *See* Order Accepting Tariff Revisions Subject to Condition, 181 FERC ¶ 61162, at 6-7 (Nov. 29, 2022).
89. Letter from Wendy B. Warren, *supra* note 47, at 48 n.149.
90. *See* Jack Thomas, PJM, Interconnection Process Reform 20 (2022), https://www.pjm.com/-/media/committees-groups/committees/mc/2022/20220427/20220427-item-01a-1-interconnection-process-reform-presentation.ashx.
91. *See* Order Accepting Tariff Revisions Subject to Condition, 181 FERC ¶ 61162 (Nov. 29, 2022).
92. *See* Letter from Wendy B. Warren, *supra* note 47, at 21.
93. *See id*.
94. *See id*. at 34.
95. *See id*. at 21.
96. *See id*.
97. *See id*. at 1.
98. *See id*. at 32. Projects in the expedited process do not have to provide readiness deposits beyond this amount, but they are required to pay actual study costs as the projects are evaluated under the serial process. *See id*.
99. Order Accepting Tariff Revisions Subject to Condition, 181 FERC ¶ 61162, at 7 (Nov. 29, 2022). The cost allocation of network upgrades for Phase I is 10%, Phase II is 20%, and Phase III is 100%. *See id*.
100. *See id*.
101. *See id*. at 7-8.
102. *Id*.
103. *See* Letter from Wendy B. Warren, *supra* note 47, at 43-44.

al.[104] After the initial study deposit, the readiness deposits will follow the same deposit structure as the transition rules, requiring an initial readiness deposit and a deposit at each decision point.[105] Implementing several deposits that increase in value throughout the interconnection queue will deter unprepared projects from continuing their journey in the already backlogged system.

4. Site Control Requirements

The last major reform PJM is implementing is its site control requirements.[106] A project developer can show site control in several ways, including "a deed, lease, or option for at least a one-year term beginning from the Transition Date."[107] Before the current reforms, PJM only required a showing of site control during the initial new service request.[108] There was no requirement to maintain this site control, allowing unprepared projects to move forward in the queue without any proof of site control. Under the transition rules, Transition Cycles #1 and #2 must show site control at the initial new service requests, and Decision Points I and III.[109] These requirements do not apply to projects in the expedited process.[110] The new rules require the same showing of site control as Transition Cycles #1 and #2.[111]

The site control reforms require a developer to submit a new service request, showing 100% site control for "(1) the generating facility site; or (2) the site of the high-voltage, direct current converter station(s), phase angle regulator, and/or variable frequency transformer, as applicable, for a merchant transmission facility."[112] At Decision Point I, the developer must continue to show 100% site control for the generating facility, and also provide 50% site control "for interconnection facilities for a one-year term."[113] The last site control requirement, at Decision Point III, requires a project developer to show 100% site control for the generating facility and 100% site control for the interconnection facilities for an extended time frame of three years.[114] Implementing two additional site control requirements at Decision Points I and III will require project developers to continue their site control, increasing the preparedness of these projects to connect to the grid.

The four reforms previously discussed are intended to create more preparation on the part of project developers and to increase the number of renewable energy projects connecting to the grid. However, whether these reforms will reduce the backlog enough to replace retiring energy sources and meet climate goals is unclear.

D. MISO's Interconnection Queue Reforms

Like PJM and other energy providers, MISO—another large U.S. grid operator—suffers from a years-long backlog in its interconnection queue.[115] In 2001, MISO became the first RTO in the nation and has provided energy to several states in the Midwest.[116] MISO's geography expanded in 2013 to southern portions of the United States.[117] Through this expansion, MISO is the largest geographic RTO in the United States, spanning 900,000 square miles.[118]

MISO's geographic size is not the only significant characteristic; it has recently undergone a new set of revisions to its tariff. MISO submitted these revisions to FERC on November 3, 2023,[119] and on January 19, 2024, FERC partially approved and partially rejected these revisions.[120] The approved revisions will apply to new service requests submitted on or after January 22, 2023.[121]

Comparing PJM's and MISO's interconnection reforms as they are approved and implemented will provide helpful lessons for RTOs and other grid operators considering reforms to their interconnection procedures. To give an accurate comparison, the following components of MISO's new tariff will be discussed: (1) the first-ready, first-served evaluation system; (2) milestone payments; (3) automatic withdrawal penalties (AWPs); and (4) site control requirements.

1. First-Ready, First-Served Project Evaluation

MISO's new reforms do not implement a first-ready, first-served process because this process has already been in place since 2008.[122] Similar to PJM, the goal of this process is to "establish queue priority based not upon the date of the interconnection request but when the study has been commenced and processed through the initial study process."[123]

104. *See id.*
105. *See* Order Accepting Tariff Revisions Subject to Condition, 181 FERC ¶ 61162 (Nov. 29, 2022).
106. *See* PJM, PJM Manual 14G: Generation Interconnection Requests 27 (rev. 8, 2023), https://www.pjm.com/-/media/documents/manuals/m14g.ashx (providing PJM's instructions for showing site control).
107. Letter from Wendy B. Warren, *supra* note 47, at 31.
108. *See id.* at 21.
109. *See id.* at 12.
110. *See id.*
111. *See id.* at 21.
112. Order Accepting in Part and Rejecting in Part Tariff Revisions, 186 FERC ¶ 61054 (Jan. 19, 2024).
113. *Id.*
114. *See id.*
115. *See* Rand et al., *supra* note 14, at 27.
116. *See* MISO, *MISO History 101*, https://www.misoenergy.org/meet-miso/miso-history/ (last visited July 7, 2024).
117. *See id.*
118. *Compare* Sustainable FERC Project, *Navigating MISO*, https://sustainable-ferc.org/navigating-miso/ (last visited July 7, 2024), *with* PJM, PJM—At a Glance (2024), https://www.pjm.com/-/media/about-pjm/newsroom/fact-sheets/pjm-at-a-glance.ashx (noting that PJM only covers 368,906 square miles).
119. *See* Letter from Jesse Moser, Senior Corporate Counsel, MISO, to Kimberly D. Bose, Secretary, FERC, re: Midcontinent Independent System Operator, Inc. Revisions to the Open Access Transmission, Energy, and Operating Reserve Tariff Generator Interconnection Procedures Improvements Filing Docket No. ER24-____-000 (Nov. 3, 2023).
120. *See* Order Accepting in Part and Rejecting in Part Tariff Revisions, 186 FERC ¶ 61054 (Jan. 19, 2024).
121. *See id.*
122. *See* FERC, Improvements to Generator Interconnection Procedures and Agreements, Docket No. RM22-14-000, at 2 (July 28, 2023).
123. *Id.* at 12.

Since 2017, MISO has implemented a three-part Definitive Planning Phase (DPP) for their study process.[124]

2. Milestone Payments

Instead of readiness deposits, MISO implemented milestone payments in 2012.[125] However, as shown by MISO's existing backlog,[126] these payments were not an adequate deterrent for unprepared projects. As a result, MISO's new reforms increase each milestone payment. The M2 payment, paid for when an application is submitted, has increased from $4,000 to $8,000 per MW.[127]

Additionally, the M3 payment has increased "from 10% of the cost of network upgrades identified in the preliminary system impact study (less the amount provided as M2) to the greater of 20% of this amount (less M2) or $1,000 per MW."[128] The M4 payment has increased "from 20% of the costs of network upgrades identified in the revised system impact study (less M2 and M3) to 30% of this amount (less M2 and M3)."[129] MISO's substantial increase in required payments may be able to reduce the number of projects entering the queue or prevent unprepared projects from staying in the queue.

3. AWPs

Unlike the first-ready, first-served evaluation process and milestone payments, MISO did not previously impose AWPs.[130] These penalties are being implemented through the approval of the revised tariff. Any money MISO receives from these penalties will be allocated to customers impacted by the withdrawal.[131]

The withdrawal penalties align with the following schedule: from DPP I until the end of Decision Point I, there is a penalty of 10% of the M2 payment; from this point until the end of Decision Point II, the penalty increases to 35% of the M2 payment; from the end of this period and until the end of Decision Point III, the penalty again increases to 75% of the M2 payment; and lastly, once generator interconnection agreement (GIA)[132] negotiations begin, 100% of the M2 payment would be due as a result of the withdrawal.[133] The increasing penalties at each step of the interconnection queue process may incentivize unprepared projects to withdraw from the queue earlier, eliminating the number of projects waiting and the amount of resources allocated to unprepared projects.

4. Site Control Requirements

MISO is also changing the requirements for a project's site control.[134] Under the existing procedures, 100% site control is required for the generating facility before the DPP process begins or, as an alternative, a payment of $10,000/MW can be submitted.[135] This 100% site control must be maintained at Decision Point II.[136] Last, when the GIA is executed, the 100% site control for the generating facility must be confirmed along with the addition of 50% "site control for Interconnection Customer's Interconnection Facilities ('ICIF'), Transmission Owner's Interconnection Facilities ('TOIF'), and Network Upgrades."[137]

Under the new reforms, before DPP I begins, applicants must show site control "for at least 50% of the mileage of the generating facility's interconnection facilities or, in lieu of such site control, financial security in the amount of $80,000 per line mile of right-of-way on a straight-line basis."[138] The financial security will be refunded if a project later meets this site control requirement or if the project subsequently withdraws its application.[139] This requirement did not exist under MISO's pre-reform procedures.[140]

MISO's second site control requirement occurs at the end of Decision Point II, and the applicant must show the site control required at DPP I as well as "50% site control for the site on which a switchyard will be located," if requested by MISO.[141] Lastly, before a GIA is com-

124. *See* Order Accepting in Part and Rejecting in Part Tariff Revisions, 186 FERC ¶ 61054 (Jan. 19, 2024). *See also* Jasmin Melvin, *FERC Clears MISO Interconnection Reforms Targeting Recent Influx in Speculative Projects*, S&P Glob. (Dec. 4, 2019), https://www.spglobal.com/commodityinsights/en/market-insights/latest-news/electric-power/120419-ferc-clears-miso-interconnection-reforms-targeting-recent-influx-in-speculative-projects (defining "DPP" as the points "when MISO determines the need for transmission network upgrades to accommodate interconnection of new generation facilities").
125. *See* Order Accepting in Part and Rejecting in Part Tariff Revisions, 186 FERC ¶ 61054 (Jan. 19, 2024) (describing "milestone payments" as payments required at specific times throughout DPP process).
126. *See* Rand et al., *supra* note 14, at 27.
127. *See* Order Accepting in Part and Rejecting in Part Tariff Revisions, 186 FERC ¶ 61054, at 16 (Jan. 19, 2024).
128. *Id.*
129. *Id.*
130. *See id.* AWPs are penalties imposed when a project withdraws from the interconnection queue once a DPP cycle has begun. *See* Maxwell Multer, *FERC Approves MISO Interconnection Queue Reforms, Rejects Overall Queue Cap*, POWER Mag. (Feb. 2, 2024), https://www.powermag.com/ferc-approves-miso-interconnection-queue-reforms-rejects-overall-queue-cap/ ("The AWP is calculated as a percentage of [a] project's M2 milestone payment increasing based on the timing of the withdrawal, starting at 10% prior to the end of Decision Point I, up to 100% after the start of [generator interconnection agreement (GIA)] negotiations.").
131. *See* Order Accepting in Part and Rejecting in Part Tariff Revisions, 186 FERC ¶ 61054, at 23 (Jan. 19, 2024).
132. A GIA allows an applicant to finally interconnect to the grid. *See* MISO, *Generator Interconnection and Retirement*, https://www.misoenergy.org/planning/resource-utilization/generator-interconnection (last visited July 7, 2024).
133. *See* Order Accepting in Part and Rejecting in Part Tariff Revisions, 186 FERC ¶ 61054, at 22 (Jan. 19, 2024).
134. An applicant can show site control through a document that describes "(1) ownership of a site; (2) a leasehold interest in a site; (3) an option to purchase or acquire a leasehold interest in a site; or (4) any other contractual or legal right to possess or occupy a site." MISO, *supra* note 67, attach. X.
135. *See* Letter from Jesse Moser, *supra* note 119 (noting that a project developer will pay a minimum of $500,000 and a maximum of $2,000,000 for this payment).
136. *See id.* at 10.
137. *Id.*
138. Order Accepting in Part and Rejecting in Part Tariff Revisions, 186 FERC ¶ 61054 (Jan. 19, 2024).
139. *See id.*
140. *See* Letter from Jesse Moser, *supra* note 119, at 20.
141. Order Accepting in Part and Rejecting in Part Tariff Revisions, 186 FERC ¶ 61054 (Jan. 19, 2024).

pleted or within 180 days of its effective date, MISO can request 100% site control for all interconnection facilities.[142] MISO hopes these updated site control requirements will prevent "easy withdrawals by Interconnection Customers that have not made adequate commitments towards their proposal."[143]

These four areas in MISO's interconnection procedures provide a suitable comparison to the reforms taken by PJM. Even though most of MISO's procedures were implemented before its most recent reforms in 2024, such as the first-ready, first-served evaluation process, it shows how MISO's backlog continued even after these procedures were implemented. The new reforms highlight why interconnection queue reforms must be strict; if not, they will continue to prevent renewable energy projects from connecting to the grid.

II. The Next Step for Interconnection

Based on an evaluation of the recent reforms taken by PJM and MISO, this part recommends five further reforms that PJM should undergo to resolve its interconnection queue backlog. It will show why further interconnection reforms are needed and analyze potential solutions outside of interconnection queue procedures to help implement renewable energy projects. Under Order 2023, PJM and other grid operators were required to engage in interconnection reforms.[144] The proposed reforms in this Article would align with Order 2023 while ensuring sustainability of interconnection queues beyond FERC's requirements.

While several operators have already reformed their interconnection procedures, such as transitioning to a first-ready, first-served, or similar process,[145] some providers have not engaged in this process.[146] Additionally, energy providers can contemplate whether to implement the remaining proposed reforms. The proposed reforms will reduce the existing queue backlog for grid operators and potentially eliminate any repeated attempts at reform. Interconnection queues can then approve more renewable projects for grid connection.

A. *Recommendations for Further Reforming PJM's Interconnection Queue*

PJM's 2023 reforms will not solve the backlog in the interconnection queue. These reforms fail to accelerate new service requests at a rate that will reduce project wait times, and the reforms do not adequately deter unprepared projects from lingering in the queue. Under the existing reforms, renewable energy projects will still fail to become operational in time to mitigate climate change.

Therefore, PJM must undergo further reforms. These reforms include: (1) reducing the time taken to analyze projects under the transition rules and new rules; (2) implementing penalties on PJM for failing to comply with study timelines; (3) decreasing site control requirements; (4) increasing readiness deposit amounts; and (5) establishing AWPs. The last three recommendations will draw comparisons from MISO's 2024 reforms. PJM must take drastic action to remedy the years-long backlog in the queue, and these recommendations for further reform are key.

1. Reducing the Timeline to Apply the Transition Rules and New Rules

PJM's reforms address interconnection procedures under three groups: pre-reform procedures, transition rules, and new rules.[147] However, updated reforms, like the first-ready, first-served approach, will not be used until Transition Cycles #1 and #2.[148] These procedures will help minimize the backlog, but will not be implemented until after new service requests are completed in the first phase and part of the second phase.[149] Because of the extensive bottleneck of new service requests in the current PJM queue, this timeline does not implement corrective procedures fast enough.

Even though the new rules are the procedures most likely to help solve the backlog, PJM will not even begin to address new service requests under these rules until 2026.[150] Additionally, those new service requests date back to 2021.[151] When the new rules are finally implemented and the moratorium is lifted, PJM will have to address new service requests dating back five years, from 2021-2026. Even if these reforms decrease the time for a new service request to go through the queue, it is unlikely to make up for the projected five-year delay. As a result, several states within the PJM region will fail to meet their 2030 renewable portfolio standards (RPS).[152] PJM must eventually reduce its existing backlog, so the current timeline for implementing these reforms must be reduced.

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142. *See id.*
143. Letter from Jesse Moser, *supra* note 119, at 20.
144. *See* Improvements to Generator Interconnection Procedures and Agreements, 88 Fed. Reg. 61014, 61015 (Nov. 6, 2023) (to be codified at 18 C.F.R. pt. 35). The purpose of the rule is to "(1) implement a first-ready, first-served cluster study process; (2) increase the speed of interconnection queue processing; and (3) incorporate technological advancements into the interconnection process." *Id.*
145. MISO has had this process since 2017. Order Accepting in Part and Rejecting in Part Tariff Revisions, 186 FERC ¶ 61054 (Jan. 19, 2024). ISO-New England has a "first-cleared, first-served" process that groups projects together. *See* FERC, Improvements to Generator Interconnection Procedures and Agreements, Docket No. RM22-14-000, at 2 (June 16, 2022). In 2009, SPP modified its Generator Interconnection Procedures to implement a "first-ready, first-served" approach to its processing of interconnection requests. FERC, Motion for Leave to Answer and Answer of Southwest Power Pool, Inc., Docket No. ER14-781-000, at 2 (Feb. 4, 2014).
146. *See* New York ISO, The NYISO Interconnection Process 4 (2023), https://www.nyiso.com/documents/20142/35688159/2023-NYISO-Interconnection-Process-Report.pdf (noting that NYISO has not made a transition to studying projects in a group).
147. *See* Letter from Wendy B. Warren, *supra* note 47, at 8.
148. *See id.* New service requests in the expedited process will not be evaluated in a cluster even though they are under the transition rules. *See id.* at 12.
149. *See id.* at 8.
150. *See id.* at 6.
151. *See id.* at 34.
152. *See id.* at 10 ("[T]he predicted pace of renewable buildout just barely meets aggregate RPS demand in PJM before 2030 . . . and some states will only technically meet minimum standards through 2027.").

PJM should increase its timeline to implement the new rules. This acceleration can occur by eliminating the second phase of new service requests, the transition rules, thereby analyzing requests submitted after March 2018 under the new rules. While PJM created this three-phase system to adequately reduce the backlog in the queue while balancing the interests of projects that want to be "grandfathered" into the existing procedures, the former concern should outweigh the latter.[153]

PJM attempted to create this balance by splitting the transition rules into two groups.[154] It justified this sharp cutoff by explaining that grandfathering every project in the AE1 through the AG1 queue window, rather than just those in the expedited process, would "add an additional 90,000 MW of projects to be studied under the existing, 'flawed' serial process."[155] While PJM could justify splitting how projects are studied under the transition rules, it did not explain why all projects under the transition rules could not be examined under the first-ready, first-served cluster approach. Requiring all projects under the transition rules to be analyzed under the new rules would allow developers to reap the benefits of the cluster study approach, likely saving costs as well as time.

In comparison to PJM, MISO also did not apply its reforms to all existing applicants. This may provide evidence that allowing current applicants to go through the queue under existing procedures is important,[156] especially because any further changes to the tariff would require FERC approval. However, attaining FERC approval should not be a great concern. PJM would have to submit another proposal to revise its tariff, but PJM can adequately prepare for this by making projections based on how long FERC's approval took in 2022. PJM submitted its proposal on June 14, 2022, and received approval on November 29, 2022.[157]

Accordingly, PJM can proactively plan for a five-month delay before receiving approval.[158] Obtaining another approval by FERC for a tariff revision may therefore not be a substantial hurdle. It is also important for other regional grid operators to understand FERC's relatively speedy approval process, showing providers that they can swiftly revise their interconnection procedures for further reform.

A less extreme reform to PJM's implementation timeline would be to change the procedures under the transition rules and require projects in the expedited process to be evaluated under the cluster study approach, rather than a serial approach.[159] Because this change would not be as drastic, it is likely to gain FERC approval and still allow the substantial benefit of projects being grouped in a cluster, thereby reducing the time projects are in the queue. The projects in the expedited process are still considered in the second phase, like those in Transition Cycles #1 and #2,[160] so the argument that these applicants should be grandfathered in under the prior procedures is less persuasive.

These projects are also already evaluated as a cluster to initially determine their network upgrade costs, so it is feasible to evaluate these projects in a cluster beyond this step in the queue procedures.[161] However, as the studies progress, further subgrouping may be required. Grouping these studies in a cluster will decrease the time it takes PJM to review the new service requests. PJM's backlog for new service requests is substantial, so it needs to take further measures to implement the new reforms faster.

2. Implementing Penalties on PJM for Late Approvals

PJM itself bears a heavy burden to complete the requisite studies for a project to move forward in the queue.[162] However, most of PJM's reforms impose greater burdens on the project developers, such as increased deposits and site requirements.[163] Generally, these reforms create a lack of accountability for PJM to complete these studies on a timely basis. Instead, PJM is held to a vague, "reasonable efforts" standard to complete the phases of the interconnection queue.[164] Under its reforms, PJM will attempt to "complete the first phase within 120 days, and the second and third phases within 180 days, respectively."[165] However, this standard of accountability is not enough. Currently,

153. Order Accepting Tariff Revisions Subject to Condition, 181 FERC ¶ 61162 (Nov. 29, 2022).
154. *See* Letter from Wendy B. Warren, *supra* note 47, at 11-12.
155. Order Accepting Tariff Revisions Subject to Condition, 181 FERC ¶ 61162 (Nov. 29, 2022).
156. *See* Order Accepting in Part and Rejecting in Part Tariff Revisions, 186 FERC ¶ 61054 (Jan. 19, 2024) ("MISO proposes that all interconnection requests for which the application deadline to enter the DPP is on or after January 22, 2024 will be subject to the revised Tariff requirements . . . .").
157. *See* Order Accepting Tariff Revisions Subject to Condition, 181 FERC ¶ 61162 (Nov. 29, 2022).
158. PJM could extend its five-month timeline for receiving approval to six or seven months in case FERC extends the approval process. Additionally, PJM can review other operators' reform timelines for receiving FERC approval and adjust the timeline accordingly. For example, MISO submitted its proposal on November 3, 2023, and received approval on January 19, 2024, a two-month window. *See* Order Accepting in Part and Rejecting in Part Tariff Revisions, 186 FERC ¶ 61054 (Jan. 19, 2024).
159. *See* Letter from Wendy B. Warren, *supra* note 47, at 12.
160. *See id.*
161. *See id.* at 11-12.
162. *See* Order Accepting Tariff Revisions Subject to Condition, 186 FERC ¶ 61162 (Nov. 29, 2022).
163. See discussion *supra* Sections I.C.3 and I.C.4.
164. Order Accepting Tariff Revisions Subject to Condition, 186 FERC ¶ 61162 (Nov. 29, 2022). *See also* PJM, Definitions—R-S, https://www.pjm.com/-/media/committees-groups/subcommittees/ders/20180521/20180521-item-05-oatt-definitions-r-s-redline.ashx (defining "reasonable efforts" as "timely and consistent with Good Utility Practice and with efforts that such party would undertake for the protection of its own interests"). A "good utility practice" is defined as

> any of the practices, methods and acts engaged in or approved by a significant portion of the electric utility industry during the relevant time period, or any of the practices, methods and acts which, in the exercise of reasonable judgment in light of the facts known at the time the decision was made, could have been expected to accomplish the desired result at a reasonable cost consistent with good business practices, reliability, safety and expedition.

PJM, *Operating Agreement: Definitions G-H*, https://agreements.pjm.com/oa/4534 (last visited July 7, 2024).
165. Order Accepting Tariff Revisions Subject to Condition, 186 FERC ¶ 61162 (Nov. 29, 2022).

no penalties are imposed on PJM for taking 120 days or 1,200 days to complete these phases.[166]

PJM should be incentivized to move these projects through the interconnection queue as quickly as possible while complying with a high evaluation standard. PJM has already determined its timeline for adequate evaluation at each phase.[167] Therefore, any day beyond the 120- or 180-day determination should require a penalty. A penalty would conform with Order 2023, where FERC eliminated the "reasonable efforts" standard.[168] In its place, FERC has implemented study delay penalties for a specified monetary amount.[169] A penalty amount would provide a greater incentive for PJM to meet deadlines.

If monetary penalties do not adequately incentivize FERC to complete studies on time, for every day that PJM goes over its projected date, it could reduce the time to complete phases later in the process. For example, if PJM took 125 days to complete the first phase, it could be required to shorten the timeline by five days at some point in the next two phases. This would provide PJM flexibility between study phases while creating a strict conformance timeline overall. Reforming PJM's interconnection queue procedures must affect project developers to ensure the project is ready for connection, but it must also incentivize PJM to move projects through the queue quickly.

3. Following in MISO's Footsteps

As introduced in Section I.D, MISO has undergone several rounds of reforms with its tariff. As such, it indicates whether PJM's current reforms will be enough to solve the interconnection queue backlog. PJM's current reforms parallel MISO's tariff before its most recent reform approval in several ways.[170] Because these tariffs were so similar, it shows how PJM can learn from MISO. MISO's prior procedures were insufficient to reduce its backlog, so it had to take further steps. PJM should create further reforms to mimic MISO's most recent reforms because it is clear the prior reforms were insufficient to reduce the backlog. To do so, PJM should increase its readiness deposits, decrease site control requirements, and establish AWPs.

☐ *Increasing readiness deposits*. PJM should parallel its readiness deposit structure with MISO's milestone payments by increasing the deposit amounts. Increased deposits are more likely to deter unprepared projects from entering or remaining in the interconnection queue. Under the transition rules and new rules, PJM requires applicants to pay an initial readiness deposit of $4,000/MW and a study deposit.[171] While MISO previously required $4,000 per application, it increased the amount to $8,000/MW.[172] Currently, there is a $4,000/MW disparity between PJM's first readiness deposit and MISO's M2 payment. However, under the New Rules, PJM also requires a study deposit.[173]

While PJM's two deposits may account for any disparity between PJM's and MISO's requirements, this will only be the case for projects with a 100-MW or lower capacity.[174] Therefore, any unprepared projects that are predicted to produce more than 100 MW will not be deterred by PJM's readiness deposits to the same extent as MISO's M2 payment. To adequately prevent unprepared projects from entering the queue, PJM should increase its first readiness deposit to $8,000/MW and retain its initial study deposit.

PJM's remaining deposits mirror MISO's prior payments. However, MISO has increased their M3 and M4 payments by 10%.[175] Accordingly, PJM should do the same. Since 2012, MISO has had payment amounts similar to PJM's current requirements,[176] and after a decade, these payments were not enough to deter unprepared projects from remaining in the queue. PJM must learn from MISO and implement an increased deposit structure that adequately deters projects from entering the queue.

☐ *Decreasing site control requirements*. PJM aims to incentivize unprepared projects to withdraw from the queue before too many resources are expended on the project.[177] However, PJM must be careful not to disincentivize viable projects from leaving the queue. PJM's increased site control requirements under its reforms may be taking viable projects out of the queue, hindering the goal of connecting renewable projects to the grid and reducing the impacts of climate change.

PJM should follow a more lenient standard, like MISO's,[178] for site control requirements by lowering the required site control percentage. Specifically, PJM should reduce its interconnection facilities site control to 50% at Decision Point III. Several interested parties agree with reducing the site control requirement, arguing that late-

166. *See id.* (explaining how parties argue against PJM's stringent requirements when PJM does not impose this same standard of accountability on itself).
167. *See id.*
168. *See* Improvements to Generator Interconnection Procedures and Agreements, 88 Fed. Reg. 61014, 61147 (Nov. 6, 2023) (to be codified at 18 C.F.R. pt. 35).
169. *See id.* While FERC's adoption of penalties includes exceptions, the penalty structure generally ranges from $1,000-$2,500 per business day, depending on the study being conducted. *See id.*
170. *Compare* Order Accepting in Part and Rejecting in Part Tariff Revisions, 186 FERC ¶ 61054 (Jan. 19, 2024), *with* Order Accepting Tariff Revisions Subject to Condition, 186 FERC ¶ 61162 (Nov. 29, 2022).
171. *See* Letter from Wendy B. Warren, *supra* note 47, at 32.
172. *See* Order Accepting in Part and Rejecting in Part Tariff Revisions, 186 FERC ¶ 61054 (Jan. 19, 2024).
173. *See id.* at 43-44.
174. Because the maximum amount of a study deposit is $400,000, there is currently a disparity between PJM's and MISO's payments of $4,000. When dividing these amounts, only projects that produce fewer than 100 MW will pay the equivalent of MISO's payments at $8,000/MW. However, that is only if the project must pay the $400,000 study deposit. This is unlikely for most projects because the study deposit amount varies by the MW size of the project, and only the largest projects will pay the maximum amount of $400,000 for the study deposit. *See* Order Accepting in Part and Rejecting in Part Tariff Revisions, 186 FERC ¶ 61054 (Jan. 19, 2024).
175. *See id.*
176. *See id.*
177. *See* Letter from Wendy B. Warren, *supra* note 47, at 21.
178. MISO requires 50% site control for interconnection facilities in DPP Phases I and II. *See* Order Accepting in Part and Rejecting in Part Tariff Revisions, 186 FERC ¶ 61054 (Jan. 19, 2024). MISO only requires 100% site control before the end of the GIA negotiation period. *See id.*

stage negotiations that change interconnection are common and developers should not be penalized.[179]

PJM should reduce these site control requirements to more adequately balance the needs of viable projects to attain site control and incentivize unprepared projects to withdraw from the queue. However, PJM should not go as far as MISO in providing financial payment alternatives in place of site control requirements.[180] Site control is important in determining whether a project should be interconnected to the grid. Allowing developers to stall their evidence of site control at the outset of the queue does not help eliminate projects that are not viable. Developers should be incentivized to have site control at every point in the interconnection queue, but the developers should not be penalized late in the process for minor changes.

☐ *Establishing AWPs*. Unlike MISO, PJM does not require withdrawal penalties if a project withdraws from the queue.[181] However, PJM does provide projects with a refund if the project is deemed terminated at certain points within the interconnection queue.[182] While these refunds ease the burden of a project leaving the queue if it is not ready to connect to the grid, outside of the readiness deposits, PJM fails to implement withdrawal penalties. PJM should include a withdrawal penalty, similar to MISO's,[183] by automatically keeping a certain percentage of the readiness deposit because, as the name suggests, these projects were not ready.

Project developers would be further incentivized to ensure their projects can connect to the grid. Any unprepared projects that withdraw can have the penalty amount distributed among affected projects. Distributing these amounts to affected projects that remain in the queue will also reduce the potential cascading effect of several projects withdrawing because they were not anticipating the added network upgrade costs. Projects should not be penalized based on unforeseen circumstances, such as a substantial increase in network upgrade costs, that result in a project being terminated. But projects should be penalized if the decision to withdraw is irrespective of study findings.

To adequately reduce the backlog in PJM's interconnection queue, the five recommendations previously discussed should be implemented. These recommendations are summarized in Table 3, along with a comparison to the current procedures implemented under PJM's and MISO's most recent reforms.

B. *Interconnection Solutions Beyond the Queue*

While interconnection queues significantly impede the connection of renewables to the grid, action can be taken outside of the queue to improve interconnection generally. Surviving the interconnection queue is only the first step for project developers to provide energy to consumers. However, this first step can be less daunting if regional grid operators take proactive measures to help ease the interconnection process.

In Order 1920, FERC has acknowledged the need for long-term transmission planning to remedy issues with the grid.[184] MISO provides a prime example of two proactive measures undertaken to aid transmission: (1) completing transmission studies with other RTOs on connecting projects to the grid, and (2) providing projects that have essential benefits to the community with cost-sharing benefits. This section explores these examples and suggests other measures RTOs and FERC can take to increase the connection of renewable projects to the grid.

1. Engaging in Joint Transmission Studies With Other RTOs

A key element for easing pressures on interconnection queues is to support the construction of new transmission lines. This reduces the pressure on existing lines to accommodate new generation projects. RTOs can help support the construction of new transmission lines by identifying priority transmission projects and mechanisms for allocating the costs of new projects among utilities that use transmission lines, in accordance with Order 1920.

In 2020, MISO partnered with Southwest Power Pool (SPP) to conduct a study that located transmission projects to minimize the "limitations restricting the opportunity to interconnect new generating resources near the MISO-SPP seam."[185] The study also identified distinctions in the procedures between SPP and MISO to help "align the interconnection processes . . . to reduce restudies/delays for interconnection customers impacted by the coordination of affected system studies.[186] The study focused on the seam—the geographic area that borders both MISO's and SPP's boundaries—because recent studies emphasized how this area is increasingly difficult to connect generating

179. *See* Order Accepting Tariff Revisions Subject to Condition, 181 ¶ FERC 61162, at 35 (Nov. 29, 2022):

> American Clean Power argues that a project developer may need to exercise an option agreement related to a parcel of land for an additional year to finalize the route of a generator tie line prior to interconnecting the facility to PJM's transmission system, or a project developer may need to address a previously unknown title issue with a single landowner along the proposed route of the generator tie line.

180. *See* Order Accepting in Part and Rejecting in Part Tariff Revisions, 186 FERC ¶ 61054 (Jan. 19, 2024).
181. See discussion *supra* Section I.C.
182. *See* Order Accepting Tariff Revisions Subject to Condition, 181 FERC ¶ 61162 (Nov. 29, 2022). MISO also provides a refund of previously paid milestone payments if network upgrade costs have increased by a certain percentage. Order Accepting in Part and Rejecting in Part Tariff Revisions, 186 FERC ¶ 61054 (Jan. 19, 2024).
183. See discussion *supra* Section I.D.3.
184. *See* Building for the Future Through Electric Regional Transmission Planning and Cost Allocation, 89 Fed. Reg. 49280, 49280 (June 11, 2024) (to be codified at 18 C.F.R. pt. 35). Order 1920 went into effect on August 12, 2024.
185. MISO & SPP, *supra* note 31, at 2. The study took a year and a half to complete from the initial stakeholder meeting until the final report was reviewed. *See id*. at 6 (detailing the study's schedule, which can be used as a helpful guide for future providers interested in conducting a similar study).
186. MISO & SPP, Technical Report 4 (2022), https://www.spp.org/documents/66725/jtiq%20report.pdf.

Table 3. Recommendations Compared to Current Procedures

Category of Reform	Proposed Reform	PJM Reforms	MISO Reforms
Applicable rules on applications	Pre-reform procedures: applications submitted before April 2018 New rules: applications submitted from April 2018 until present	Pre-reform procedures: applications submitted before April 2018 Transition rules: applications submitted from April 2018 until September 2021 and expedited process for projects with upgrades < $5 million New Rules: applications submitted from October 2021 until March 31, 2022	New procedures: applications submitted on or after January 22, 2024
Penalties on RTO	Penalty if PJM completes Phase I in more than 120 days and/or Phase II in more than 180 days Monetary penalties or a reduction in time for PJM to complete a later phase of the interconnection queue could be imposed	None; only reasonable efforts for PJM to complete Phase I of the interconnection queue within 120 days and Phase II within 180 days	N/A
Readiness deposit	Initial deposit: $8,000/MW and initial study deposit Decision Point I: 20% of the cost of network upgrades Decision Point II: 30% of the cost of network upgrades Decision Point III: 100% of the cost of network upgrades	Initial deposit: $4,000/MW (transition rules and new rules) Study deposit not more than $400,000 (new rules) Decision Point I: 10% of the cost of network upgrades Decision Point II: 20% of the cost of network upgrades Decision Point III: 100% of the cost of network upgrades	M2 payment: $8,000/MW M3 payment: 20% of the cost of network upgrades or $1,000 per MW, whichever is less M4 payment: 30% of the cost of network upgrades
Site Control	Application submission: 100% site control for generating facility or site of high-voltage, phase angle regulator, and/or frequency transformer Decision Point I: site control required at application and 50% site control for interconnection facilities for > 1 year Decision Point III: 50% interconnection facilities site control	Application submission: 100% site control for generating facility or site of high-voltage, phase angle regulator, and/or frequency transformer Decision Point I: site control required at application and 50% site control for interconnection facilities for > 1 year Decision Point III: 100% site control for generating and interconnection facilities for > 3 years	Before DPP I: site control of 50% of the mileage of the generating facility's interconnection facilities or deposit of $80,000/line mile DPP II: site control under DPP I and 50% site control on switchyard site Before completion of GIA: 100% site control of interconnection facilities

Table 3 continued on next page

Table 3. Recommendations Compared to Current Procedures (cont'd)

Category of Reform	Proposed Reform	PJM Reforms	MISO Reforms
AWP	Before Decision Point I: 10% penalty of initial deposit Before Decision Point II: 35% penalty of readiness deposit Before Decision Point III: 75% penalty of readiness deposit After Decision Point III: 100% penalty of readiness deposit	None	At completion of: Decision Point I: 10% penalty of M2 payment Decision Point II: 35% penalty of M2 payment Decision Point III: 75% penalty of M2 payment During GIA negotiations: 100% penalty of M2 payment

resources, especially for renewable resources that may be located far from areas that demand electricity.[187] As a result of the study, seven projects were identified to help develop generation along the impacted area.[188] MISO predicted that these projects will benefit 28,325 MW of additional generation interconnection while SPP projected 53,481 MW.[189]

Because these projects will have an estimated cost of $1.65 billion, cost allocation was a major concern, especially because network upgrades are often too costly for projects to bear individually or in a small group.[190] While MISO and SPP are continually working on the cost allocation method, currently 100% of the cost of the projects "will be allocated to Interconnection Customers," while operations and maintenance costs "will be borne by the constructing zone."[191] MISO has projected, based on their current queue, that there will be enough generation to cover these costs.[192] These projects are estimated to have an adjusted production cost benefit of $724.2 million for MISO and $246.74 million for SPP.[193]

Even though the identified projects have not been completed, the joint efforts between MISO and SPP can be used as a guideline to help regional grid operators increase transmission availability for renewable projects. Because MISO and SPP have identified the seam as a crucial area to increase transmission, other providers, such as PJM, should work with their neighboring regional entities to provide transmission along their geographic seams. For example, PJM could engage in joint studies between its two bordering grid operators: the New York Independent System Operator (NYISO) and MISO.[194] Because MISO has already engaged in a joint study, MISO may be better suited as an initial partner to help ease any prior roadblocks encountered in the joint study with SPP.

If RTOs and ISOs engage in these studies, the interconnection process can become more streamlined for projects attempting to enter more than one entity's queue. The joint study between MISO and SPP also identified critical transmission projects for renewable projects to provide energy to customers.[195] The price tag on additional transmission is high, but identifying specific areas where transmission is necessary for renewable projects can have long-standing benefits. These studies can also identify projects that will reduce expensive upgrade costs on individual renewable projects that already have a lower energy generation than fossil fuel projects.[196] These joint studies allow RTOs and ISOs to expand upon their interconnection queue reforms and to help projects connect to the grid proactively.

2. Planning for Transmission Projects Through Multi-Value Projects

In conjunction with joint studies, transmission planning is crucial because all projects require transmission lines to bring energy to consumers.[197] Every regional transmission provider must now conduct long-term transmission planning for a minimum period of 20 years, in accordance with

187. MISO & SPP, *supra* note 31, at 3.
188. *Id.* at 2.
189. MISO & SPP, *supra* note 186, at 7.
190. *See id.* at 1-2 (detailing the cost breakdown among projects in Table 1).
191. MISO, JTIQ Cost Allocation 3 (2024), https://cdn.misoenergy.org/20240123%20RECBWG%20Item%2002a%20Cost%20Allocation%20Update631435.pdf.
192. *See id.* at 9.
193. *See* MISO & SPP, *supra* note 31, at 2.
194. *See* FERC, *supra* note 32.
195. *See* MISO & SPP, *supra* note 31, at 3.
196. *See id.* at 17; *see also* Press Release, IRENA, Renewables Competitiveness Accelerates, Despite Cost Inflation (Aug. 29, 2023), https://www.irena.org/News/pressreleases/2023/Aug/Renewables-Competitiveness-Accelerates-Despite-Cost-Inflation.
197. *See* Claire Lang-Ree & Natalie McIntire, *What PJM Can Learn From MISO About Transmission Planning*, NRDC (Jan. 9, 2024), https://www.nrdc.org/bio/claire-lang-ree/what-pjm-can-learn-miso-about-transmission-planning.

Order 1920.[198] MISO can provide a useful example of long-term transmission planning to help other providers comply with Order 1920.

MISO began its transmission planning process in 2011 through the Multi-Value Planning process.[199] Through this process, MISO develops multi-value projects (MVPs) that meet one of three transmission goals: (1) "[r]eliably and economically enable regional public policy needs"; (2) "[p]rovide multiple types of regional economic value"; or (3) "[p]rovide a combination of regional reliability and economic value."[200] If a project meets one of these three goals, the project can engage in cost-sharing benefits.[201]

Instead of a project individually incurring the cost of transmission upgrades, the cost of the MVPs is spread across one of MISO's subregions—the Midwest or the South.[202] This process differs slightly from the postage stamp cost allocation method, which would divide costs across the entire MISO region based on "load in and exports."[203] The goal of the postage stamp method and MISO's quasi-postage stamp method is to apportion the costs of a facility equitably among users.[204] Both cost allocation methods would comply with Order 1920 and Order 1000.[205]

Historically, the burden of paying for network upgrades has been substantial on operating projects, especially renewable projects, and projects in the interconnection queue.[206] A cost allocation method that shares costs among projects will increase the number of feasible projects. PJM should implement a transmission planning system to identify projects that meet PJM's long-term goals. As a benefit to the project developers, these projects can receive cost-sharing benefits.

MISO has shown the benefits of the cost allocation method. In 2022, 18 MVPs were approved, and these projects will implement transmission lines to support "53,000 Megawatts (MW) of new renewable energy resource[s]" with a cost benefit of $37 billion over 20 years.[207] The advantages of the 18 MVPs were evaluated together, helping to "capture[ ] the combined benefits of all the lines working together and that every state benefits from the transmission."[208] PJM should engage in this proactive planning, and because PJM will start to evaluate projects through a cluster analysis,[209] it will have the tools to follow MISO's evaluation approach. MVPs will allow PJM to identify viable projects crucial to its transmission system and minimize one of the greatest burdens on project developers—cost.

PJM cannot continue to evaluate projects based solely on reliability[210]; it must create a futuristic mindset. Joint studies and transmission planning will help PJM successfully bring energy to consumers for years. Using MISO as an example can also minimize potential barriers that PJM may face. PJM is responsible for a major issue facing the implementation of renewable energy: the interconnection queue backlog. PJM must implement queue reforms and provide sustainable energy in the future by including initiatives that extend beyond the queue.

3. Federal Authority to Aid Construction of Transmission Lines

Transmission substantially burdens renewable projects, especially when building new transmission lines.[211] FERC must allow new transmission lines to be timely built. To increase siting approval, FERC should capitalize on its power to approve siting in areas designated as national interest electric transmission corridors (NIETCs).

Siting transmission lines can be difficult because all levels of government are involved, creating many processes and approval requirements for a project developer to comply with.[212] While states have substantial authority to approve or disapprove the siting of transmission lines,[213] the Federal Power Act allows FERC to exclusively approve transmission siting if the geographic area is considered an

198. *See* Fact Sheet, FERC, Building for the Future Through Electric Regional Transmission Planning and Cost Allocation (May 13, 2024), https://www.ferc.gov/news-events/news/fact-sheet-building-future-through-electric-regional-transmission-planning-and.
199. *See* Cullen Howe, *MISO Plans for a Clean Energy Future*, NRDC (Mar. 25, 2022), https://www.nrdc.org/bio/cullen-howe/miso-plans-clean-energy-future.
200. MISO, *Multi-Value Projects (MVPs)*, https://www.misoenergy.org/planning/multi-value-projects-mvps/#t=10&p=0&s=Updated&sd=desc (last visited July 7, 2024) [hereinafter *MVPs*]. *See* MISO, FERC Electric Tariff Transmission Expansion Planning Protocol attach. FF, §II.C (2023), https://www.misoenergy.org/globalassets/planning/mtep/attachment_ff_-_transmission_expansion_planning_protocol-2.pdf [hereinafter FERC Electric Tariff] (detailing the requirements for MVPs).
201. *See MVPs*, *supra* note 200.
202. *See* FERC Electric Tariff, *supra* note 200, attach. FF, §II.C.
203. *Id. See* Stephen M. Spina, *FERC Upholds Postage Stamp Cost Allocation Methodology*, Morgan Lewis (Apr. 3, 2012), https://www.morganlewis.com/pubs/2012/04/energy_lf_fercupholdspostagestampmethodology_03april12 (noting that FERC first endorsed the postage stamp cost allocation method in 2012).
204. *See* Spina, *supra* note 203.
205. *See* Claire Wayner, RMI, Understanding FERC's Order 1920 (2024), https://rmi.org/wp-content/uploads/dlm_uploads/2024/06/ferc_order_1920_factsheet_updated.pdf; *see also* Transmission Planning and Cost Allocation by Transmission Owning and Operating Public Utilities, 76 Fed. Reg. 49842, 49937 (Aug. 11, 2011) (to be codified at 18 C.F.R. pt. 35) ("The cost of transmission facilities must be allocated to those within the transmission planning region that benefit from those facilities in a manner that is at least roughly commensurate with estimated benefits.").
206. *See* Fox, *supra* note 19.
207. Press Release, Clean Grid Alliance, Clean Grid Alliance Applauds MISO for Approving 18-Line Transmission Plan That Will Support 53 GW of Renewables (July 25, 2022), https://cleangridalliance.org/press/73/clean-grid-alliance-applauds-miso-for-approving-18-line-transmission-plan-that-will-support-53-gw-of-renewables; *see MVPs*, *supra* note 200.
208. *See* Lang-Ree & McIntire, *supra* note 197.
209. *See* Letter from Wendy B. Warren, *supra* note 47, at 29.
210. *See* Lang-Ree & McIntire, *supra* note 197.
211. *See* FERC, *Explainer on the Transmission Notice of Proposed Rulemaking*, https://www.ferc.gov/explainer-transmission-notice-proposed-rulemaking (last updated July 14, 2022).
212. *See Transmission Siting and Permitting Efforts*, DOE Grid Deployment Off., https://www.energy.gov/gdo/transmission-siting-and-permitting-efforts (last visited July 7, 2024).
213. *See* Alexandra Klass et al., *Grid Reliability Through Clean Energy*, 74 Stan. L. Rev. 969 (2022) ("[E]lectric utilities and other actors who wish to build transmission lines, including interstate lines spanning several states, must obtain a siting certificate from each state's [public utilities commission] and navigate the vagaries of divergent state laws—many of which actively impede reliability and clean-energy goals.").

NIETC.[214] An NIETC designation occurs if "the Secretary [of Energy] finds that consumers are harmed by a lack of transmission in the area and that the development of new transmission would advance important national interests in that area, such as increased reliability and reduced consumer costs."[215] The Bipartisan Infrastructure Law (BIL) expanded FERC's authority to approve the siting of new transmission lines in NIETCs even if states denied or delayed approval.[216]

While there are currently no NIETC designations, the U.S. Department of Energy has released guidance for designation and is currently seeking recommendations from the public on this process.[217] Phase II of the designation process will include a list of potential areas that could be designated as an NIETC.[218] FERC should proactively monitor the list and prepare information relevant to siting transmission lines in these areas.

Once NIETC designations occur, FERC will then be ready to use its newly enhanced power to approve the siting of transmission lines in these areas. However, before the BIL, FERC's power to designate NIETCs was challenged in the courts, so FERC should be prepared for new challenges to its authority, even with the U.S. Congress' express grant of power under the BIL.[219] FERC's new siting approval authority will help minimize the burden and delays associated with transmission siting, allowing more projects to connect to the grid.

FERC should fully use its authority to site transmission lines. This action should be undertaken because, as previously noted, transmission is a large impediment to approving and constructing renewable projects. Without transmission lines, renewable energy cannot connect to the grid and will cease to be a tool for mitigating and fighting climate change.[220] Several initiatives must be taken, ranging from transmission planning and siting to interconnection queue procedures, to enhance the ability of renewable energy projects to connect to the grid. FERC and regional grid operators can implement these recommendations to lessen the burden on connecting renewable energy projects.

III. Conclusion

Climate change will continue to have disastrous effects on the United States until people reduce its impacts. Renewable energy must become a major part of the country's energy profile. To do so, interconnection queues must be reformed to connect renewable projects to the grid within the necessary time frame. Several regional grid operators, including PJM and MISO, are attempting to reform their queues in compliance with Order 2023. But will FERC's requirements surrounding interconnection queues and transmission planning be enough to mitigate climate change?

PJM has overhauled its tariff, hoping to reduce the backlog in its queue, but its reforms mirror MISO's pre-reform procedures. Because MISO engaged in further reforms after their prior procedures were not enough to remedy the overwhelming number of projects in its queue, the characteristics of PJM's reforms that are similar to MISO's prior initiatives are also unlikely to be enough. Regional grid operators across the United States have not taken adequate measures to "fix" the queue.

Not only will engaging in the five reforms recommended in this Article ensure compliance with Order 2023, they will help to reduce the number of projects and the time for projects to complete the queue beyond FERC's requirements. These providers must also pair these five recommendations with proactive measures surrounding transmission, such as joint studies and transmission planning, to streamline the interconnection process.

FERC, through Order 1920, provided a glimpse of how transmission providers can plan proactively. The recommended measures in this Article produce specific actions providers can take to comply with Order 1920. Regional grid operators, project developers, and FERC each have a role to play in connecting renewable projects to the electric grid and providing a solution to climate change.

214. *See National Interest Electric Transmission Corridor Designation Process*, DOE Grid Deployment Off., https://www.energy.gov/gdo/national-interest-electric-transmission-corridor-designation-process (last visited July 7, 2024) (defining "NIETCs" as "areas where electricity limitations, congestion, or capacity constraints are adversely affecting electricity consumers and communities").
215. *Id.*
216. *Id.*
217. *See January 3 National Interest Electric Transmission Corridor (NIETC) Designation Process Final Guidance Informational Webinar*, DOE Grid Deployment Off. (Jan. 3, 2024, 1:00 PM), https://www.energy.gov/gdo/events/january-3-national-interest-electric-transmission-corridor-nietc-designation-process.
218. Notice of Availability of Guidance on Implementing the Federal Power Act to Designate National Interest Electric Transmission Corridors, 89 Fed. Reg. 909 (Jan. 8, 2024).
219. *See* Klass et al., *supra* note 213, at 1039-40.
220. *See* Occupational Safety and Health Administration, *Electric Power Generation, Transmission, and Distribution eTool*, https://www.osha.gov/etools/electric-power/illustrated-glossary/transmission-lines (last visited July 7, 2024).