NEXTGEN HIGHWAYS

FACT SHEET

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What's Driving the Need for Transmission?

Between now and 2050, the U.S. could need up to five times as much transmission capacity to meet ambitious decarbonization goals. Several factors are driving this increased need:

We are going electric

Electrification of both transportation and buildings is accelerating in the United States.

- According to analysis by the Department of Energy's National Renewable Energy Laboratory (NREL), widespread electrification will increase the country's electricity consumption up to 40% by 2050.
- The Investment in Infrastructure and Jobs Act provides $7.5 billion for the U.S. EV-charging infrastructure. The goal is to install 500,000 public chargers—publicly accessible charging stations compatible with all vehicles and technologies—nationwide by 2030.
- Battery electric trucks are expected to become cost-competitive for smaller trucks before 2030 while heavy trucks with less than 500-miles of range are projected to be cost-competitive by 2035.
- The building sector is undergoing a similar transition, with high-efficiency air and ground source heat pumps replacing gas and propane heating systems and water heaters.

We are decarbonizing the U.S. power grid

Across the United States, market economics, public policies, and corporate and utility goals are driving investment in renewable energy generation. According to Princeton University's "Net Zero America" project rapid transition to carbon neutrality would require at least doubling the nation's transmission capacity to enable the integration of low-cost, domestic clean energy resources. The regions of the country with the most abundant energy resources are often distant from population centers. The country will need new transmission capacity to move that clean power from where it is produced to where it is needed.

We need improved electric grid reliability

Extreme weather events are increasing in frequency and severity. An integrated grid with access to diverse energy generating resources increases resilience. Many storms, heat waves and polar vortexes migrate from region to region. By adding transmission, a region can import electricity during its time of need and then export to other regions once the weather has passed.

We have an opportunity to reduce cost through coordination and economies of scale

Connecting large geographic areas via transmission can save billions of dollars per year by reducing the need to build additional power plant capacity. According to the Energy Systems Integration Group, "without the addition of significant multi-regional transmission, system planners will need to significantly overbuild local renewable resources in order to manage weather patterns and meet demand." Modeling research from the Massachusetts Institute of Technology shows that power-sharing across state boundaries by means of a massive U.S.-wide transmission build-out could "slash the costs of reaching a zero-carbon grid with wind, solar and battery technologies that are cost-effective today."

Our power grid is aging

A report by the American Society of Civil Engineers, noted that the "majority of the nation's grid is aging, with some components over a century old." These transmission lines should not simply be replaced. The country's transmission planners should be coordinating to develop a plan that provides for the system needs that exist now and that will grow in the decades to come.

Sources

- Department of Energy National Renewable Energy Lab: Electrification Futures Study
- Department of Energy: DOE Projects Zero Emissions Medium- and Heavy-Duty Electric Trucks Will Be Cheaper than Diesel-Powered Trucks by 2035 | Department of Energy
- Princeton University: Net Zero America Project – Possible Pathways, Infrastructure, and Impacts
- Congressional Research Service: Electricity Transmission Provisions in the Inflation Reduction Act of 2022

- Congressional Research Service: Energy and Minerals Provisions in the Infrastructure Investment and Jobs Act (P.L. 117-58)

- American Society of Civil Engineers: Report Card for America's Infrastructure

- GreenTech Media: MIT Study: Transmission Is Key to a Low-Cost, Decarbonized US Grid

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