



OFFICE OF ENERGY INDEPENDENCE

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Electricity Transmission

- One of the biggest constraints on the expanded growth of renewable power in the United States will be the ability of the transmission grid to deliver large amounts of energy to customers.
 - Transmission polled as number one hurdle for wind industry expansion among experts at AWEA conference last June.
 - Stranded in MISO queue alone ~67GW of wind.
- Why is transmission so important for wind energy development?
 - Some of the best wind resources in the country are typically located in areas that are farthest away from the largest markets for electricity. By expanding and upgrading transmission systems, wind energy could be more easily moved from distant areas to population centers with the greatest need for electricity.
 - By facilitating the expansion and geographical dispersion of wind power across a wide area, an upgraded transmission grid also increases the steadiness of wind supply on the grid. Wind more likely to be blowing somewhere.
- A robust grid offers many benefits, including savings to customers by getting cheaper generation to where it is needed; less generation use through greater efficiency.
- Example: The AEP high-voltage transmission plan has an estimated price tag of \$60B; they did not attempt to quantify the benefits.
- However, Idaho National Laboratory recently released a study concluding that five proposed transmission lines in the Western U.S. would provide \$55-85 billion in annual benefits, many times larger than the costs.

Smart Grid facilitates renewable energy and reduces need to build base load generators.

- With old grid, when wind/sunshine ceases; natural gas turbines are kicked on.
 - Smart grid sends signals to customers that reduce demand at those times to help synchronize demand with supply, without burning fossil fuel.
 - FERC estimates that demand response programs could reduce usage by 41GW equaling 5.8% of U.S. peak demand.

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