



FEDERAL ENERGY REGULATORY COMMISSION
Office of Commissioner Allison Clements

April 30, 2024

The Honorable Peter Welch
The Honorable Angus S. King
The Honorable Kathy Castor
The Honorable Paul D. Tonko
United States Congress
Washington, D.C. 20515

Dear Senators Welch and King, and Representatives Castor and Tonko,

Thank you for your March 6, 2024 letter encouraging the Federal Energy Regulatory Commission (FERC or Commission) to take action to promote the deployment of grid-enhancing technologies (GETs). I agree with your perspective that GETs are an important tool to get the most out of our grid, and that the Commission can do more to promote their usage.

GETs are sometimes misunderstood, so it is important to start with the role these technologies can play on our growing grid. GETs and transmission investment can and must complement each other. It is clear that we need to press ahead with significant transmission investment in this country,¹ and it is equally clear that GETs have an important role to play during this buildout period, and beyond. GETs can be deployed more quickly than traditional transmission upgrades or greenfield transmission developments and at a much lower cost. They can squeeze more juice out of the existing system while transmission is built, provide data to inform where transmission dollars should be spent, and can enhance new transmission lines by making them more efficient from the start. Relatively modest GET investments that optimize existing system efficiencies also serve to legitimize more sizeable transmission investments from a consumer perspective.

Below, I explain (1) why GETs are not yet widely deployed despite numerous studies showing their potential benefits, (2) what the Commission has done (and is poised to do) to promote GETs deployment, and (3) additional policies that could support the use of these technologies.

¹ See, e.g., Department of Energy, Grid Deployment Office, *National Transmission Needs Study* at vii (Oct. 2023), https://www.energy.gov/sites/default/files/2023-12/National%20Transmission%20Needs%20Study%20-%20Final_2023.12.1.pdf (discussing need for significant future transmission investments); Princeton University, *Big but Affordable Effort Needed for America to Reach Net-Zero Emissions by 2050, Princeton Study Shows* (Dec. 15, 2020), <https://www.princeton.edu/news/2020/12/15/big-affordable-effort-needed-america-reach-net-zero-emissions-2050-princeton-study> (“[T]he United States will need to expand its electricity transmission systems by 60% by 2030, and may need to triple it by 2050”).



I. Lack of Widespread Deployment Despite Experience and Studies on GETs Benefits

By now, the tremendous potential economic and reliability benefits of GETs are well known. A report on an initial deployment by AES Corporation and LineVision released this month demonstrated that dynamic line ratings (DLR) would consistently enable more capacity to flow over certain types of transmission lines.² These increased flows bring economic value in the form of reduced curtailment of generation, lower congestion costs, and avoidance of costly network upgrades. Other studies have quantified the potential economic benefits of GETs: for example, one study estimates up to \$1 billion in annual savings in PJM alone.³ Although it seems almost too good to be true, these large savings projections are credible, and, even if widespread GETs deployment achieves *half* of these expected benefits, the results would be well worth the cost.

We also have real-world examples of GETs improving the reliability and resiliency of our grid by increasing situational awareness and operator flexibility. For example, PJM recently noted that PPL Electric Utilities' use of DLR on one of its lines led to higher line ratings and allowed PJM to avoid re-dispatching its system during Winter Storm Elliott.⁴ Additionally, a topology optimization pilot in SPP led to the implementation of two grid reconfigurations that released up to 845 MW of generation during Winter Storm Elliott, helping to avoid overloads.⁵

In the face of this data, the question is obvious: why aren't GETs more widely deployed? There may be several factors, including our existing cost-recovery policies, which incentivize larger transmission line upgrades that earn a hefty return rather than relatively inexpensive GETs;

² AES and LineVision, *Lessons From First Deployment of Dynamic Line Ratings: 42 LineVision Sensors on 5 Diverse AES Lines*, (Apr. 2024) <https://www.aes.com/sites/aes.com/files/2024-04/AES-LineVision-Case-Study-2024.pdf>.

³ Katie Mulvaney et al., RMI, *GETting Interconnected in PJM: Grid-Enhancing Technologies (GETs) Can Increase the Speed and Scale of New Entry from PJM's Queue* (Feb. 2024), https://rmi.org/wp-content/uploads/dlm_uploads/2024/02/GETs_insight_brief_v3.pdf (finding GETs could enable 6.6 GW of new solar, wind, and storage projects to interconnect to PJM by 2027 and yield approximately \$1 billion annually in production cost savings); T. Bruce Tsuchida et al., Brattle and the WATT Coalition, *Unlocking the Queue with Grid-Enhancing Technologies* (Feb. 1, 2021), https://watt-transmission.org/wp-content/uploads/2021/02/Brattle_Unlocking-the-Queue-with-Grid-Enhancing-Technologies_Final-Report_Public-Version.pdf#0 (finding GETs could produce an estimated \$175 million annual product cost savings); Umed Paliwal et al., GridLab, *2035 and Beyond: Reconductoring* (2024) https://www.2035report.com/wp-content/uploads/2024/04/GridLab_2035-Reconductoring-Technical-Report.pdf (finding that reconductoring transmission lines with advanced conductors could yield \$85 billion in savings by 2035 and \$180 billion by 2050).

⁴ Notice of Inquiry re Implementation of Dynamic Line Ratings, Docket No. AD22-5-000, Supplemental Comments of PJM Interconnection, L.L.C., at 2 (Jan 17, 2024).

⁵ The pilot identified two additional reconfigurations, which could have released up to 600 additional MW of generation. See Pablo Ruiz, Senior Consultant, Brattle, Co-Founder, NewGrid, Congestion Mitigation with Transmission Reconfigurations in the Every Footprint at the Increasing Real-Time and Day-Ahead Market and Planning Efficiency Through Improved Software Technical Conference, AD10-12-014 (Jun 29, 2023), <https://youtu.be/zIwP5rsZ3i8?si=PhvGsVsNHH4gFufq&t=20881>.



misplaced concerns about whether GETs are reliable; and the relative lack of experience with these technologies. But these are surmountable challenges and misunderstandings. Additional incentives and industry experience will continue to build momentum for these technologies.

The Commission has taken some recent steps to support GETs deployment in the face of these challenges. As I explain below, I believe the Commission can do much more.

II. FERC's Role: What Has Been Achieved, and What More Remains?

Over the past four years, the Commission has taken unprecedented steps to advance GETs. We have mandated consideration of GETs in interconnection processes,⁶ proposed to mandate the consideration of GETs in regional transmission planning processes,⁷ mandated the use of ambient-adjusted ratings for line ratings, and mandated that RTO/ISOs allow utilities within their footprints to deploy DLR if they so choose.⁸ These are important steps, but a long road ahead remains. The Commission must rigorously assess whether our rules are complied with and fully implemented, and whether future data and outcomes show we are fulfilling the original policy goal of encouraging GETs deployment. If the answer is no, the Commission should reconsider its approach.

FERC has additional proposals on the table as well. In 2022, the Commission opened an inquiry into whether to require the deployment of DLRs on all, or some subset of jurisdictional transmission lines.⁹ Given the Commission's acknowledgement that accurate line ratings are essential to ensuring just and reasonable rates,¹⁰ the Commission should prioritize issuing and finalizing a proposal in this proceeding.

Additionally, the Commission can, and should, revisit transmission incentives that could encourage deployment of GETs. To date, the Commission has not taken any action to incent the deployment of GETs, even when faced with evidence that utilities may have a financial incentive to disfavor them. In 2021, the Commission hosted the workshop that you referenced in your letter to consider a "shared savings" proposal for GETs,¹¹ but no action has been taken in this docket,

⁶ *Improvements to Generator Interconnection Procs. & Agreements*, Order No. 2023, 88 Fed. Reg. 61,014 (Sept. 6, 2023), 184 FERC ¶ 61,054 (2023). In Order 2023, we referred to GETs as "alternative transmission technologies."

⁷ Notice of Proposed Rulemaking, *Bldg. for the Future Through Elec. Reg'l Transmission Planning & Cost Allocation & Generator Interconnection*, 179 FERC ¶ 61,028 (2022). This docket is currently set for Commission action on May 13, 2024.

⁸ *Managing Transmission Line Ratings*, Order No. 881, 177 FERC ¶ 61,179 (2021).

⁹ *Implementation of Dynamic Line Ratings*, Notice of Inquiry, AD22-5, 178 FERC ¶ 61,110 (2022).

¹⁰ Order No. 881 at P 29 ("We further find that, because of the relationship between transmission line ratings and wholesale rates, inaccurate transmission line ratings result in wholesale rates that are unjust and unreasonable.").

¹¹ Workshop to Discuss Certain Performance-based Ratemaking Approaches, Electric Transmission Incentives Policy Under Section 219 of the Federal Power Act, RM20-10-000; AD19-19-000 (September 10, 2021) (transcript available at <https://www.ferc.gov/media/transcript-docket-nos-rm20-10-000-ad19-19-000>).



despite evidence of support for this approach and its demonstrated successes in other countries. I agree that the Commission is not yet living up to its obligation under FPA section 219(b)(3) to incent the deployment of advanced transmission technologies.¹²

Finally, the Commission’s actions need not be limited to these dockets. We could, for example, hold workshops or technical conferences in which utilities share “best practices” in deploying GETs or advanced conductors, encourage continued dialogue about GETs investment in public forums, including at the newly-announced FERC-NARUC forums,¹³ and explore other potential regulations that could leverage the new data that GETs provide to systems, including possible synergies and complications with the increased use of artificial intelligence.

III. Other Actions Supporting GETs

While FERC should do all that it can, other policymakers and interested parties can also play an important role in furthering GETs adoption. The Department of Energy’s recent “Innovative Grid Deployment” Liftoff Report includes an excellent summary of key actions that different parties, including grid operators, regulators and governance boards, policymakers, the Department of Energy, and others can take to accelerate the deployment of GETs.¹⁴ I agree with the report’s recommendations and want to highlight the role that legislatures, federal and state, can play by passing enabling legislation.¹⁵

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Thank you for your continued engagement with the Commission’s work and your support of policies that promote GETs deployment during this critical moment for our grid.

Sincerely,

Commissioner Allison Clements

¹² 16 U.S.C. § 824s(b)(3).

¹³ Press Release, FERC, FERC, NARUC Establish Federal-State Current Issues Collaborative (Mar. 21, 2024), <https://www.ferc.gov/news-events/news/ferc-naruc-establish-federal-state-current-issues-collaborative>.

¹⁴ Louise White et al., Department of Energy, *Pathways to Commercial Liftoff: Innovative Grid Deployment* 60-62 (Apr. 2024), https://liftoff.energy.gov/wp-content/uploads/2024/04/Liftoff_Innovative-Grid-Deployment_Final_4.15.pdf.

¹⁵ For example, Maine has recently passed laws mandating the evaluation of the potential implementation of GETs. Act of Mar. 19, 2024, ch. 553 Me. Laws (requiring the Maine Commission to conduct a periodic review of GETs implementation), <https://www.mainelegislature.org/legis/bills/getPDF.asp?paper=SP0257&item=3&snum=131>.