

Advanced Transmission Technologies

COST CONTROL

AT A GLANCE



TARGET COST DRIVERS

The policy can help to ease customer cost pressures created by these drivers

- Aging grid infrastructure
- Load growth
- Misaligned utility incentives



IMPACT TIME HORIZON

Page 2

How long it typically takes before changes materialize in utility behavior or customer bills



Short-term (0-2 years)



POTENTIAL COST SAVINGS

Page 2

The level of cost savings that can reasonably be expected to result from this policy



High

CONTEXT AND BACKGROUND

An affordable transition to a modernized electricity system requires not just more transmission infrastructure but better transmission infrastructure. Today’s grid planning and deployment processes focus mostly on the former — building new high-voltage transmission lines — and often overlook technologies like dynamic line ratings, high-performance conductors, topology optimization, and power flow control that can enhance grid performance at a lower cost while using existing rights of way.¹

These solutions, known collectively as “advanced transmission technologies” (ATTs), are key to quickly and affordably deploying additional resources and unlocking transmission capacity. But they face regulatory hurdles, institutional barriers, and upfront capital costs that slow their adoption.

State policy can accelerate the adoption of these technologies by, for example, requiring their evaluation in planning processes. A total of fifteen states across the political and geographic spectrum have now enacted policies to accelerate the deployment of advanced transmission technologies with the goal of meeting new demand affordably.

¹ Alternative transmission technologies refer collectively to grid-enhancing technologies (GETs) and advanced conductors.

REAL-WORLD EXAMPLES



Indiana's [Senate Bill 422](#) establishes requirements for utilities to evaluate grid-enhancing technologies (GETs) as part of their integrated resource plans (IRPs) starting in 2026.



Ohio's [House Bill 15](#) requires that utilities evaluate advanced transmission technologies when applying for a Certificate of Public Necessity to expand or build new transmission infrastructure, study their use to reduce grid congestion, and submit implementation plans for cost-effective ATT solutions. It also directs the utility commission to assess statewide opportunities for ATT deployment.



Utah's [House Bill 212](#), signed into law in 2025, requires utilities that propose additions to or expansions of the transmission system to analyze opportunities to use GETs within IRP filings, rate cases, and other proceedings.



FURTHER READING

- [“Getting Alternative Transmission Technologies to Scale.”](#) RMI, 2025
- [“State Legislative Momentum Builds for Grid Enhancing Technologies in 2025.”](#) Working for Advanced Transmission Technologies (WATT) Coalition, 2025
- [“A Roadmap for Advanced Transmission Technology Adoption.”](#) Massachusetts Institute of Technology (MIT) Center for Energy and Environmental Policy Research, 2024
- [“Grid-Enhancing Technologies: A Case Study on Ratepayer Impact.”](#) United States Department of Energy, 2022
- [“Advanced Transmission Technologies.”](#) United States Department of Energy, 2020
- [“Enabling ATTs and GETs.”](#) Climate Xchange, 2024
- [“Unlocking Power: A Playbook on Grid Enhancing Technologies for State and Regional Regulators and Policymakers.”](#) American Council on Renewable Energy, 2024
- [“Advanced Transmission Technologies.”](#) Quanta Technology, 2025
- [“STATES - WATT Coalition.”](#) Working for Advanced Transmission Technologies (WATT) Coalition, 2025
- [“How State Regulators Can Utilize the Latest Legislative Trend to Make Electricity More Affordable and Reliable.”](#) RMI, 2025



IMPACT TIME HORIZON

Short-term (0–2 years)

Most advanced transmission technologies can be deployed in the [short term](#) though some may take longer. For example, topology optimization software or dynamic line rating approaches may be deployed in a year or less.



POTENTIAL COST SAVINGS

High

Cost savings will depend on the policies and technologies employed, but many studies have shown ATTs to be cost-effective. One estimate found that a \$100 million investment in ATTs in the PJM region would yield about [\\$1 billion in annual production cost savings](#), another found that grid-enhancing technologies could deliver [\\$5 billion in yearly energy production cost savings](#) nationally with a 6-month payback period, and one estimated high-performance conductors could save [\\$180 billion](#) in electricity system costs nationally by 2050.