Pew

December 23, 2025

Nicholas Preservati, Director
West Virginia Office of Energy
c/o Energy Policy Comments
1900 Kanawha Blvd., East Building 3, Suite 500
Charleston, WV 25305

RE: West Virginia Comprehensive Energy Policy

Dear Director Preservati:

The Pew Charitable Trusts' Energy Modernization Project appreciates the opportunity to comment on the development of Governor Morrisey's Comprehensive Energy Policy. Since our founding, The Pew Charitable Trusts has worked at the intersection of data and policy to create common ground and address the nation's most pressing challenges. Pew's Energy Modernization Project works to advance policies that will help build a modern, reliable grid that can meet the growing need for electricity.

We applaud the Governor and the Office of Energy for prioritizing both transmission and energy generation as part of the Comprehensive Energy Policy, and Pew offers the following comments on the important role that Advanced Transmission Technologies (ATTs) can play in informing and supporting those two central components. ATTs are hardware and software solutions that can be installed quickly on new and existing transmission lines to unlock capacity on the grid and maximize existing transmission infrastructure. While new high-voltage transmission lines are critical to spurring economic development and meeting forecasted energy demand, the state's Comprehensive Energy Policy should also consider and encourage the deployment of ATTs as a near-term, cost-effective component of a broader strategy on transmission.

I. The Role of ATTs on the Grid

ATTs are a suite of technologies that work to expand capacity and improve operational efficiency on transmission lines. As a result, they can enable the uptake of additional energy to the grid from generation projects sitting in the

interconnection queue, which includes roughly 2,250 GW of projects nationally and close to 16 GW in West Virginia alone.[1] With energy demand projected to increase by 25% by 2030 compared to 2023 levels,[2] ATTs can play an important near-term role in ensuring projects are able to come online and that electrons can move from where they are generated to where they are needed. This is especially true since ATTs can be deployed within existing transmission rights-of-way often within three months to three years,[3] compared to an average of ten years to plan, permit, and pay for new transmission lines.[4]

ATTs can also be used to target known areas of grid congestion, resulting in significant cost-savings for consumers and large energy users. Congestion occurs when the transmission system lacks sufficient capacity to deliver the lowest-cost electricity from where it is generated to where it is needed. Typically, transmission operators dispatch the lowest-cost energy first, but during periods of high-demand or outages, more expensive generation is dispatched on available lines, raising prices for consumers. These congestion costs reached an estimated $12 billion nationwide in 2024, including $1.75 billion within PJM, up from $1.07 billion in 2023.[5] ATTs combat this by giving grid operators more control and visibility of the transmission system, allowing them to increase the flow of power on lines or efficiently reroute electrons so that the most cost-effective resources are dispatched.

II. Overview of Specific ATTs

ATTs include both high-performance conductors (HPCs) as well as a category of systems called grid-enhancing technologies, or GETs; these include dynamic line rating systems (DLR), topology optimization (TO), and advanced power flow controllers (APFC).

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[1] Lawrence Berkeley National Laboratory, "Maps of active interconnection requests by region, state, and county," https://emp.lbl.gov/maps-projects-region-state-and-county.
[2] ICF, "Fast forward: Electricity demand expected to grow 25% by 2030," https://www.icf.com/insights/energy/electricity-demand-expected-to-grow.
[3] Louise White et al., "Pathways to Commercial Liftoff: Innovative Grid Deployment," U.S. Department of Energy, 2024, https://liftoff.energy.gov/wp-content/uploads/2024/04/Liftoff_Innovative-Grid-Deployment_Final_4.15.pdf.
[4] Michelle Solomon, "DOE Study Highlights America's Transmission Needs, but How Do We Accelerate Buildout?," Utility Dive, March 31, 2023, https://www.utilitydive.com/news/doe-study-transmission-clean-energy/646589/.
[5] Grid Strategies, "Transmission Congestion for 2024," https://gridstrategiesllc.com/wp-content/uploads/GS_Transmission-Congestion-for-2024.pdf.

DLR systems are sensors installed on transmission lines that provide grid operators with real-time weather conditions, such as temperature and wind speed, enabling them to safely boost the flow of power on the line by 10-30% beyond the fixed rating. In Pennsylvania, the utility PPL deployed DLRs on three bottlenecked lines, resulting in a 16% increase in capacity, a $65 million reduction in congestion costs, and $50 million in savings by deferring a transmission line rebuild.[6] DLRs can be installed quickly, generally within about three months. APFCs are another modular, hardware solution that can be installed on existing lines to change their reactance and enable grid operators to move power more efficiently. In short, these systems help to move power off of overburdened lines and onto lines with capacity. TO is a software that analyzes transmission lines to determine the most efficient route for power to flow to areas of high demand, reducing bottlenecks on the grid.

HPCs are modern, advanced wires that provide significant benefits over conventional steel-core lines. These conductors are made with carbon fiber or composite core materials encapsulated by aluminum and can carry 50% to 110% more power than their conventional steel-core counterparts.[7] HPCs have significantly less sag during periods of high temperatures, which means that they can be installed on existing towers to increase capacity instead of requiring the construction of taller towers. For example, Montana-Dakota Utilities reconductored an 11-mile segment using high-performance conductors, and as a direct result increased line capacity by 78%, while reducing construction costs by 40% through avoidance of structure modifications that would have been needed to maintain adequate clearance and support traditional, heavier conductors.[8]

III. States Taking Action to Encourage ATT Deployment

Across the country, state policymakers are recognizing ATTs as a pragmatic solution that can serve as an essential element of a comprehensive strategy on modernizing

[6] Factor This, "Case study: The first US electric utility to integrate dynamic line ratings into real-time and market operations," https://www.renewableenergyworld.com/power-grid/smart-grids/case-study-the-first-us-electric-utility-to-integrate-dynamic-line-ratings-into-real-time-and-market-operations/
[7] Emilia Chojkiewicz et al., "2035 and Beyond: Reconductoring With Advanced Conductors," https://www.2035report.com/reconductoring/.
[8] TS Conductor, "Montana-Dakota Utilities (MDU)," https://tsconductor.com/projects/montana-dakota-utilities-mdu-napoleon-heskett/; Montana-Dakota Utilities, "Montana-Dakota Utilities believes it is the first in North America to deploy aluminum-encapsulated carbon fiber conductor," https://www.montana-dakota.com/montana-dakota-utilities-first-in-north-america-to-deploy-carbon-fiber-conductor/

the grid. Over the last three years, 18 states[9] have passed laws promoting the deployment of ATTs, including Ohio[10] and Virginia.[11] These states have pursued a variety of approaches in crafting their policies, and tend to include some combination of the following elements:

- Utility Planning - Require utilities to evaluate ATTs in their planning, such as integrated resource plans, which can then be considered by the public service commission.
- Commission Assessment - Require regulators to consider ATTs when evaluating proposed transmission projects.
- Congestion Targeting - Require utilities to identify highly congested areas on the transmission system and develop a plan to mitigate them using ATTs.
- Permitting Reform - Expedite applications or reduce permitting requirements for ATT projects.
- Cost Recovery - Allow utilities to recover costs associated with ATTs from their rate bases, either by affirming the ability to recover costs, treating ATTs as a capital expenditure, or allowing a partial return upfront.
- Studies - Task state agencies or regulatory bodies to investigate the use case of ATTs.

We are also pleased to note that ATTs have been gaining attention recently within the West Virginia legislature. On December 8, Pew was privileged to offer subject matter testimony on ATTs during an interim session of the Joint Committee on Energy and Public Works. On December 9, the House majority announced its "Jobs First – Opportunity Everywhere" legislative agenda, which includes ATTs as a recommended element of a job-creating business climate.[12]

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[9] The Pew Charitable Trusts, "To Boost Electric Grid, States Look to Advanced Transmission Technologies," https://www.pew.org/en/research-and-analysis/articles/2025/12/15/to-boost-electric-grid-states-look-to-advanced-transmission-technologies.

[10] HB 15 requires utilities to evaluate ATTs in their planning and to propose projects that utilize ATTs to mitigate specific areas of congestion on the grid.

[11] HB 862 requires utilities to evaluate ATTs in their integrated resource plans and if not included, to explain why. HB 1822 requires the Virginia Corporation Commission to consider the use of high-performance conductors when evaluating high-voltage transmission projects.

[12] Steven Allen Adams, "House Republican majority unveils Jobs First Opportunity Everywhere agenda," https://www.newsandsentinel.com/news/local-news/2025/12/house-republican-majority-unveils-jobs-first-opportunity-everywhere-agenda/.

As the state considers ways to maintain its energy competitiveness and meet the economic development and generation priorities outlined in the Comprehensive Energy Policy, we hope you consider the myriad benefits of ATTs. We appreciate the opportunity to provide these comments and stand ready to serve as a resource as the state continues this important work.

Sincerely,

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