

September 20, 2023

The Honorable Willie L. Phillips, James Danly, Allison Clements, Mark C. Christie
Federal Energy Regulatory Commission
888 First Street, NE
Washington, DC 20426

Re: Docket Nos. RM21-17-00, AD22-5-000, AD22-8-000, AD21-15-000, RM20-10-000, AD19-19-000.

Dear Chairman Phillips and Commissioners Danly, Clements, and Christie:

We write today to express our strong interest in the Federal Energy Regulatory Commission (FERC) making progress on and finalizing proceedings related to the deployment of Grid Enhancing Technologies (GETs). These proceedings would drive efficiency in transmission system operations and planning by creating or updating processes and motivating utility action through incentives and requirements.

Bringing GETs (Advanced Power Flow Control, Topology Optimization, and Dynamic Line Ratings) into common practice in the United States will save transmission owners, ratepayers, and generators millions or even billions of dollars every year, supporting the Commission's mandate to ensure just and reasonable rates. Studies by the Brattle Group¹, the U.S. Department of Energy² and national laboratories³, and utilities⁴ around the world demonstrate capacity increases of 40%+ and payback periods of weeks or months. While dozens of U.S. utilities have piloted⁵ GETs, transmission owners' cost-of-service business model has stalled full deployment of these low-cost technologies.

The Commission has ongoing work on three complementary areas: transmission planning, incentives and requirements for transmission technologies, and transmission system oversight. At the July 16 meeting of the Joint Federal-State Task Force on Electric Transmission, utility

¹ T. Bruce Tsuchida, Stephanie Ross, and Adam Bigelow, The Brattle Group, "[Unlocking the Queue with Grid-Enhancing Technologies](#)," February 1, 2021.

Pablo A. Ruiz, The Brattle Group, "[Transmission Topology Optimization: Application in Operations, Markets, and Planning Decision Making](#)," May 2019.

T. Bruce Tsuchida, Linquan Bai, and Jadon M. Grove, The Brattle Group, "[Building a Better Grid: How Grid-Enhancing Technologies Complement Transmission Buildouts](#)," April 20, 2023.

² U.S. Department of Energy (DOE), "[Grid Enhancing Technologies: A Case Study on Ratepayer Impact](#)," February 2022.

³ Bhattarai, Bishnu, Jake Gentle, Timothy McJunkin, Porter Hill, Kurt Myers, Alexander Abboud, Rodger Renwick, and David Hengst, 2018, "Improvement of Transmission Line Ampacity Utilization by Weather Based Dynamic Line Ratings," IEEE Transactions on Power Delivery, Vol. 33, Issue 4, January 2018, pp. 1853-1863, doi: 10.1109/TPWRD.2018.2798411.

Senaida Gonzalez, Jake P. Gentle, and Megan Jordan Culler, Idaho National Laboratory, "[Transmission Optimization with Grid Enhancing Technologies](#)," January 2023.

⁴ K. Engel, J. Marmillo, M. Amini, H. Elyas, B. Enayati, CIGRE-US National Committee 2021 Next Generation Network Paper Competition, "[An Empirical Analysis of the Operational Efficiencies and Risks Associated with Static, Ambient Adjusted, and Dynamic Line Rating Methodologies](#)," July 2, 2021.

New York Power Authority, "[NYPA Installs Sensors to Better Predict Weather Patterns to Improve Transmission](#)," June 16, 2021

Sandy K. Aivaliotis, The Valley Group, "[Dynamic Line Ratings for Optimal and Reliable Power Flow](#)," June 24, 2010.

Smart Wires Inc., [Regional Impact Story – United Kingdom](#).

Smart Wires Inc., [Regional Impact Story – Australia](#).

⁵ WATT Coalition, "[Global Deployments of Grid Enhancing Technologies](#)."

commissioners from across the country weighed in on these issues – key quotes are included in the appendix.

Based on the call to action from state commissioners and the untapped value of GETs, in the near term, we urge the Commission to:

1. Finalize a strong transmission planning rule from Docket RM21-17-000 that includes a requirement to study Grid Enhancing Technologies on an even playing field with other transmission infrastructure.
2. Advance the Notice of Inquiry on Implementation of Dynamic Line Ratings (Docket No. AD22-5-000) to a Notice of Proposed Rulemaking. The WATT Coalition and the PJM Interconnection both submitted concepts for a congestion-based requirement – we recommend that the Commission’s NOPR continue this direction of policymaking.

In the longer term, the Commission should also advance work on transmission incentives, specifically a shared savings incentive which was vetted through stakeholder comments and a technical conference in September 2021, “Electric Transmission Incentives Under Section 219 of the Federal Power Act.” The incentive would be complementary to a congestion threshold requirement – driving other creative applications of GETs where they would create the most value to consumers.

The Commission has also begun promising work on the concept of independent transmission monitoring (ITM) in the proceeding on Transmission Planning and Cost Management, Docket Nos. AD22-8-000 and AD21-15-000. Today, there is insufficient transparency for grid users or technology vendors to assess opportunities for GETs deployments. The ITM would be most impactful to the grid technology ecosystem as (1) an independent, expert party identifying opportunities for GETs to improve transmission system value to ratepayers; (2) A neutral resource for RTOs, TOs and regulators to understand the applications of new technologies and approaches for implementing them.

We urge the Commission to move forward on these open proceedings as they relate to the deployment of Grid Enhancing Technologies (GETs) in the United States. We appreciate your attention on these important matters.

Signed

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Appendix: Quotations from Commissioners at the Joint State-Federal Task Force on Electric Transmission – July 16, 2023 and Commissioner Christie’s Concurrence on Order 2023

Planning

1. To encourage the adoption of GETs and soothe uneasiness from grid operators about their lack of experience with them, Dr. Andrew Phillips said, “We need an industry-accepted way of evaluating these technologies, incorporating them into our plans, and then exercising those plans.”
2. Commissioner Kimberly Duffley of the North Carolina Utilities Commission said, “Some think that GETs are only used for operations, versus thinking about them in transmission planning. How can we determine, as state and federal regulators, whether that’s a valid assumption or not? A way state regulators can find out is by encouraging pilot projects, that may assist everyone to learn the value, or what value, the consideration of certain GETs could have in the planning space.”
3. Commissioner Riley Allen of the Vermont Public Utility Commission said, “I want to highlight that considering the planning frame and recognizing that the planning frame doesn’t need to just focus on reliability and that it can include other categories of benefits, is valuable here.”
4. Commissioner Darcie Houck of the California Public Utilities Commission said, “We propose that grid operators consider GETs for feasibility, cost, and time-savings, and not just if requested by an interconnection customer, but as part of the general planning process.”

Operations and Incentives

5. Commissioner Andrew French of the Kansas Corporation Commission said, “I would endorse an approach such as Order 881 with respect to GETs – mandating new operating practices for transmission owners.”
6. Commissioner Riley Allen of the Vermont Public Utility Commission said, “The motivation of utilities is relevant here. There are some interesting proposals for instilling greater motivation by the utilities, one is proposed by the WATT Coalition, and I think those are interesting proposals that should be explored.”
7. Chair Marissa Gillett of the Connecticut Public Utilities Regulatory Authority (CT PURA) explained that many states across the country, including Connecticut, are implementing requirements at the distribution level to remove barriers to the use of non-wires alternatives. In Connecticut, there is now a multi-tiered process wherein the distribution companies must participate in good faith to evaluate and consider the use of non-wires alternatives as a condition for CT PURA to approve traditional upgrades down the line. In other words, the distribution companies won’t get approval for traditional upgrades unless they have demonstrated a good-faith effort to evaluate the use of non-wires alternatives as a first step. Chair Gillett went on to explain, “[requirements to consider GETs] could be paired with a shared-savings approach, which has a well-developed straw proposal by the WATT Coalition – so, I would refer and encourage people to look into that proposal.”
8. Chair Dan Scripps of the Michigan Public Service Commission said, “We need to ask why GETs aren’t being implemented. A number of the technical reasons have been highlighted, but part of the reason is that, at least today, there is little incentive for transmission owners to use them. Dr. Patton from Potomac Economics, in his comments following the September 2019 technical conference on best practices in Commission policy regarding alternatives and transmission line ratings, said, ‘One of the reasons transmission owners do not adjust their ratings is that they generally lack incentives to do so. When existing transmission investment is recovered through

embedded cost transmission rates, there is little direct economic benefit to adjust the ratings upward to account for ambient technologies.”

9. Chair Scripps went on to point out that some utilities have made proactive, voluntary steps to implement GETs – recognizing that, “we will exhaust the capital customers are willing to provide long before we run out of places to spend money in the transmission system.” Chair Scripps continued: “As regulators at both the state and federal level, that needs to be our focus, particularly at a time when I believe significant investment is needed in backbone transmission infrastructure to maintain reliability in the face of an aging grid, increasing extreme weather, and evolution in our generation assets. If we don’t squeeze every drop out of the existing system, it’s going to be a tough sell as we consider the costs involved in transmission expansion. And I believe Grid Enhancing Technologies can help us do that – to maximize the value from the infrastructure that we have today.”

Oversight

10. Commissioner Darcie Houck of the California Public Utilities Commission explained some potential reforms that could address the slow adoption of GETs in the U.S., saying, “subject to requirements governing the non-disclosure of critical energy infrastructure information, the Commission should direct grid operators to provide stakeholders with their power flow studies, showing constraints and overloads on the system, and the underlying inputs, assumptions, and criteria used to develop these studies.” Commissioner Houck continued: “For example, the Commission could require grid operators to provide sufficient information to enable stakeholders to identify where implementing Dynamic Line Ratings may help address congestion, thus informing whether wholesale rates are just and reasonable *without* the use of DLRs.”
11. Commissioner Darcie Houck of the California Public Utilities Commission said, “We support the recommendation by the WATT Coalition that grid operators be required to explain their reasoning for rejecting GETs in their projects, and would need to provide sufficient technical information to enable customers to validate the grid operator’s determination.”
12. Commissioner Kimberly Duffley of the North Carolina Public Utilities Commission said, “I agree with Commissioner Allen on his comments about transparency – the lessons and results of pilot projects for GETs can be shared with others.”
13. Chair Dan Scripps of the Michigan Public Service Commission said, “FERC has a role in pushing to ensure that we have the information and data to inform best use cases...”
14. Chair Scripps continued: “...transparency in the information is key, because without it, it’s impossible to determine the accuracy of what’s been submitted; particularly given some of the conflicts around line ratings submitted by the transmission owner, if we are deferring entirely to the transmission owners in terms of where we get the information.”
15. Chair Scripps continued: “As an example, within MISO, there are certain areas within the footprint that don’t have a single line with a unique emergency rating, while other areas have unique emergency ratings on a majority of the lines. As of January 2021, two-thirds of the lines under MISO’s functional control have emergency ratings that are the same as normal ratings – is that accurate? Without greater transparency around data, and as long as we defer entirely to TOs to submit this information, it is impossible to be certain.”

Requirements – from Commissioner Christie’s concurrence on Order 2023

16. “One of the most promising GETs – dynamic line ratings (DLRs) – could potentially save billions of dollars in avoided costs for new transmission assets. DLRs are not covered by this final rule, but are the subject of a separate proceeding, and I hope we will use the record of that

proceeding to move forward on a proposed rule to require implementation of DLRs when and where DLRs will be technologically sound and cost- effective.”