

Electricity Transmission

The electricity transmission system in the U.S. is increasingly outdated and inadequate.¹

- ▶ Seventy percent of the transmission lines in the U.S. are at least 25 years old.
- ▶ The U.S. loses an average \$80 billion each year as a result of blackouts.
- ▶ Transmission congestion also increases the price of electricity. For the Eastern grid alone, congestion resulted in an estimated \$8 billion in electricity costs in 2008.²
- ▶ During the 2003 blackout in the upper Midwest, 50 million people lost power and \$6 billion in lost economic activity was incurred.



Strains on the transmission system are increasing.

- ▶ In the past 50 years the U.S. population has doubled. It is expected to grow 30 percent more by 2050, which will increase the demand for electricity and pressure on the grid.
- ▶ Total electricity demand is expected to rise 1.1 percent by 2030. By census region, states will see the following increase in electricity demand by 2030: New England, .6 percent; Mid-Atlantic, .4 percent; South Atlantic, 1.2 percent; East South Central, .7 percent; West South Central, .8 percent; East North Central, .7 percent; West North Central, 1.0 percent; Mountain, 1.4 percent; and Pacific, .9 percent.³
- ▶ Twenty-seven states now have renewable portfolio standards, which means an increase in the load on the electricity grid as new renewable energy sources are connected. That will require new transmission lines.
- ▶ Local municipalities have in recent years rejected new transmission lines, preventing much-needed upgrades to the grid.

Improving the transmission system to ensure reliability and continuity of service will require demand response initiatives, smart grid technology, and interstate cooperation.

- ▶ Forty-five states have adopted demand response initiatives, which alleviate the need for new transmission by relying on consumer energy efficiency measures.
- ▶ Regional transmission organizations and independent system operators serve 67 percent of U.S. electricity consumers and are essential to maintaining efficient and equitable grid operations.⁴
- ▶ Interstate compacts governing transmission line siting, as granted by the Energy Policy Act of 2005, represent a significant opportunity to facilitate transmission development, yet no states have taken advantage of the opportunity.
- ▶ Smart grid technology relies on computers to monitor the health of the system and repair problems as quickly as possible. The Edison Electric Institute estimates the cost to upgrade to a smart grid is \$85 billion.

¹ Swain, Gabe, The Council of State Governments, Trends in America Issue Brief: Electricity Transmission, June 2008.

² Johnston, David Cay, New York Times, Grid Limitations Increase Prices for Electricity, December 13, 2006.

³ Energy Information Administration, Supplemental Tables to the Annual Energy Outlook 2008, Regional Energy Consumption and Prices by Sector, Tables 1–9, accessed from: <http://www.eia.doe.gov/oiaf/aeo/supplement/supref.html>, on January 20, 2009.

⁴ ISORTO, accessed from: <http://www.isorto.org>, on January 22, 2009.

⁵ U.S. Department of Energy Efficiency and Renewable Energy, Demand Response/Load Management Programs, accessed from http://www1.eere.energy.gov/femp/program/utility/utilityman_energymange.html, on January 22, 2009, 2009. Demand Response data accessed from ISO-RTO website, on January 22, 2009.

⁶ Energy Information Administration, Major Disturbances and Unusual Occurrences: YTD through September 2008 Dec. 12, 2008, accessed from: <http://www.eia.doe.gov/cneaf/electricity/epm/tableb1.html>, on Jan. 15, 2009.

SIGNIFICANT POWER FAILURES IN THE STATES FROM JANUARY TO SEPTEMBER 2008⁶

State	Power Loss	* Reason For Power Loss	State Initiatives to Improve Grid Reliability ⁵
Alabama	x	S	DR
Alaska			DR
Arizona			
Arkansas	x	S	DR, ISO/RTO
California	x	S, E, L	DR, ISO/RTO
Colorado			DR
Connecticut	x	S	DR, ISO/RTO
Delaware			DR, ISO/RTO
Florida	x	L, E	DR
Georgia	x	S	DR
Hawaii			DR
Idaho			DR
Illinois	x	S	DR, ISO/RTO
Indiana	x	S, E	DR, ISO/RTO
Iowa	x	S, E	DR, ISO/RTO
Kansas			DR, ISO/RTO
Kentucky	x	S	DR, ISO/RTO
Louisiana	x	S, L	DR, ISO/RTO
Maine	x	S	DR, ISO/RTO
Maryland	x	S	DR, ISO/RTO
Massachusetts	x	S	DR, ISO/RTO
Michigan	x	S	DR, ISO/RTO
Minnesota			DR, ISO/RTO
Mississippi	x	S	ISO/RTO
Missouri	x	S	DR, ISO/RTO
Montana			DR, ISO/RTO
Nebraska	x	S	DR
Nevada			
New Hampshire	x	S	DR, ISO/RTO
New Jersey	x	S, E	DR, ISO/RTO
New Mexico	x	S, E	DR, ISO/RTO
New York	x	S, E	DR, ISO/RTO
North Carolina	x	S	DR, ISO/RTO
North Dakota			ISO/RTO
Ohio	x	S	DR, ISO/RTO
Oklahoma	x	S	DR, ISO/RTO
Oregon			DR
Pennsylvania	x	S	DR, ISO/RTO
Rhode Island	x	S	DR, ISO/RTO
South Carolina	x	S	DR
South Dakota			DR, ISO/RTO
Tennessee	x	S	ISO/RTO
Texas	x	S	DR, ISO/RTO
Utah	x	L	DR
Vermont	x	S	DR, ISO/RTO
Virginia	x	S	DR, ISO/RTO
Washington	x		DR
West Virginia	x	S	DR
Wisconsin			DR, ISO/RTO
Wyoming			DR

*Key: S=Storm, E= Equipment Failure, L= Load Shedding (purposefully selecting customers to face brownouts due to inadequate supply to meet demand). +DR= Demand Response program, ISO or RTO= Member of ISO or RTO. (Note, ISO or RTO may not cover entire state.)