



U.S. ENERGY AND CLIMATE ROADMAP · CHAPTER BRIEF

Decarbonizing the U.S. Economy with a National Grid

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One of the cheapest ways for the federal government to encourage the growth of renewable power is to remove the regulatory obstacles that prevent grid access to the most cost-effective renewable resources in the country. To facilitate building a nationwide high voltage direct current grid, the federal government could simultaneously assert FERC's primary role in transmission permitting and encourage the upgrading and re-use of existing rights of way.

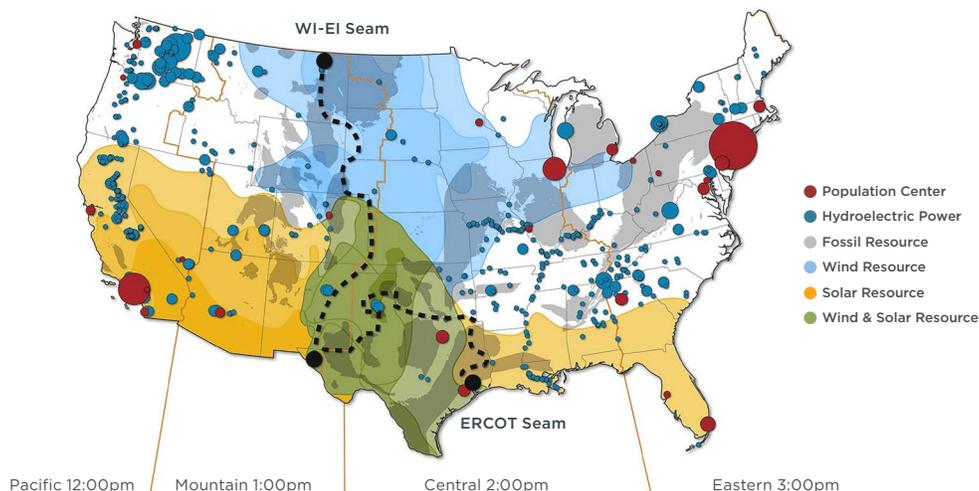
The Challenge

A decade ago, the principal challenge for reducing emissions from the power sector was technological: wind and solar technologies were not cost competitive with conventional fossil fuels. Today, with costs down dramatically, the challenge is to deliver power to where people are, when they need it. The transmission grid was not built to move a substantial fraction of the nation's power over long distances. This means wind and solar energy are generally used around the areas where it is plentiful, and help keep prices low. However, these areas do not receive the economic boom experienced by "coal country," which existed as an economic force because railroads deliver energy to the rest of the country. Without a power transmission network, state governments have relied on tools, such as renewable portfolio standards, to encourage renewable generation. But it is inefficient to encourage the use of these resources in areas not abundant with them. Meanwhile, renewable-rich areas—such as California, where solar is abundant—produce more power than the system can use. Consumers are therefore being paid to use electricity, and production subsidies encourage generators to continue producing even when there is no place for the power to go.

Policy Context

In the early days of electrification, it was important to co-locate generation and users because power diminished quickly with distance when transmitted at the low voltages that were common at the turn of the 20th century. State and municipal governments regulated utilities, protecting them from being undercut by competing generators that might have generated closer to the energy source and transmitted the power by wire. Thus, while there was national infrastructure to move fuel over railroads and through pipelines, the infrastructure to move electricity was local. The mid-1990s saw three main types of reforms: the introduction of retail competition so consumers could choose their provider, the divestiture of power plants to unregulated entities, and the introduction of wholesale electricity markets. While the process for securing access to the grid and selling power competitively became somewhat easier, the incentives that guide the development of the transmission system itself are still a vestige of the old days of locally regulated utilities. Each state has a century of regulatory procedure on the books that defends its local utilities from outside competition, making it challenging for new entrants hoping to link generation and demand centers through transmission.

Renewable Resources and Load Centers



Source: NREL Interconnections Seam Study

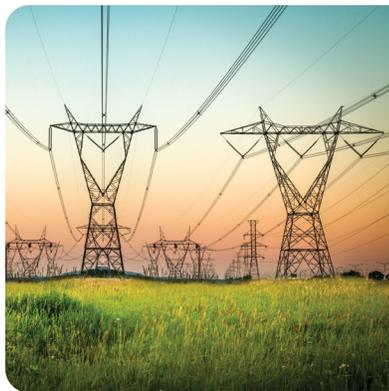
Recommendations

An incoming administration could pursue two complementary approaches in tandem: a hammer, to assert the Federal Energy Regulatory Commission's (FERC) primary role in transmission permitting to ease obstacles at the state level; and a feather, to encourage the upgrading and re-use of existing rights of way to develop a nationwide high voltage direct current grid. Reserving the right to use the hammer is likely to make prospective opponents more amenable to the lighter touch.

- The hammer: Make FERC the primary venue for transmission project permitting.** FERC already manages permitting for interstate oil and gas pipelines—a streamlined process that relies on demonstrating need, an environmental impact review, and siting work. This process could serve as a template for electricity transmission permitting. Legislation that consolidates FERC's permitting authority could remove state and county veto power over transmission projects. Outside of legislation, the incoming administration could use its authority to designate National Interest Electric Transmission Corridors. Once the Department of Energy designates a new transmission corridor between wind and solar resources and population centers, states would have one

year to consider permit requests at the state level before FERC would be empowered to take over permitting.

- The feather: Encourage the use of existing rights of way for new high-voltage transmission lines.** Instead of enforcing eminent domain to secure easements from unwilling property owners, the federal government may also use the Federal-Aid Highway Program to encourage creative use of existing rights of way such as waterways, railroads, and highways. While these are generally not under federal jurisdiction, the government provides most of the funding for their maintenance. The federal government can encourage the use of existing rights of way to include transmission lines by either supplementing existing funding or making some funding conditional upon expedited permitting in these corridors.
- Additionally, FERC and the Federal Trade Commission should conduct a close examination of the incentives facing existing transmission line owners and independent system operators to determine whether market power concerns, perverse regulatory designs and/or across-state issues are impeding transmission upgrades and, if so, to recommend or implement policy changes.



FURTHER READING

Imperfect Markets versus Imperfect Regulation in U.S. Electricity Generation

American Economic Review (Conditionally accepted)

Natural experiment using the U.S. electricity system shows regions using a market approach saves about \$3 billion a year.