

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Innovations and Efficiencies in Generator
Interconnection

Docket No. AD24-9-000

SECOND SUPPLEMENTAL NOTICE OF STAFF-LED WORKSHOP

(August 14, 2024)

As first announced in the Notice of Staff-Led Workshop issued in this proceeding on May 13, 2024, as supplemented on June 27, 2024, pursuant to 18 C.F.R. § 2.1(a), the Federal Energy Regulatory Commission (Commission) will convene a staff-led workshop in the above-referenced proceeding at Commission headquarters, 888 First Street, NE, Washington, DC 20426 on Tuesday, September 10, 2024 and Wednesday, September 11, 2024 from approximately 9:00 a.m. to 5:00 p.m. Eastern time. The conference will be webcast.

Attached to this Second Supplemental Notice is an agenda for the workshop, which includes a final workshop program and expected speakers. The Commissioners may attend and participate in the workshop.

Panelists are asked to submit advance materials to provide written answers to the questions presented for their respective panel and any further information (e.g., summary statements, reports, whitepapers, studies, or testimonies) that panelists believe should be included in the record of this proceeding. Panelists should file all advance materials in the AD24-9-000 docket by August 26, 2024.

Discussions at the workshop will not address compliance with Commission Order No. 2023¹ or any pending Order No. 2023 compliance filings. While the intent of the workshop is not to focus on any specific matters before the Commission, in the event that panelist materials or discussions focus on topics at issue in proceedings currently pending before the Commission, a further notice will be issued to identify those proceedings.

¹ *Improvements to Generator Interconnection Procs. & Agreements*, Order No. 2023, 184 FERC ¶ 61,054, *order on reh'g*, 185 FERC ¶ 61,063 (2023), *order on reh'g*, Order No. 2023-A, 186 FERC ¶ 61,199 (2024).

An additional supplemental notice will be issued following the workshop with the opportunity for interested parties to submit post-workshop comments.

The workshop will be open to the public to attend virtually or in person and there is no fee for attendance. Information will also be posted on the Calendar of Events on the Commission's website,² prior to the event. Attendees are requested to register through the Commission's website on or before August 26, 2024. Registration will help ensure that Commission staff can provide sufficient physical and virtual facilities and to communicate with attendees in the case of unanticipated emergencies or other changes to the conference schedule or location. Access to the conference (virtual or in-person) may not be available to those who do not register by August 26.

The workshop will be transcribed, and transcripts will be available for a fee from Ace Reporting (202-347-3700). A link to the webcast of this event and its recording will be available in the Commission Calendar of Events at www.ferc.gov. The Commission provides technical support for the free webcasts. Please call 202-502-8680 or email customer@ferc.gov if you have any questions.

Commission conferences are accessible under section 508 of the Rehabilitation Act of 1973. For accessibility accommodations please send an email to accessibility@ferc.gov or call toll free (866) 208-3372 (voice) or (202) 502-8659 (TTY), or send a fax to (202) 208-2106 with the required accommodations.

For further information about this workshop, please contact:

Sarah McKinley (Logistical Information)
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² <https://www.ferc.gov/news-events/events/innovations-and-efficiencies-generator-interconnection-workshop-docket-no-ad24-9>.

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Debbie-Anne A. Reese,
Acting Secretary

Staff-Led Workshop on Innovations and Efficiencies in Generator Interconnection

**Docket No. AD24-9-000
September 10 and 11, 2024**

September 10 Agenda: Innovations

9:00 am – 9:15 am: Welcome and Opening Remarks

9:15 am – 11:45 am: Innovations Panel 1: Integrated Transmission Planning and Generator Interconnection

This panel will discuss the extent to which transmission planning and generator interconnection processes may be further integrated beyond the reforms adopted in Order No. 1920.³ This panel will explore ideas to more efficiently and proactively plan for and interconnect new generation with increased cost certainty.

Questions

1. Can efficiencies be gained through closer integration of generator interconnection processes with transmission planning processes? If so, how? What considerations need to be taken into account? What are the advantages/disadvantages, including impacts on consumers, to closer integration of these processes?
2. How might transmission providers more proactively, rather than reactively, identify zones where new transmission capacity could most efficiently accommodate proposed generating facilities?
3. What mechanisms may be appropriate for transmission providers to use to determine the cost responsibility for such proactively planned network upgrades? Is it appropriate for any such costs to be allocated to load and if so, why? If it is appropriate, how should such costs be allocated between load and interconnection customers both: a) in regions that use participant funding, i.e., where interconnection customers are directly assigned network upgrade costs and b) in regions that do not use participant funding, i.e., where load is assigned network upgrade costs? What are the advantages/disadvantages, including impacts on consumers, of varying approaches to cost responsibility?
4. Where the costs exceed estimates for such proactively planned network upgrades, what are some approaches transmission providers could use to

³ *Building for the Future Through Electric Regional Transmission Planning and Cost Allocation*, Order No. 1920, 187 FERC ¶ 61,068 (2024).

address concerns regarding ensuring adequate funding? For any given approaches proposed to ensure adequate funding, would these mechanisms increase or decrease the time and/or costs required to interconnect new resources, and how would this impact interconnection customers?

Panelists:

- **Beth Garza** – *Senior Fellow, R Street Institute*
- **Arash Ghodsian** – *Vice President, Transmission & Policy, Invenergy*
- **John Michael Haggerty** – *Principal, The Brattle Group*
- **Natasha Henderson** – *Senior Director of Grid Asset Utilization, Southwest Power Pool*
- **Aubrey Johnson** – *Vice President of System Planning, Midcontinent Independent System Operator, Inc.*
- **David Mindham** – *Director of Regulatory and Market Affairs, EDP Renewables North America*
- **Zach Smith** – *Senior Vice President, System Resource Planning, New York Independent System Operator*

11:45 pm – 12:45 pm: Lunch

12:45 pm – 2:30 pm: Innovations Panel 2: Exploring Different Approaches to Processing and Studying Generator Interconnection Requests

This panel will focus on the viability and utility of different approaches to organizing, processing, and studying generator interconnection requests. Examples include a “connect and manage” process where interconnection requests for Energy Resource Interconnection Service (ERIS) may be interconnected more quickly and at lower cost than interconnection requests for Network Resource Interconnection Service (NRIS), the use of competitive mechanisms (such as an auction process) to allocate scarce capacity or to resolve competition for the same point of interconnection, as well as other potential approaches.

Questions:

1. Please discuss the advantages and disadvantages of making ERIS, which requires the proposed generating facility to mitigate overloads through network upgrades to allow the generating facility to operate at full output (albeit without the deliverability analysis that NRIS entails), more like the approach used in the region managed by the Electricity Reliability Council of Texas (ERCOT), sometimes referred to as a “connect and manage” approach, which

- curtains the generating facility in the study model when needed to minimize network upgrades at the cost of risking real-time curtailments and subsequently identifies necessary network upgrades through the transmission planning process.
2. How could elements of the ERCOT “connect and manage” approach be incorporated into the current structure of Commission-jurisdictional markets and *pro forma* generator interconnection procedures and agreements?
 - a. Could customers interconnecting under this type of approach eventually increase their deliverability or reduce curtailments, such as by later converting to NRIS? How would this conversion be accomplished?
 - b. In the context of RTO/ISO markets, how would an RTO/ISO account for resources’ differing levels of interconnection service (e.g., “connect and manage” versus NRIS or its equivalent) and any associated capacity rights when dispatching resources pursuant to security-constrained economic dispatch?
 3. What other approaches could build on the *pro forma* generator interconnection procedures and agreements adopted in Order No. 2023 to more efficiently organize interconnection queues and process interconnection requests?
 - a. Should transmission providers proactively identify zones where there is currently available transmission capacity or new transmission capacity due to planned transmission facilities and provide information on these zones to interconnection customers? If so, how should transmission providers identify these zones and how should they communicate that information to interconnection customers?
 - b. If transmission providers identify zones, as described in (a) above, should auctions be used to assign queue positions or allocate excess transmission capacity in those zones? What other approaches could be considered?
 - c. How could such procedures ensure that generator interconnection service is consistent with open access principles and is provided in a manner that is not unduly discriminatory or preferential?

Panelists:

- **Liz Delaney** – *Vice President of Utility-Scale Policy and Business Development*, New Leaf Energy, Inc.
- **Jennifer Galaway** – *Senior Manager of Regional Transmission Development & Interconnection Services*, Portland General Electric
- **Dr. Warren Lasher** – *President*, Lasher Energy Consulting LLC
- **Tyler H. Norris** – *James B. Duke Fellow & Ph.D. Student*, Duke University
- **Matt Picardi** – *Vice President of Regulatory Affairs*, Shell Energy North America

- **Aaron Vander Vorst** – *Head of Growth Strategy and Transmission*, Enel North America
- **Andy Witmeier** – *Director of Resource Utilization*, Midcontinent Independent System Operator, Inc.
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2:30 pm – 2:45 pm: Break

2:45 pm – 4:30 pm: Innovations Panel 3: Prioritizing Certain Generator Interconnection Requests

This panel will examine whether certain proposed generator interconnection requests may be prioritized in the interconnection queue without undue discrimination, building on the use of first-ready, first-served cluster window deadlines and readiness milestones as adopted by Order No. 2023.

Questions:

1. Are there any viable, not unduly discriminatory methods for further prioritization of interconnection requests to increase queue efficiency and ensure just and reasonable rates?
2. Would prioritization of interconnection requests selected in open competitive resource solicitations over other interconnection requests that are not similarly selected add efficiency to the generator interconnection process? How would this type of prioritization affect the alignment of transmission planning, resource solicitation, and generator interconnection processes? Under such a prioritization, must an open competitive solicitation process meet certain requirements to avoid infringing on the Commission's open access transmission requirements?
3. Should interconnection requests for new generating facilities submitted to replace existing generating facilities at existing points of interconnection (replacement generation) have priority in the transmission provider's processing of its interconnection queue over the interconnection of new generating facilities at new points of interconnection? If so, are there conditions that should be required for such prioritization of replacement generation, for example, a finding by the transmission provider that the replacement generation allows for a faster or lower-cost interconnection as compared to the interconnection of new generating facilities at new points of interconnection?

4. Should interconnection requests from proposed new generating facilities that meet certain resource adequacy or reliability needs have priority over other interconnection requests for new generating facilities?

Panelists:

- **Eric Blank** – *Chairman, Colorado Public Utilities Commission*
- **Joshua Burkholder** -- *Managing Director of Integrated Resource Planning, American Electric Power Company, Inc.*
- **Jason Burwen** – *Vice President of Policy and Strategy, GridStor*
- **Mike Calviou** – *Senior Vice President of US Policy & Regulation, National Grid*
- **Adrien Ford** – *Wholesale Market Development Director, Constellation Energy Generation, LLC*
- **Danielle Osborn Mills** – *Principal of Infrastructure Policy Development, California ISO*

4:30 pm – 4:45 pm: Closing Remarks

September 11 Agenda

9:00 am – 9:15 am: Welcome and Opening Remarks

9:15 am – 11:45 am: Efficiencies Panel 1: Further Efficiencies in the Generator Interconnection Process

This panel will evaluate the potential for increased efficiency throughout the generator interconnection process as revised in the Commission’s Order No. 2023⁴ (excluding topics covered in Efficiencies Panels 2 and 3), such as providing additional pre-application data to interconnection customers to allow for more efficient decision-making or establishing fast-track processes for interconnection requests at points of interconnection with fewer transmission system constraints.

Questions:

1. What specific types of additional pre-application data provided to interconnection customers would facilitate greater efficiencies in the application phase and the rest of the generator interconnection process?
 - a. How would these types of data be helpful to interconnection customers?
 - b. Are there inefficiencies or complications associated with providing these types of additional pre-application data?
2. Regarding potential fast-track processes:
 - a. Of the existing fast-track processes, such as California ISO’s independent study process, which work well? What about them could be improved or emulated to achieve greater efficiencies?
 - b. For interconnection requests that have little or minimal impact on existing transmission capacity, should there be a fast-track process or other prioritization method?
3. What types of remedial or mitigation mechanisms could address instances where inadvertent oversights or technical difficulties result in milestone failures, and interconnection customers do not learn of these issues in time to file a waiver request? In such instances, where good faith and a significant consequence to not meeting the particular milestone are also present, how may transmission providers modify their tariffs to reach a balanced resolution that

⁴ *Improvements to Generator Interconnection Procs. & Agreements*, Order No. 2023, 184 FERC ¶ 61,054, *order on reh’g*, 185 FERC ¶ 61,063 (2023), *order on reh’g*, Order No. 2023-A, 186 FERC ¶ 61,199 (2024).

enhances the stability of the interconnection process while also ensuring that only viable generating facilities remain in the queue?

4. What other opportunities exist to increase the efficiency of the existing generator interconnection procedures and agreements?

Panelists:

- **Chris Barker** – *Managing Director, Transmission & Grid Integration*, Clearway Energy Group
- **Donnie Bielak** – *Director, Interconnection Planning*, PJM Interconnection, LLC
- **Jonathan E. Canis** – *General Counsel*, Oceti Sakowin Power Authority
- **Brian Fitzsimons** – *CEO*, GridUnity, Inc.
- **Caitlin Marquis** – *Managing Director*, Advanced Energy United
- **Joe Rand** – *Energy Policy Researcher*, Lawrence Berkeley National Laboratory
- **Martin Wyspianski** – *Vice President of Electric Engineering, Electric Asset Management*, Pacific Gas and Electric Company

11:45 pm – 1:00 pm: Lunch

12:45 pm – 2:30 pm: Efficiencies Panel 2: Automation and Advanced Computing Technologies

This panel will assess opportunities for greater efficiency in the processing and study of interconnection requests by automating different steps in the process and using advanced computing technologies, such as artificial intelligence, to shorten the timeline from interconnection request to generator interconnection agreement.⁵

Questions:

1. Please describe the different steps in the generator interconnection process that may be automated and your experience automating these steps, including data entry, base case model building, running power flow studies, and identifying solutions. How can automation reduce errors, improve study repeatability and transparency, or address workforce needs?
2. Are you using AI tools in your generator interconnection processes? Are these AI tools part of or separate from your work on automation? What have been the advantages and disadvantages of adopting these AI tools? Looking across the electric power industry, how common is the use of AI tools?

⁵ Artificial intelligence (AI) is a broad term for a spectrum of tools ranging from simple data validation to more sophisticated machine learning and statistical modeling, to advanced deep learning and generative AI.

3. Looking across the electric power industry, how common is automation in the different steps of the generator interconnection process (e.g., model building) today? What do you think are the main challenges to broader adoption of automation? Do the Commission's existing regulatory frameworks and/or utility processes present any impediments in these areas? If so, what are the impediments? What role can the Commission play in supporting the adoption of automation in the generator interconnection process? What reforms, if any, would you recommend that the Commission consider pursuing to facilitate greater automation in the processing and study of interconnection requests?
4. Recognizing that a lack of standardized data inputs and outputs can create challenges, how can automation reduce variability between studies done by a given transmission provider or reduce variability of studies between transmission providers?
5. In developing the base case model, what role can automation play to address rapidly changing load forecasts or to improve the coordination of generator interconnection and transmission planning?

Panelists:

- **David Bromberg** – *Co-Founder and CEO*, Pearl Street Technologies
- **Cody Doll** – *Sr. Manager of Transmission Business Management*, at NextEra Energy Resources
- **Andrew Martin** – *Co-Founder and Transmission Lead*, Nira Energy
- **Anton Ptak** – *Director of Transmission and Interconnection*, EDF Renewables
- **Jennifer Swierczek** – *Manager Generator Interconnection*, Southwest Power Pool

2:30 pm – 2:45 pm: Break

2:45 pm – 4:30 pm: Efficiencies Panel 3: Post-Generator Interconnection Agreement Construction Phase

This panel will focus on the time period after execution of a generator interconnection agreement (GIA), or its filing unexecuted, through the commercial operation date (COD). Topics include opportunities for greater efficiency, transparency, and accountability in cost and time estimates for interconnection facilities and network upgrades, as well as identifying other problems that contribute to delays, such as supply chain issues, which may benefit from organized cooperation among stakeholders.

Questions:

1. What are the primary cost and timing concerns arising during the period between execution, or unexecuted filing, of a GIA and the COD? To the extent that cost increases and delays for interconnection facilities and network

- upgrades are becoming more frequent, what are the primary drivers of those issues?
2. Are there productive ways to increase transparency around construction plans and progress of interconnection facilities and network upgrades, such as CAISO's quarterly forum to track the status of network upgrades, SPP's quarterly transmission project tracking report, or California's newly instated metrics for tracking distribution-level interconnection timeframes? What construction metrics for interconnection facilities and network upgrades would be most informative? How much documentation is reasonable and not unduly burdensome?
 3. Are there new approaches to sourcing equipment for interconnection facilities and network upgrades that could be more efficient? What safeguards would need to be in place for engineering, procurement, and construction work for such facilities to begin earlier? Is there a way to pool equipment purchasing or risk? Are there efficiencies that may be achieved by standardizing engineering, procurement, or construction of interconnection facilities and network upgrades? Would pooling procurement of equipment provide manufacturers with the certainty needed to increase their manufacturing capacity thereby reducing lead times?
 4. Are there efficiencies that may be gained by enhancing internal transmission owner or RTO/ISO procedure, increasing staffing, or by opening up interconnection facility studies and/or interconnection facility construction work to contractors? How can the interconnection study process be better aligned with interconnection customer-initiated processes, such as permitting for the generating facility and generator equipment procurement?

Panelists:

- **Lionel Chailleux** – *Senior VP, Market Development North America, Hitachi Energy.*
- **Matthew Crosby** – *Senior Director, Grid Integration, Cypress Creek Renewables*
- **Neil Millar** – *Vice President of Infrastructure and Operations Planning Organization, California ISO*
- **Jing Shi** – *Managing Director of Renewable Integration, Duke Energy*
- **Carrie Zalewski** – *Vice President of Transmission and Electricity Markets, American Clean Power Association*

4:30 pm – 4:45 pm: Closing Remarks