

Keeping Texas Competitive

A Legislator's Guide to the Issues 2013-2014



Renewable Energy & Energy Mandates

The Issue

Wind, water, biomass, and the sun are the oldest energy sources used by mankind. The inherent limitations of these sources motivated people to seek more efficient and reliable fuels to power society.

The peak use of windmills was in the 1930s and 1940s. Farmers stopped using them because rural electrification provided electric power far more reliable and often less expensive than wind. Yet today, we are turning back to this expensive and inefficient energy source because of government mandates and subsidies, which are driving up electricity costs for Texas consumers.

In 1999, Texas adopted a Renewable Portfolio Standard (RPS) mandating that the state's competitive electric providers buy a minimum 2,000 MW of qualifying energy by 2009. In 2005, the Texas Legislature increased the RPS to 10,000 MW by 2025. Despite this increase, Texas met the RPS target for installed wind capacity in 2010, a full 15 years ahead of schedule.

In addition to Texas' RPS, generous federal subsidies, combined with favorable wind conditions in the vast open plains of west Texas, have encouraged wind production. In fact, the federal tax credits for renewable energy may be the driving force behind the rapid growth of Texas' wind generation; when the federal credits briefly lapsed, new wind installation in Texas dried up, despite the fact that no change had been made in Texas' RPS.

Looking at installed capacity of Texas' wind generation overstates the available energy Texas can receive from wind power. There is a critical distinction between a power source's installed capacity, i.e., the amount of electricity that could be generated by a plant operating at full power 24/7, and its actual net generation, i.e., its capacity factor. For wind and solar power, the difference between installed capacity and actual net generation is often substantial, because of the intermittent nature of those energy sources (the sun doesn't shine at night or when it is cloudy, and the wind does not blow hard enough or often enough to utilize a turbine's full capacity). Periods of high wind can also be problematic, if they do not occur during periods of peak demand for electricity.

In addition, wind tends to blow hardest at night and during off peak months when there is less overall demand, and not as much during the high demand summer months. For these reasons, ERCOT estimates that actual net generation for wind power in Texas is only around 8.6% of installed capacity.

Texas' wind farms are concentrated in the panhandle region. While this makes sense insofar as this is where there is the most wind to capture, this area is far from the focus of Texas' electrical demand, which lies along the I-35 corridor. The long distance of wind generation from population centers has led to large subsidies through construction of the Competitive Renewable Energy Zone (CREZ) transmission lines. To date, the CREZ lines are Texas' largest subsidy for renewable energy—though integration costs may soon surpass them. The cost to build the CREZ lines will be directly added to the bill of every electric consumer in ERCOT. While this same process is true of all transmission built in Texas, it is proper to characterize these costs as subsidies for renewable energy—particularly wind—because these lines are being built to where there is little generation other than wind. And that is likely to remain the case. Initial implementation of CREZ transmission has caused intense opposition from thousands of landowners. Transmission service providers anticipate thousands of eminent domain proceedings. The hundreds of miles of transmission through the CREZ lines can also mean line loss of roughly 10%.

Another major cost of wind is the integration of renewables into the electrical grid. Because they are intermittent, use of wind and solar power requires continual back-up generation to replace this electricity on the grid at a moment's notice. Typically, natural gas-fired generating units are used in an interruptible mode similar to idling a car. The cost of back-up generation is a hidden and wasteful cost of renewable energy.

A major problem with all of these costs is that they are not paid for by the investors in wind generation—as in the case of generation from traditional sources—and thus traditional market incentives cannot operate.

The Facts

- The Texas Renewable Portfolio Standard (RPS) mandates 10,000 MW of renewable capacity by 2025, of which 500 MW must be from non-wind sources.
- The cost of wind Renewable Energy Credits—perhaps \$41 million per year—is passed on to consumers through the price of electricity.
- CREZ transmission lines—being built to transmit electricity from wind farms in West Texas—will add as much as \$1.3 billion annually to electricity bills once the lines have been completed.
- The back-up generation and grid-related costs of wind energy could increase ERCOT's system production costs by \$1.82 billion per year.

Recommendations

- Eliminate the Renewable Portfolio Standard.
- Support elimination of the federal production tax credit.
- Require all electrical generators to meet the same standards, including renewable energy sources.
- Eliminate the 50% natural gas mandate.

Resources

Texas Wind Energy: Past, Present, and Future by Drew Thornley, Texas Public Policy Foundation (May 2010).

Learning from Others' Mistakes: What Europe's Experience with Renewable Mandates and Subsidies Can Teach Texas by Josiah Neeley, Texas Public Policy Foundation (Feb. 2012).

Texas' Renewable Energy Experiment by Bill Peacock, Texas Public Policy Foundation (Dec. 2010).

