

Texas became the nation's most prolific generator of wind power in the past decade, but the industry's future growth will depend on tax incentives to make it cost competitive and new transmission lines to get electricity to consumers.

With advances in turbine technology and tax breaks, wind power is now the largest source of renewable energy generation in Texas and second only to hydroelectric in the nation. The state's installed capacity is approaching 8,500 megawatts (MW)—just over 28 percent of the U.S. total, up from 7 percent a decade ago (*Chart 1*).

If projects under construction in Texas are completed by year's end, capacity will increase by nearly 30 percent in 2009. While significantly below last year's 65 percent gain, this growth rate just about matches the median of 37 percent over the past nine years.

On a generation-cost basis, wind energy is competitive with conventional forms of power—but only after taking tax incentives into account (*Chart 2*). The American Recovery and Reinvestment Act of 2009 extended the federal production tax credit

(PTC) through the end of 2012. It provides renewable energy facilities a 2.1 cent per kilowatt hour credit for the first 10 years of operation. Texas offers additional incentives for developing renewable energy—for example, exemption from property taxes.

Tax incentives appear critical in driving wind industry growth. Every time Congress has allowed the PTC to expire, new installed capacity dropped significantly the next year. When the PTC lapsed in 2001, Texas saw no new capacity in 2002 and U.S. capacity grew only 10 percent, down from 66 percent the previous year. In 2003, the PTC lapsed again, and Texas saw another year of no new capacity in 2004.

Distance Poses Obstacle

Connecting new capacity to the grid is one of Texas' greatest challenges. Hills surrounded by open plains are the best locations for wind power, so most turbines are in Texas' west and northwest regions, far from consumers in urban areas.

Transmission lines from west and north-west Texas require an estimated investment

of \$1.5 million per mile. Earlier this year, the Public Utility Commission of Texas began awarding contracts to build 18,456 MW of transmission capacity under a \$4.93 billion project funded by fees on residential customers' electricity bills.

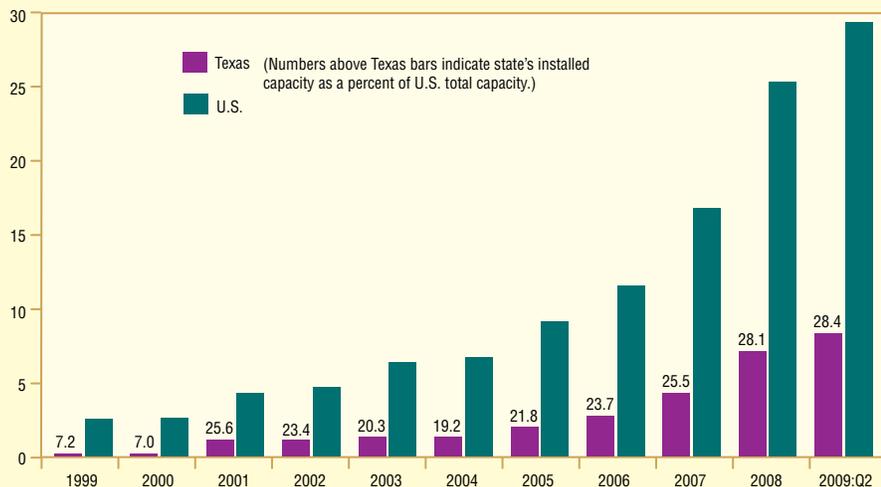
Continued growth in wind power benefits Texas' economy. The National Renewable Energy Laboratory estimates that each 100 MW of installed capacity creates six to 10 permanent operation and maintenance jobs. The construction process supports 100 to 200 temporary jobs. In addition, landowners and farmers who allow wind turbines to be located on their property receive rental payments.

Difficulties raising capital in the aftermath of a credit crisis and low natural gas prices will likely slow capacity growth in the short term, but Texas' geography provides an edge in wind power. Wind energy now makes up only 3.5 percent of Texas electricity consumption, but it's likely to continue growing over the longer term, becoming a viable energy source for the state.

—Jackson Thies

Chart 1
Wind Power Capacity Rises in U.S., Texas

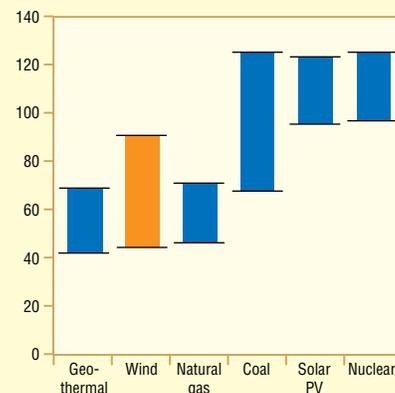
Megawatt installed capacity (thousands)



SOURCES: "2nd Quarter 2009 Market Report," American Wind Energy Association; Texas Comptroller of Public Accounts.

Chart 2
Wind Power Competitive—With Incentives

Dollars per megawatt hour



NOTE: Price ranges reflect all applicable tax incentives and capital costs. Assumes coal price of \$1.75 per million Btu and natural gas price of \$4 per million Btu.

SOURCES: Lazard: Levelized Cost of Energy Analysis—Version 2.0; other calculations by the Dallas Fed.