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# The Texas Power Market: An Industry in Flux

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December 2, 2015

Enter your zip code, review plans for your area, and click to sign up. Texas is one of 16 deregulated power markets in the country, and a website called PowertoChoose.org makes it simple for Texans to compare and switch electricity providers. The number of Texas providers has more than doubled since 2004, leading to a competitive power market where companies jockey for market share, race to provide cheap service, and offer perks to try and boost customer loyalty.

Further innovating, many Texas electricity providers now send customers information to help them reduce electricity usage. For example, one Texas provider includes with bills information related to the amount of power used by major home appliances. Many companies are even aiming to give Texans the ability to monitor usage remotely, not out of altruism but rather in an effort to increase loyalty and ultimately lock the customer into additional contractual terms. But is this level of innovation enough?

## Texas Power: Then and Now

Like most states in America, Texas faces a number of serious challenges in ensuring continued efficient and reliable power for its end-users. Ninety percent of Texas' electric load is managed by one independent system operator, the Electric Reliability Council of Texas (ERCOT). The biggest problems are arguably 1. weak supply through aging infrastructure and lack of sufficient generation capability; and 2., increasing demand from rapid population growth. In 2014, the trade group Texans for Reliable Power warned of regular rolling blackouts in future years without an overhaul of the wholesale power market. Thankfully, rolling blackouts have not yet occurred, though ERCOT did issue ten operational notices due to insufficient grid capacity in August 2015 alone. To add to the current capacity of 74,000 megawatts (MW), ERCOT has approved 12,754 MW of new generation and has 51,100 MW of additional requests under review.

Notably, Texas is America's top wind power producer. Wind power development in Texas began growing rapidly in 1999 when Governor George W. Bush signed the Renewable Portfolio Standard into law, requiring utility companies to obtain part of their energy from wind power. Now home to nearly 10,000 wind turbines, Texas produced 4 percent of the nation's wind

power and produced 9 percent of its electricity from wind in 2014. Over the last decade, coal-fired power plants have supplied around 40 percent of the electric load, though a confluence of factors including tightening emission standards, cheap natural gas, and an abundance of wind power have resulted in coal currently supplying just 25 percent. Natural gas-fired power plants have risen to about 50 percent this year, up from 35 percent in May 2014.

Solar power development has taken a very different path in Texas. Despite being a sun-drenched state, through the second quarter of 2015 Texas ranked only tenth in solar photovoltaic capacity with 387 MW installed. Texas legislators now recognize that solar power is cost-competitive in Texas, and its use would help mitigate Texas' water shortage problems since solar production uses very little water. Some recent solar projects in Texas are priced at below \$50 per megawatt-hour, making these projects competitive with natural gas. Effective Sept. 1, 2015, a new law in Texas allows homeowners more flexibility in installing solar panels, and a law taking effect Jan. 1, 2016 will eliminate unnecessary paperwork for homeowners who choose solar. ERCOT estimates that more than 10,000 MW will come online by 2029, and has over 9,600 MW of solar projects under its review.

## Looking Ahead

Bringing more power generation online from natural gas, wind and solar would help mitigate the risk of generation shortages. Whether currently planned new generation plants actually get built in the face of low wholesale power prices remains to be seen, and whether the extra capacity added will be enough to keep up with population growth is also unclear.

Even if all planned new generation capacity comes to fruition, the problem of an aging infrastructure remains. That's where the concept of "distributed generation," or "distributed energy resources" (DER) may have a role to play. DER refers to grid-connected power generation at the point of consumption, where any spare capacity can be sold back to the grid operator at market prices. Generating power on-site, rather than centrally, eliminates the cost, complexity, inefficiencies and sometimes unreliability associated centralized power. A white paper released by ERCOT this summer states that "electric systems and markets worldwide are dealing with dramatic change, and a major focus of the future will be on DERs."

The paper primarily focuses on two goals: 1. collecting data for the region to ensure grid reliability as DER penetration increases in the future, and 2. developing a market framework that can better accommodate DERs and enable efficient market participation of distributed resources. DER is already a reality in Texas' capital city of Austin. There, customers of the public electric utility can install grid-connected solar panels to their homes and receive credits on electricity bills for each kilowatt-hour of electricity their solar panel system produces.

An additional area that warrants attention is what might happen if more end-users decide to generate power themselves, but rather than connecting to the grid and selling spare capacity back to ERCOT they choose to remain disconnected from the grid entirely. As more users move off the grid, the utilities and centralized power system could get trapped in an economic death spiral as fewer users on-grid means less revenue to support grid maintenance, forcing operators to raise rates and thus driving even more end-users off the grid.

There is a great deal of uncertainty in the future of the Texas power industry, but Texans can certainly expect continued competition among existing power providers and probably new entrants into the market. Distributed power is likely, whether grid-connected DER or off-the-grid

producer-consumers, and electricity providers must work to keep end-users on the grid or reconsider their business models.

As the nation's top energy producer as well as consumer, Texas has often been a leader in developing new technologies and innovations in power and energy. With a thoughtful policy approach in the legislature and strong investment in the private sector, expect Texas to remain a leader.

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