

Modernizing the Nation's Transmission Infrastructure



Why Do We Need More Transmission?

Electricity is the lifeblood of the modern U.S. economy. The ability to get electrons from where they are generated to where they are consumed is essential to virtually everything Americans do on a daily basis.¹ Yet, our electricity grid is aging¹ and needs sustained attention and private investment in order to continue to provide reliable, affordable service to consumers. Just as other sectors of our national infrastructure have evolved to more cheaply and efficiently transport goods and services, so too must our national electric infrastructure be revitalized to support our increasingly plugged-in economy, reduce blackouts, enhance reliability, reduce congestion, and save consumers money.

The Benefit of an Expanded Grid

Transmission provides dozens of economic and reliability benefits to consumers. For example, transmission facilitates access to lower cost generation, reduces the need to build additional generation to hold in reserve, facilitates robust electricity markets, provides economic development and jobs, and helps generators and utilities comply with public policy requirements, among other benefits.

While transmission does have an upfront cost, transmission more than pays for itself several times over through the economic and reliability benefits provided. Multiple reports² by the Brattle Group have detailed the expansive benefits of transmission. Brattle found that a likely annual investment range of \$12 billion to \$16 billion in transmission through 2030 would stimulate \$30 billion to \$40 billion in economic activity and support 150,000 to 200,000 full-time jobs per year.

The Mid-Continent Independent System Operator (MISO), the entity that operates the grid in parts of the Midwest, has calculated that the benefits of new transmission are **2.6 to 3.9 times greater than their cost** and will provide **\$13–50 billion in net benefits** over the next 20 to 40 years, between \$275 and \$1,000 for each person currently served by that grid.³ These conclusions are conservative given that certain benefits were not qualified and would make the economic benefits of transmission even greater: market competition, a more resilient power system, fuel diversity, and system flexibility.

In the Southwest Power Pool's (SPP) Value of Transmission report, the grid operator found that transmission expansion and upgrades undertaken from 2012–2014 yielded **savings 3.5 times greater than the cost of the upgrades**. The upgrades will create nearly **\$12 billion in benefits** for consumers over the next 40 years, or **\$2,400 per customer**.⁴

Transmission is Necessary Even with Energy Efficiency and Distributed Generation

While energy efficiency and distributed generation will continue to play an important role in our energy mix, they are not a replacement for low-cost, utility-scale wind energy. Asset management firm Lazard recently released its latest levelized cost of energy analysis⁵, which shows that wind energy is one of the lowest-cost sources of new generation, even compared to rooftop solar. The study also found that wind energy has by far the lowest cost of reducing carbon and actually has a negative cost of abatement, i.e. using wind energy to reduce carbon emissions is a net economic positive. Transmission is critical to accessing this reliable, low cost, location-constrained resource.

When congestion occurs on the transmission system, wind generators are sometimes curtailed, which means that dirtier, more expensive generation is dispatched to meet

1 Seventy percent of transmission lines and power transformers in use today are more than 25 years old. See: Weather-Related Power Outages and Electric System Resiliency, Congressional Research Service, August 28, 2012. Available at: <https://www.fas.org/sgp/crs/misc/R42696.pdf>.

2 Available at: http://www.wiresgroup.com/wires_reports.html

3 Available at: <https://www.misoenergy.org/Library/Repository/Study/Candidate%20MVP%20Analysis/MTEP14%20MVP%20Triennial%20Review%20Report.pdf>. MISO also detailed a variety of benefits for their multi-value project portfolio of projects. Additional information available at: <https://www.misoenergy.org/Planning/TransmissionExpansionPlanning/Pages/MVPAnalysis.aspx>

4 SPP's January 2016 report: <https://www.spp.org/value-of-transmission/>.

5 Available at: <https://www.lazard.com/media/2390/lazards-levelized-cost-of-energy-analysis-90.pdf>

customers' load. With a robust transmission grid, regional grid operators are able to cost-efficiently and reliably balance variable resources across diverse geographic areas.

What is Needed to Build on this Success?

The key to expanding and upgrading the transmission grid is workable policies for how transmission is planned, paid for, and permitted. The Federal Energy Regulatory Commission (FERC) took an important step in the right direction with Order 1000 in 2011, which established further requirements and principles related to how transmission is planned and paid for on a regional and interregional basis. While it made some strides, more must be done to ensure efficient and cost-effective transmission solutions are available. Among the recommendations AWEA makes are the following:

Planning:

Transmission planners should be required to engage in forward-looking transmission planning that proactively plans for, among other things, public policy requirements established by state or federal laws or regulations, environmental regulations, market forces, and new technologies. More robust planning should consider the broad range of benefits transmission provides customers. The current interregional planning requirements should be strengthened, including requiring consistency and standardization of planning and cost allocation processes between neighboring regions (e.g., the same planning analyses and benefit metrics should be used between the regions).

Paying:

Transmission infrastructure is furthered through broad transmission cost allocation, based on the touchstone principle of "beneficiaries pay." Large-scale transmission projects inevitably provide broad benefits across large areas through improved reliability, greater access to low-cost generation, improved market efficiency, and protection against fuel price uncertainty, among other benefits.

Permitting:

Even with improved transmission planning and cost allocation, transmission projects must still be successfully sited if they are ever going to be built and serve markets. One of the main barriers to a more robust transmission grid is the difficult state siting process, which often requires multiple states to approve lines.

In the Energy Policy Act (EPAAct) of 2005, Congress established a new federal role for "backstop" jurisdiction over the otherwise state-controlled permit process for transmission line projects in areas designated by DOE. If a state "withheld approval" of a filed application for more than a year, the applicant could turn to FERC for a siting permit. Unfortunately, this siting process has proven ineffective due to imprecise wording in EPAAct. AWEA urges consideration of the need to establish a workable federal backstop siting authority for electric transmission lines.

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