

**UNITED STATES OF AMERICA  
BEFORE THE  
FEDERAL ENERGY REGULATORY COMMISSION**

Innovations and Efficiencies in Generator Interconnection )      Docket No. AD24-9-000

**COMMENTS OF THE AMERICAN COUNCIL ON RENEWABLE ENERGY**

The American Council on Renewable Energy (“ACORE”) submits these comments in response to the Federal Energy Regulatory Commission’s (“FERC” or “Commission”) September 12 *Notice Requesting Post-Workshop Comment* and September 30 *Notice of Extension of Time* in the above captioned docket.

ACORE is a national nonprofit organization that unites finance, policy and technology to accelerate the transition to a clean energy economy. Our membership includes investors, developers, manufacturers, utilities, corporate buyers of renewable power, and professional services firms.

**I. Introduction**

ACORE commends the Commission for holding these workshops and the panelists for their informative presentations and discussion. The submitted materials and discussion demonstrate that additional improvements to the interconnection process are needed beyond those required in Order 2023. Fortunately, there are many options for such reforms, a number of which are being implemented or developed to differing degrees by at least one Regional Transmission Organization/Independent System Operator (RTO/ISO).

With dramatically increasing forecasts for electricity demand and over two terawatts of generation and storage waiting in the interconnection queues, it is essential that the Commission

continue its efforts to catalyze such interconnection reforms. However, ACORE does not recommend the Commission initiate a supplemental rulemaking. These workshops and the submitted materials provide a wealth of information and an additional rulemaking would only further delay such interconnection improvements. Instead, to advance further reforms, ACORE recommends that the Commission wield its “soft power” to encourage RTO/ISOs experiencing significant queue delays to prioritize the pursuit of proposed queue reforms that meaningfully address the underlying causes of their backlogged queues and avoid exacerbating resource adequacy concerns or the uncertainty facing interconnection customers. Such options include:

- Issuing Policy Statements to guide transmission provider practices and filings under Section 205 of the Federal Power Act (FPA) and establish clear policy objectives (i.e., the treatment of ERIS in studies; identification of queue management best practices with respect to the use of automation and advanced computing; and non-discriminatory criteria for queue prioritization mechanisms, as discussed further in these comments.)
- Identifying opportunities to issue selective FPA Section 206 proceedings directing individual transmission providers experiencing significant queue delays to undertake specific reforms.
- Enhancing RTO/ISO reporting of interconnection practices and regular technical conferences or workshops to share and promote best practices.

The remaining comments address the specific reforms discussed at the workshop, including where the above categories of actions would be warranted.

## II. Coordination of Long-Term Transmission Planning and Interconnection Needs (Day 1, Panel 1)

In ACORE’s comments on the Commission’s Notice of Proposed Rulemaking that led to Order 2023, we stated that the interconnection process “reforms will not be sufficient without the requisite expansion of the transmission system and the incorporation of interconnection needs through comprehensive transmission planning.”<sup>1</sup> This fundamental concern remains to be addressed. Grid Strategies, LLC and The Brattle Group reiterated in their August 2024 paper, *Unlocking America’s Energy - How to Efficiently Connect New Generation to the Grid*, that “most transmission providers do not actively integrate interconnection studies with long-term, proactive transmission planning, instead relying on an inefficient, piecemeal approach to expanding the grid.”<sup>2</sup> Order 1920 contained many beneficial provisions but did not sufficiently address the inclusion of interconnection-related transmission needs in regional transmission planning.<sup>3</sup>

The continuation of current siloed practices not only disadvantages the interconnection of needed new generation and storage but also increases consumer costs. For example, John Michael Hagerty of the Brattle Group noted that a proactive planning process will “reduce total customer costs and allow new resources to efficiently enter the system,”<sup>4</sup> Similarly, the pre-

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<sup>1</sup> Comments of the American Council on Renewable Energy (ACORE) on Improvements to Generator Interconnection Procedures and Agreements, Docket No. RM22-14 (Oct. 13, 2022) at 2.

<sup>2</sup> Grid Strategies LLC & The Brattle Group, *Unlocking America’s Energy - How to Efficiently Connect New Generation to the Grid* (August 2024) (“Unlocking America’s Energy”).

<sup>3</sup> See *Request for Rehearing and Clarification of the Clean Energy Associations*, Building for the Future Through Electric Regional Transmission Planning and Cost Allocation Docket No. RM21-17-001 (June 12, 2024)

<sup>4</sup> Pre-Workshop Comments of John Hagerty, The Brattle Group, at 22.

workshop comments of the R Street Institute stated that “this improved efficiency translates into major cost reductions for network upgrades, which consumers ultimately pay for, either directly or indirectly.”<sup>5</sup> Arash Ghodsian of Invenergy Transmission and David Mindham of EDP Renewables both pointed out how the absence of an identification of backbone transmission needs for projects in the queue often leads to funding such transmission through network upgrades, which in turn causes interconnection customers to leave the queue when faced with such significant costs – as a result these core transmission projects are not always built.<sup>6</sup>

A recent Massachusetts Institute of Technology paper<sup>7</sup> identified several examples of beneficial practices in Europe and Australia, in contrast to the United States:

In Europe, a specific example is the offshore wind development in the North Sea. Transmission is proactively built by national system operators, and once completed, developers compete through a bidding process for long-term contracts that, among other things, guarantees access to the grid. This approach has led to a boom in offshore wind capacity. In Australia, the policy response to increase hosting capacity is Renewable Energy Zones (REZs). REZs are regions characterized by good wind and solar resources that are identified by the regional governments in collaboration with the system operator and for which proactively (consumer-funded) transmission investment at scale is done.

By contrast, in the US, it is left to developers to decide where and when to site new projects and determine network upgrades without considering how changes to the transmission grid could be implemented to rationalize those grid additions.

Two additional considerations for this integrated approach are:

- Advanced transmission technologies, such as Grid Enhancing Technologies (GETs) and high-performance conductors, must also be fully incorporated into such coordinated

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<sup>5</sup> Pre-Workshop Comments of the R Street Institute at 2.

<sup>6</sup> Comments of David Mindham, EDP Renewables North America LLC at 2; Comments of Arash Ghodsian, Invenergy Transmission LLC at 2.

<sup>7</sup> Armstrong, et al., *Can federal grid reforms solve the interconnection problem?*, Science, Vol. 385 Issue 67045 (July 2024)

transmission planning. Several panelists noted that GETs can play an important role in developing nearer-term capacity expansion needed to bring resources on-line.<sup>8</sup>

- Merchant transmission developers can play an important role and should be allowed to propose projects that support generator interconnection.<sup>9</sup>

The importance of comprehensive planning arose in multiple other panels demonstrating that it is a backbone for multiple queue reforms.

### **III. Greater Certainty for Interconnection Customers (Day 1, Panel 1)**

A second bedrock issue for improving the interconnection process is the need for greater upfront certainty – especially regarding interconnection costs and timelines to connect. Greater certainty creates benefits not just for interconnection customers but for consumers through reduced costs and improved reliability as more resources are brought onto the grid in a timely and cost-effective manner. Interconnection customers are not asking for a risk-free process, as some panelists stated, but a reasonable amount of certainty that supports more advanced planning for materials procurement, site selection, and purchased power arrangements.

An important tool for establishing such certainty and creating more efficiency in the interconnection process is an “entry fee,” which establishes a binding payment per megawatt of an interconnecting resource. The development of such a fee is enabled by a forward-planned transmission grid with the assignment of a portion of the cost of that comprehensively planned

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<sup>8</sup> Beth Garza, R Street Institute, Day One Tr. at 45 and 60; David Mindham, EDP Renewables North America LLC, Day One Tr. at 60-61; Arash Ghodsian, Invenergy Transmission LLC, Day One Tr. at 63; John Hagerty, The Brattle Group, Day One Tr. at 64.

<sup>9</sup> Comments of Arash Ghodsian, Invenergy Transmission LLC at 3.

transmission to the interconnection customers. As explained by Chris Barker of Clearway Energy:

In brief, an entry fee would shift the identification of network upgrade costs and indicative timelines to *before* projects enter the queue so that interconnection customers know upfront how much it will cost to interconnect. It would do so by better integrating transmission planning processes with generator interconnection by pre-planning and identifying network upgrades and Interconnection Facilities to support a likely portfolio of new resources.<sup>10</sup>

The use of an entry fee has broad benefits, not only for project developers, by producing a more efficient overall interconnection process by screening out the least-ready projects. David Mindham explained that “the high level of cost certainty allows generators to make informed decisions significantly earlier in the interconnection process, reducing the need to have projects in the queue for long periods of time”<sup>11</sup> and Ian Black of ENGIE North America Inc. explained that such an entry fee may increase “the likelihood that the project is at an advanced level of development before the project enters the queue.”<sup>12</sup>

ACORE therefore recommends that the Commission issue a policy statement establishing best practices for both a coordinated planning process and the development of an entry fee or similar mechanism.

ACORE continues to support more fundamental reforms to the allocation of interconnection costs that fully account for the benefits of transmission resulting from the network upgrades. Natasha Henderson of the Southwest Power Pool (SPP) correctly noted that

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<sup>10</sup> Testimony of Chris Barker, Clearway Energy Energy Group at 4. Also see *Unlocking America’s Energy* at 23-35.

<sup>11</sup> David Mindham, EDP Renewables North America LLC at 2.

<sup>12</sup> Statement of Ian Black, ENGIE North America Inc. at 5.

“we haven't really scratched the surface of the full value of transmission in terms of what it means to keep the lights on.”<sup>13</sup>

#### **IV. Transparency and Consistency of Data and Studies (Day 2, Panel 1)**

A third fundamental cross-cutting reform is providing greater transparency and consistency for the study methodologies and interconnection data. ACORE therefore supports the following two short-term goals of the Department of Energy’s i2X Transmission Interconnection Roadmap:<sup>14</sup>

Solution 1.1: Improve the scope, accessibility, quality, and standardization of data on projects already in interconnection queues, including project attributes, cost estimates, and post-IA information.

Solution 1.2: Enhance the scope, timeliness, accuracy, and consistency of interconnection study models and modeling assumptions that transmission providers make available to interconnection customers.

DOE explains the importance of greater data transparency as helping to “improve interconnection customers’ ability to screen and site potential projects, better enable third-party modeling, facilitate more process automation, enhance competition while ensuring equitable outcomes, and enable benchmarking, tracking, and auditing of interconnection processes and reforms. Furthermore, improved data access and transparency support and underpin many of the other solutions identified throughout this roadmap.”<sup>15</sup>

Mechanisms that could be put in place to promote greater transparency include the following:

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<sup>13</sup> Natasha Henderson, Southwest Power Pool, Day One Tr. at 88.

<sup>14</sup> U.S. Department of Energy, *Interconnection Innovation e-Xchange (i2X): Transmission Interconnection Roadmap* (April 2024), at 14.

<sup>15</sup> *Ibid.*

- Web-based portals that allow for regular updates from transmission providers, transmission owners, and interconnection customers.<sup>16</sup>
- A regularly occurring forum for updates on transmission projects, such as CAISO's Transmission Development Forum, which provides status updates on the projects previously approved through the transmission planning process and network upgrades identified in the generation interconnection process.<sup>17</sup> As noted during the workshop, this Forum only tracks schedule changes, not cost changes -- which should be included in any data transparency mechanism.
- Possible revisions to the *pro forma* Open Access Transmission Tariff to require a minimum annual filing from each transmission owner that conducts facility studies or constructs network upgrades.<sup>18</sup>

**V. Additional Reforms to Improve the Interconnection Process (Day 1, Panel 2; Day 2, Panels 2 and 3)**

In addition to the fundamental improvements described above, there are myriad additional opportunities for beneficial reforms, many of which have been put in place or under consideration by at least some RTOs/ISOs. Such efforts provide opportunities for sharing of knowledge and best practices. Moreover, guidance from the Commission and the facilitation of further information sharing, such as through future workshops and technical conferences could catalyze further use of these practices. Where needed, the Commission could also identify

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<sup>16</sup> *Transmission Interconnection Roadmap* at 26.

<sup>17</sup> See <https://www.aiso.com/meetings-events/topics/transmission-development-forum>; Danielle Mills Osborne, California Independent System Operator, Day Two Tr. at 437.

<sup>18</sup> *Unlocking America's Energy* at 81.



situations where significant queue delays in certain RTOs/ISOs may warrant a targeted requirement or investigation under FPA Section 206. These additional reforms include, but are not limited to, the following:

Greater use of Surplus Interconnection Service (SIS). SIS is an important tool to interconnect resources that do not require network upgrades and is already required by the Commission in Order No. 845.<sup>19</sup> A September study by Gabel Associates,<sup>20</sup> sponsored by ACORE, found that PJM Interconnection’s rules and study methodologies are preventing the use of SIS for Bulk Electric System Storage (BESS), impeding the significant resource adequacy benefits of BESS. Meanwhile, the study pointed out that SPP and the Midcontinent Independent System Operator provide examples of how SIS can be beneficially implemented. Without PJM action to remedy these deficiencies, this could be an opportunity for future Commission action.

Incorporate planned colocations of large loads and generating resources into the interconnection study process. With the increasing colocation of large loads with generation resources, studying these resources and loads jointly in the interconnection study process can lower or eliminate upgrade costs. This process can also be applicable to collocated storage and

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<sup>19</sup> *Reform of Generator Interconnection Procedures and Agreements*, Order No. 845, 163 FERC ¶ 61,043 at PP 467, 471 (2018) (“Order No. 845”), *reh’g denied & clarifications granted*, Order No. 845-A, 166 FERC ¶ 61,137 at P 126 (“Order No. 845-A”), *order on reh’g & clarification*, Order No. 845-B, 168 FERC ¶ 61,092 (2019).

<sup>20</sup> Gabel Associates, *ReSISting a Resource Shortfall: Fixing PJM’s Surplus Interconnection Service (SIS) to Enable Battery Storage*, Prepared for the American Council on Renewable Energy in partnership with the American Clean Power Association and Solar Energy Industries Association (September 2024), available at: <https://acore.org/resources/resisting-a-resource-shortfall-fixing-pjms-surplus-interconnection-service-sis-to-enable-battery-storage/>

generation. One option could be to add load additions not previously considered in the studies as a mitigation tool. This topic is currently under discussion in MISO.<sup>21</sup>

Improve the viability of the Energy Resource Interconnection Service (ERIS) option.

While the panelists noted both the advantages and disadvantages of ERIS, it plays an important role as a viable option for those interconnection customers who wish to utilize this service.

As recommended by Tyler Norris and the *Unlocking America's Energy* report, one next step would be for the Commission to hold a workshop or technical conference to further examine current practices and identify optimal approaches going forward for energy-only service.<sup>22</sup>

Panelists stressed the need to clearly delineate ERIS from Network Resource Interconnection Service (NRIS). For example, Liz Delaney from New Leaf Energy, Inc. stated that “there is a pretty inconsistent application of the ERIS standard in the study process, oftentimes converging a bit with the NRIS standard in the way that resources are studied. This can cause costly upgrades to be triggered unnecessarily because those upgrades would be mitigated in real time through general grid operations.”<sup>23</sup> Such a clear delineation could either be addressed in a technical conference or Commission guidelines.

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<sup>21</sup> See for example, David Sapper & Rhonda Peters on behalf of the Clean Grid Alliance, *Coordinating MTEP and DPP to Accommodate Large Loads*, Presentation to the MISO Planning Subcommittee October 30, 2024, available at [https://cdn.misoenergy.org/20241030%20PSC%20Item%2007%20Coordinating%20MTEP%20and%20DPP%20to%20Accommodate%20Large%20Loads%20\(PAC-2024-7\)\\_CGA656177.pdf](https://cdn.misoenergy.org/20241030%20PSC%20Item%2007%20Coordinating%20MTEP%20and%20DPP%20to%20Accommodate%20Large%20Loads%20(PAC-2024-7)_CGA656177.pdf); Erin Murphy, NextEra Energy, Co-located Generation and Load: Study Proposal, Presentation to the MISO Planning Subcommittee, July 24, 2024, available at: [https://cdn.misoenergy.org/202470724%20PSC%20Item%2006%20Market%20Participation%20and%20Registration%20of%20Co-Located%20Load%20and%20Generation\(PAC-2024-4\)\\_NextEra640145.pdf](https://cdn.misoenergy.org/202470724%20PSC%20Item%2006%20Market%20Participation%20and%20Registration%20of%20Co-Located%20Load%20and%20Generation(PAC-2024-4)_NextEra640145.pdf)

<sup>22</sup> Pre-Workshop Comments of Tyler Norris, Duke University at 13, *Unlocking America's Energy* at 54.

<sup>23</sup> Liz Delaney, New Leaf Energy, Inc., Day One Tr. at 116.

In addition, as was agreed by several panelists, transmission providers should make greater use of provisional interconnection service to allow resources to come online faster while the transmission is built out.<sup>24</sup>

Optimize the use of resource replacement. Resource replacement represents one viable option to minimize the queue process where there are new resources seeking to locate at the same point of interconnection as a retiring resource. This option should be utilized where opportunities are available without negating the need to both expand the transmission system and maximize the use of advanced transmission technologies.<sup>25</sup>

Establishment of independent interconnection monitors in those regions experiencing significant queue delays.<sup>26</sup> ACORE recommends that these monitors be established by individual transmission providers, as appropriate, and not required by the Commission. As discussed in *Unlocking America's Energy*,<sup>27</sup> and the comments of Caitlin Marquis of Advanced Energy United,<sup>28</sup> their role would be to evaluate current study practices, assumptions, and outcomes and to identify areas for further process improvements, but not to add another layer to the interconnection process.

Allow interconnection customers to self-fund and run their own interconnection studies subject to oversight. The Transmission Interconnection Roadmap explains that this reform “could help better align incentives for transmission providers, ensuring that studies are completed on

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<sup>24</sup> Jennifer Galaway, SPP, Day One Tr. at 141; Andy Whitmire, MISO, Day One Tr. at 142.

<sup>25</sup> Ian Black, ENGIE North America, Day One Tr. at 229-230.

<sup>26</sup> *Unlocking America's Energy* at 67-68.

<sup>27</sup> *Ibid.*

<sup>28</sup> Pre-Workshop Comments of Caitlin Marquis, Advanced Energy United at 15-16.

time and that facility costs and network upgrades identified in studies are least-cost solutions.”<sup>29</sup> ACORE has previously recommended that “customers should be permitted to use third-party consultants to produce required studies if a Transmission Provider cannot do so on-schedule.”<sup>30</sup>

## **VI. Incorporating Automation into the Study Process (Day 2, Panel 2)**

ACORE has long supported the important role of automation in achieving reductions in the interconnection study time, data transparency, greater certainty for interconnection customers and transmission providers, and reduced strain on RTO/ISO resources. While there is widespread interest in adopting automation into the study process, the use of these tools varies significantly.<sup>31</sup> As Cody Doll from NextEra Energy Resources recommends, Commission efforts should focus on “shining a light” on the benefits of automation, such as through a targeted Policy Statement encouraging the RTO/ISO regions experiencing significant queue delays to adopt queue management best practices such as automation and standardized study criteria as part of their data validation and modeling processes.<sup>32</sup>

One factor for consideration in developing guidance on automation is the panelists’ observation that there are limits to the use of automation tools. For example, David Bromberg from Pearl Street Technologies noted that there are parts of the process that cannot be automated because they require “substantial engineering judgment and input from the user where it’s more of a like a back and forth, or an interplay between a person, or a team of people, and software.”<sup>33</sup>

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<sup>29</sup> *Transmission Interconnection Roadmap* at 58.

<sup>30</sup> ACORE Comments, Docket No. RM22-14 at 5.

<sup>31</sup> Comments of Cody Doll, Next Era Energy Resources, at 2.

<sup>32</sup> Comments of Cody Doll, Next Era Energy Resources, at 4.

<sup>33</sup> David Bromberg, Pearl Street Technologies, Day Two Tr. at 395.

In addition, Mr. Doll stated that: “A fully automated process, however, should not be the desired end state for all transmission providers if accurate results are to be expected, and may not be cost-effective or warranted in all instances.”<sup>34</sup>

**VII. Establish Clear, Non-Discriminatory Guidelines for Prioritization Mechanisms (Day 1, Panel 3)**

Given the many viable opportunities to improve the interconnection process described in the pre-filed comments and identified in the workshops, any mechanism that seeks to prioritize specific resources above others in the queue process should be based on a demonstrated, credible need, be used as a last resort after implementing other reforms given the significant harms to other interconnection customers, and not bypass the Commission’s open access principles. ACORE recognizes that the large queue size places a significant strain on RTO/ISO resources, but many of the reforms discussed at the workshop and being implemented in compliance with Order 2023 will serve to reduce these queue sizes and speed up the process.

ACORE objects to Commissioner Christie’s statement that “we should be prepared to amend” the open access principles of Order 888 to allow for discriminatory prioritization schemes.<sup>35</sup> Given the promise of other reforms, it would cause far more harm to implement such an over-reaching change to this foundational principle.

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<sup>34</sup> Comments of Cody Doll at 2.

<sup>35</sup> Opening Comments of Commissioner Mark C. Christie, Interconnection Workshop, AD24-9.

We recommend that the Commission issue a Policy Statement that establishes non-discriminatory criteria for prioritization, such as those recommended in the pre-workshop statement of Jason Burwen, of Gridstor LLC.<sup>36</sup> These could include:

- Queue prioritization must be approved only as a last resort, based on a demonstrated, credible need and non-discriminatory factors, given the significant harm to other interconnecting customers.
- Rationing mechanisms should not be based on factors outside of the control of interconnection customers. Instead, willingness-to-pay mechanisms such as the entry fee discussed earlier in these comments should be used.
- Where prioritization is implemented, the criteria should be consistent. Resource adequacy or reliability criteria can create uncertainties as they are not always well defined and change frequently, and therefore their use may not contribute to an efficient process.<sup>37</sup>

## **VIII. Conclusion**

ACORE greatly appreciates the opportunity to submit comments on these valuable workshops. We reiterate that there were many valuable lessons learned in the workshops and opportunities to create additional efficiencies and cost savings in the interconnection process. The Commission should work with the RTOs/ISOs and stakeholders to catalyze movement on beneficial reforms, and rather than near-term band-aid solutions such as arbitrary queue limitations that would not result in an effective and efficient queue process.

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<sup>36</sup> See discussion of a “limiting principle” in the Statement of Jason Burwen, Gridstor LLC at 4-6.

<sup>37</sup> See for example Comments of Ian Black, ENGIE North America, at 11-12.

Respectfully submitted,

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