

UNITED STATES OF AMERICA  
FEDERAL ENERGY REGULATORY COMMISSION

Establishing Interregional Transfer Capability  
Transmission Planning and Cost Allocation  
Requirements

Docket No. AD23-3-000

POST-WORKSHOP COMMENTS OF THE WATT COALITION

May 15, 2023

**Introduction**

The Working for Advanced Transmission Technologies (“WATT”) Coalition respectfully offers these comments on the issue of Establishing Interregional Transfer Capability, and the specific questions posed by the Federal Energy Regulatory Commission (“FERC” or “the Commission”) in the notice posted on February 28, 2023, in the above-captioned proceedings. We commend FERC for its efforts on the workshop and the Commission’s intention to develop Interregional Transfer Capability standards that will increase grid reliability and resilience. WATT encourages FERC to quickly finalize a proposed rule on Interregional Transfer Capability so that the process can continue to proceed expediently.

As evidenced during the December 2022 Workshop, interregional transmission can provide significant value to the transmission system and ratepayers by increasing reliability and resilience, particularly during extreme weather events. Multiple studies by ACORE and Grid Strategies LLC have shown the value of interregional lines during extreme weather events, often finding that an additional line could have saved ratepayers around of \$100 million during each weather event, while ratepayers in Texas alone could have saved nearly \$1 billion dollars with an additional interregional transmission line during Winter Storm Uri in 2021.<sup>1</sup> In addition, the Lawrence Berkeley National Lab has found that majority of a transmission line’s value often comes during just 5-10 percent of the hours in a year, providing further evidence that there is significant reliability and resilience value for interregional transmission lines.<sup>2</sup>

**The WATT Coalition urges FERC to ensure that GETs are incorporated into interregional transmission planning and operations along with the establishment of an Interregional Transfer Capability to ensure reliability, resilience, and just and reasonable rates.**

The WATT Coalition released a new report last month that specifically quantifies the synergistic relationship between GETs and transmission expansion. The report Building a Better Grid: How Grid-Enhancing Technologies Complement Transmission Buildouts, is appended to

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<sup>1</sup> Michael Goggin, “Transmission Makes the Power System Resilient to Extreme Weather,” ACORE and Grid Strategies, July 2021, <https://gridprogress.files.wordpress.com/2021/11/transmission-makes-the-power-system-resilient-to-extreme-weather.pdf>.

<sup>2</sup> Dev Millstein, et al, “The Latest Market Data Show that the Potential Savings of New Electric Transmission was Higher Last Year than at Any Point in the Last Decade,” Lawrence Berkeley National Laboratory, February 2023, [https://eta-publications.lbl.gov/sites/default/files/lbnl-transmissionvalue-fact\\_sheet-2022update-20230203.pdf](https://eta-publications.lbl.gov/sites/default/files/lbnl-transmissionvalue-fact_sheet-2022update-20230203.pdf).

these comments. It is available for download at <https://watt-transmission.org/wp-content/uploads/2023/04/Building-a-Better-Grid-How-Grid-Enhancing-Technologies-Complement-Transmission-Buildouts.pdf>.

**The WATT Coalition also supports the adoption of an interregional transfer capability requirement and related methodology as proposed by Grid Strategies in a new report.**

Americans for a Clean Energy Grid has filed the Grid Strategies report in its post-workshop comments in this docket. The new report uses electricity supply and demand data over the last decade, during normal operations and in case studies of four severe weather events, to quantify how an Interregional Transfer Capability requirement should be calculated based on transmission's value for accessing geographic diversity in the timing of peak demand, renewable output, and correlated generator outages. The report shows that setting a minimum Interregional Transfer Capability requirement for all regions at around 20-25% of the region's peak demand conservatively approximates the need for and reliability benefit of interregional transmission in all regions. The report also suggests minimum criteria the Commission should require for any analysis put forward by regions proposing a different Interregional Transfer Capability requirement. The WATT Coalition supports this approach and suggests the Commission should adopt this proposal.

Finally, FERC Commissioners have been vocal supporters of the benefits of GETs. Most recently, Chairman Phillips spoke of the benefits of GETs in the Senate Energy and Natural Resources Committee FERC oversight hearing. In response to questions from Senators Heinrich, Chairman Phillips stated, "Senator, you are preaching to the choir when you talk about Grid Enhancing Technologies. I think these types of tools HAVE to be a part of our planning process. It addresses every single point that I raised about reliability, affordability, AND sustainability."<sup>3</sup>

**About the WATT Coalition**

The WATT Coalition is a trade association focused on facilitating the adoption of advanced technologies on the US electric transmission system that improve reliability, lower costs, and accelerate decarbonization—benefiting American citizens and businesses. The WATT Coalition represents GETs vendors and companies that support broader deployment of GETs in the renewable energy, energy finance and transmission industries.

GETs are active hardware, software and sensors that increase the capacity, efficiency, and/or reliability of transmission facilities at a fraction of the cost of traditional grid upgrades. Grid operators use Dynamic Line Ratings (DLR), Advanced Power Flow Control, and Topology Optimization to access more usable grid capacity, more flexibility, and greater situational awareness. GETs reduce congestion costs, enable low-cost generation to interconnect to the grid, and maximize the value of new transmission investment.

**Highlights from *Building a Better Grid Report***

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<sup>3</sup> U.S. Congress, Senate Environmental and Natural Resources Committee, "Full Committee Hearing to Conduct Oversight of FERC," May 4, 2023, <https://www.energy.senate.gov/hearings/2023/5/full-committee-hearing-to-conduct-oversight-of-ferc>.

FERC has several open dockets and proposed rules that include policies to increase the utilization of GETs in transmission planning and operations through requirements or incentives. The questions and proposals raised in the Commission's February 28, 2023 notice are complementary to the existing proposals and investigations, and the WATT Coalition commends FERC for this additional inquiry.

WATT responds to specific questions below, but first, we highlight a few findings from *Building a Better Grid: How Grid-Enhancing Technologies Complement Transmission Buildouts*, published April 2023.

The report referenced above has several major findings that complement the Commission's goal of increasing grid operational efficiency, reliability, and resilience through interregional transmission:

1. *GETs provide resiliency against extreme weather events by increasing situational awareness and allowing for real-time operational fixes.*

GETs increase grid resilience by providing means to control the flow of power to specifically address extreme weather conditions. In the report, Brattle included SPP's studies on the application of power flow control using topology optimization to heat lines and avoid icing during severe weather conditions in 2018. The hypothetical savings accrued had SPP deployed this technology during Winter Storm Juniper conditions due to avoided outages were about \$10-17 million – in addition to avoided costs of system restoration. In addition, GETs, especially DLR, can increase the situational awareness of the weather and asset conditions by location at a much more granular level than the current widely used technologies.

2. *GETs can reduce congestion by 40 percent or more and can be deployed in weeks or months.*

The nationwide price-tag of transmission congestion reached over \$13 billion in 2021. A pilot program conducted by Alliant Energy suggests that GETs (in this case, topology optimization) can reduce realized congestion costs by 40 percent, resulting in the potential of over \$5 billion per year nationally in avoided costs benefits. An MIT study analyzing ERCOT suggests that DLR can reduce congestion by 77 percent and a Smart Wires study shows that combining GETs (in this case, FACTS and DLR) could mitigate congestion even further.

In addition, GETs can also be deployed in months, with little or no outage time, while conventional transmission upgrades are being planned. When new lines are in service, GETs can be redeployed to offer improvements to other areas of the grid or mitigate downstream constraints that emerge when new transmission infrastructure is operational. These short deployment timelines could provide immediate benefits while interregional lines with much longer lead times are planned and developed.

3. *During construction, GETs can avoid or ameliorate outages.*

Interruptions of service that come with reconductoring, rebuilding, or building new transmission lines can be reduced through applications of GETs such as:

- Rerouting power along alternative circuits with Advanced Power Flow Control or Topology Optimization
- Increasing the capacity of other lines with DLR.

Real-world examples are described in the appended report. Deployments of GETs to address outages had net benefits of over \$20-40 million per year in examples described in the report.

These results show that GETs can support interregional transmission at every stage of the process, and that GETs should be included in regional and interregional transmission planning from start to finish to maximize ratepayer value, reduce total investment cost and risk, and provide increased reliability and resilience.

### **Post-Workshop Questions for Comment**

7. *Should the need for Interregional Transfer Capability be considered within existing regional transmission planning and interregional transmission coordination processes or in a new, separate transmission planning process? Are there other ways to consider Interregional Transfer Capability given the existing processes already underway?*
  - a. *Could a metric be defined and used to capture the benefits of Interregional Transfer Capability in maintaining reliability during extreme events in existing regional transmission planning and interregional transmission coordination processes? Would the use of a such a metric in existing regional transmission planning and interregional transmission coordination processes sufficiently consider the benefits of Interregional Transfer Capability?*
  - b. *Should potential common mode failures and correlated outages be incorporated into studies for identifying Transfer Transmission Facilities in an Interregional Transfer Capability transmission planning process? If so, how?*
8. *To what extent, if any, should the following be considered when establishing a minimum Interregional Transfer Capability requirement; if so, how and why?*
  - a. *Historical or projected extreme events (e.g., extreme weather, loss of fuel supply, etc.).*
  - b. *Load and resource diversity across a wide geographic area.*
  - c. *Anticipated changes in the resource mix and demand.*
  - d. *Improved reliability.*
  - e. *Avoided production costs.*
  - f. *Geographic zones with the potential for large amounts of new generation.*
  - g. *The option value of Transfer Transmission Facilities, as determined by the increased access to supplemental capacity during emergency operating conditions.*
  - h. *Increased operator flexibility.*
  - i. *Impact of correlated generator outages and common mode failures.*
  - j. *Power system stability.*
  - k. *Other factors?*

In response to both Questions 7 and 8, GETs should be considered when establishing a minimum Interregional Transfer Capability as well as included in any process the Commission requires to consider Interregional Transfer Capability, including regional transmission planning, interregional transmission coordination processes, or in a new, separate transmission planning process. Inclusion of GETs can help planners identify the highest-value transmission investments.

WATT has previously commented in both the Regional Planning NOPR<sup>4</sup> and Generator Interconnection NOPR<sup>5</sup> on the benefits of including GETs in regional transmission planning processes and generator interconnection studies.

WATT's new report, *Building a Better Grid*, provides additional evidence to support the use of GETs in long term transmission planning.

For example, the Brattle Group found that after construction, utilization of new lines can increase by 16 percent, improving the benefit to cost ratio of the new lines. The Brattle Group analyzed the results of a 2021 study that modeled the deployment of GETs over the SPP transmission system in the year 2025 and included various planned transmission upgrades. With GETs, those upgrades and the existing high-voltage network saw 16 percent higher loading than without them. This increased utility implies that transmission lines that are narrowly below a cost-benefit threshold could comfortably exceed it if they were evaluated with strategic GETs deployments.

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<sup>4</sup> See Working for Advanced Transmission Technologies Comments on Building for the Future Through Electric Transmission Planning and Cost Allocation and Generator Interconnection, Docket No. RM21-17-000, 179 FERC ¶ 61,028 (2022).

<sup>5</sup> See Working for Advanced Transmission Technologies Comments on Improvements to Generator Interconnection Procedures and Agreements, Docket No. RM22-14-000, 179 FERC ¶ 61,194 (2022).

Document Content(s)

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