

# Texas Has ‘All-of-the-Above’ Energy Approach

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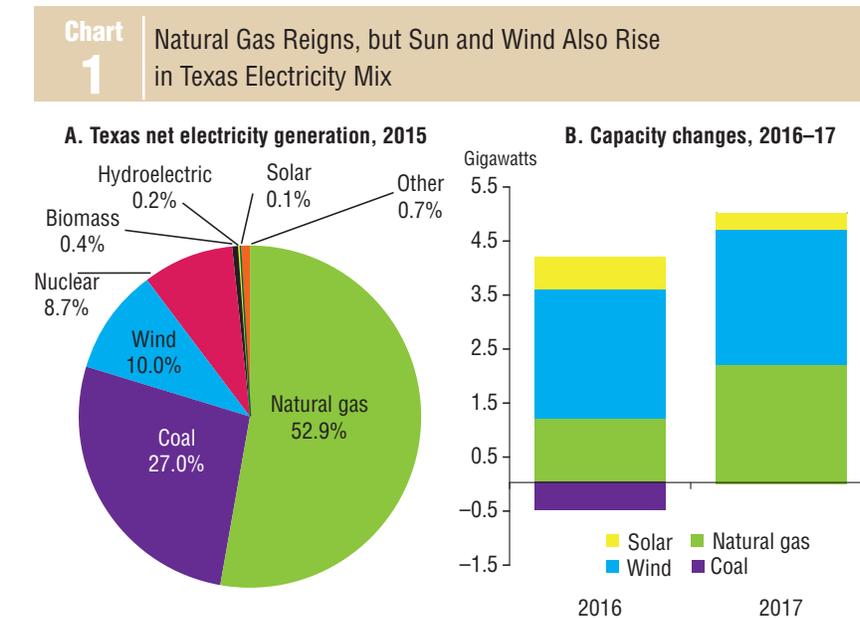
**A** bundant, cheap natural gas has been viewed as an obstacle to broader adoption of renewable energy. Yet during 2016, a year of rock-bottom natural gas prices, several multimillion-dollar wind and solar power plants broke ground in Texas. Overall, the Texas outlook suggests an “all-of-the-above” approach rather than an “either-or” choice between renewables and hydrocarbons.

Tax incentives, cost reductions and consumer preferences have kept renewables competitive in Texas even though natural gas-fired generation still accounts for most of the state’s electrical output. In 2015, around one-fifth of electricity generated in Texas came from renewable resources (wind, solar, nuclear, hydroelectric and biomass), half from natural gas and the rest from coal (*Chart 1A*).

Planned capacity additions will not drastically change this profile; wind ranks first among additions due in 2016 and 2017, followed by natural gas (*Chart 1B*). Many wind projects are in West Texas, far from urban centers. Large projects, such as Amazon.com Inc.’s estimated \$300 million wind farm about 75 miles from Abilene in Scurry County (scheduled for completion next year), should help bring jobs and investment to mostly-rural communities. In Amazon’s case, the project is motivated by a long-term push to power its cloud web services using 100 percent renewable energy.

Texas is known for being the country’s No. 1 oil and gas producer, but it also leads in wind turbine electricity. Wind has flourished in Texas, bolstered by electricity market deregulation in the 1990s, investment in transmission lines in the 2000s and long-standing property tax exemptions for solar and wind generators.

U.S. Energy Information Administration (EIA) data show that 42 percent of the nation’s gains in wind generation capacity in 2015 were in Texas, the most of



NOTES: “Other” includes other gases, petroleum liquids and coke and all other electricity sources. Capacity changes are final through September 2016 and planned thereafter. Annual totals include projects of at least 1 megawatt.

SOURCES: Energy Information Administration; author’s calculations.

any state. Texas wind-generated electricity has broken multiple records in 2016, a trend expected to continue, according to the Electric Reliability Council of Texas.

While Texas is a wind leader, its solar output has lagged that of other states—notably California. National Renewable Energy Laboratory research suggests that sunny, windy Texas boasts near twice as much technical solar and wind energy potential as the next-closest states. Yet solar has made up a tiny fraction of Texas’ electricity mix historically—for example, just 0.1 percent in 2015.

Texas solar growth has been largely concentrated in Austin. This year, the city was among the first 14 nationwide to receive a gold designation by the Department of Energy, recognizing efforts to make solar easier and cheaper to adopt and install. Solar panel costs per watt have fallen roughly 70 percent since 2010 due to efficiency improvements and abundant polysilicon used in photovoltaic cells.

Government subsidies have helped reduce costs even further for wind and solar. Texas’ primary electricity market

is highly competitive, so even small tax incentives can greatly affect which electricity sources are competitively priced.

In December 2015, Congress extended two federal corporate tax credits, offering stability to developers whose renewable plants can have 20- to 40-year life spans. A production tax credit rebates 2.3 cents per kilowatt-hour for the first 10 years of operation (primarily wind). An investment tax credit refunds 30 percent of outlays involving renewable energy (primarily solar). Both incentives are set to decrease as they approach expiration, in 2019 and 2022, respectively.

Renewables are subsidized by the federal government in part because they lessen pollution. Solar and wind are free of emissions. Electricity generation from natural gas emits roughly half the carbon dioxide as coal for the same amount of power. Texas ranked first in carbon dioxide emissions in 2013 (the latest EIA data available), with around twice the emissions of second-place California. As coal-fired plants retire, a rise in renewables and natural gas usage should improve Texas’ standing.