

# The Benefits of Expanding and Modernizing High-Voltage Electric Transmission

As America's need for electricity grows, the energy sector faces two enormous challenges: aging infrastructure that was designed to deliver power from conventional fossil fuel power plants and the imperative to decarbonize by adding substantial amounts of renewable energy to the electric system.

Expanding and modernizing the transmission grid is key to cost-effectively addressing America's changing power needs. Siting new transmission, especially high-voltage transmission over long distances, faces significant obstacles. Co-locating transmission infrastructure in existing highway right-of-way (ROW) will reduce the obstacles to building new transmission, and in so doing accelerate the transition to a modern grid.

## Transmission improves grid reliability and resilience

According to grid operators, expanding transmission represents the best and most cost-effective approach to improving reliability, reducing outages, and speeding up recovery time when outages do occur.

- During Winter Storm Uri in 2021—a multi-day outage impacting 70% of Texans, costing up to \$130 billion in financial losses, and claiming hundreds of lives—a lack of transmission between Texas and other states prevented the state from importing power from other regions. If Texas had been able to import power, not only would lives have been saved but significant economic savings would have been realized. In fact, the cost of price spikes experienced during Uri is more than the estimated cost of building a high-voltage line from Texas to the southeast.
- High winds during Hurricanes Laura in 2020 and Ida in 2021 brought down approximately 20 high-voltage transmission lines, leading to multi-day outage events. With experts predicting an increase in the severity and frequency of storms, greater energy resiliency redundancy is necessary.

- Burying transmission offers protection from extreme weather, while also hardening the infrastructure against other physical threats and attacks.

## *Transmission development brings economic benefits*

Expanding and upgrading interregional transmission lines will increase access to the nation's rich supply of low-cost domestic energy resources. Access to cheap power helps keep down the cost of goods and services. Without adequate transmission, however, this affordable power remains untapped.

- Building transmission also provides significant revenue to surrounding communities. The Midwest's \$9.4 billion Multi-Value Project (MVP) investment in transmission created tremendous value. From 2002 to 2015, the construction created more than 114,000 job-years with a peak of 16,700 to 25,800 total jobs in 2014. The projects also delivered up to \$765 million in state and local tax revenue, and up to \$1.5 billion of federal tax revenue.
- In Texas, the development of Clean Renewable Energy Zone transmission lines led to \$5 billion in incremental economic development.

## Decarbonization and Environmental Benefits of Transmission

By building transmission to move clean power from remote regions where it is produced to where it is needed at any moment in time, the country can access low-cost and carbon-free clean energy.

One study found that building transmission in the eastern United States can cost-effectively reduce the electric sector CO<sub>2</sub> emissions by 95% by allowing the region to obtain more than 80% of its electricity from wind and solar by 2050. The report showed that increased access to low-cost renewable energy resources could translate to more than \$300 in annual household savings. As electric utilities utilize more renewable energy resources and private industry turns toward electrification, the environmental value of switching to electricity increases.

The transportation sector is now the largest contributor to greenhouse gas emissions in the United States, accounting for 27%. The country must quickly transition to widespread use of electric vehicles (EV) powered by clean energy. To achieve this, the public and private sectors must work together to rapidly scale the charging infrastructure necessary to power EVs and expand transmission to meet the growing energy demand of electrified transportation in the passenger, medium-duty and heavy-duty classes.

## Burying high-voltage transmission strengthens the grid

Expanding transmission is not easy. In the last two decades, the United States has not built interregional transmission lines needed to modernize our grid. In addition to antiquated, overlapping regulations, public opposition to viewshed impacts of new lines has often proven to be an insurmountable barrier. By burying high-voltage transmission lines in existing transportation rights-of-way, the public opposition barrier can be almost eliminated.

### SOURCES

- [Transmission Planning for 100% Clean Electricity](#), Energy Systems Integration Group
- [Transmission Makes the Power System Resilient to Extreme Weather](#), Americans for a Clean Energy Grid
- [Interconnections Seam Study](#), Department of Energy, National Renewable Energy Lab

#### ***About NextGen Highways***

*The NextGen Highways is a collaborative initiative promoting the use of highways and other existing rights-of-way as infrastructure corridors where electric and communications infrastructure are strategically and safely co-located in existing highway right-of-way. Learn more at <http://www.NextGenHighways.org>*