



Guide to the Issues #1: Resource Adequacy

Meeting Texas' Energy Needs

Issue Summary:

Most Texans take it for granted that the lights will turn on when they flip the switch. The Public Utility Commission of Texas (PUC) has determined that having almost 14% more power generation capacity than normally demanded at peak times is required to avoid widespread electrical outages more often than once in 10 years (which is a common industry standard). Obtaining this goal within the restructured electric market in Texas, however, presents a challenge.

The ERCOT electric market, which serves 80% of all Texans, was restructured as an “Energy-only Market” in which the electricity needed to meet demand at any given time is bought and sold every 15 minutes. This means that we depend on price signals rather than regulatory requirements to ensure “resource adequacy,” or an available supply of electricity to meet demand at all times.

In general, when supply is sufficient, prices remain low. When demand is high and all generation facilities—even the older ones—are running, prices rise. These rising prices should, in theory, give a signal to generators to build more generation capacity. The key to an effective energy-only market is for regulators to allow prices to rise high enough during scarcity. These high prices attract investors to fund new generation. However, regulators have understandably been reluctant to allow the price of electricity to rise without limits. As a result, by suppressing prices, regulators do not allow the “free” market to send a price signal that more generation should be built.

In another type of market structure, called a “capacity market,” generators are paid to be available to meet demand. In a capacity market, revenues to generators include an energy payment for when they actually generate power and a capacity payment based on their total capacity to respond to demand. This approach allows regulators to decide how much reserve capacity is needed to

meet peak demand reliably, and then to hold a separate “capacity auction” to allow the market to determine how much it will cost to reach that level. All other electric systems in the US with functioning wholesale markets have adopted some form of a capacity market to ensure resource adequacy.

Key Policy Considerations to Ensure Resource Adequacy

Regardless of the structure of the electric market, there are many policy tools available to help meet peak demand, lower wholesale market prices, and reduce the amount of generation that needs to be built to support a few peak hours of the year.

Energy Efficiency: Energy efficiency, for example, can be used as a resource to reduce overall consumption and peak demand. Some market structures allow efficiency to compete against new generation, although there has not been a serious discussion of its potential in ERCOT to date. Policies to increase demand response, by contrast, are currently receiving significant attention at the PUC and at ERCOT.

Demand Response: Demand response is a term that encompasses many different kinds of voluntary load management on the part of customers. Generally speaking, customers agree to reduce their energy usage in response to a specific event, such as a spike in energy prices or an emergency announced by the grid operator.

Because demand and prices spike only a few hours each year (less than 50 hours per year on average), enlisting consumers to reduce their energy use during those periods typically makes more sense than building new generation.

According to a recent analysis of the ERCOT market by the Brattle Group (commissioned by the PUC), Texas would benefit from getting more demand side resources into the market. The analysis showed that

ERCOT's energy-only market structure will lead to a reserve margin of only about 10%, which would likely result in more outages than the industry standard of one every ten years. Brattle concluded that if weather like the summer of 2011 occurs again in the future, Texas could likely experience 13 outages in one summer.

Price Caps: Last year, the PUC adopted a policy that raises the price caps on generators offering into the wholesale market in hopes this will attract new generation. The cap was raised 50% effective August 1, 2012 to \$4,500 per MWh and an additional 100% (to \$9,000 per MWh) effective 2015. Some new plants have been announced since these changes.

Required Reserve Margin: The PUC is also considering requiring each entity that serves customers in ERCOT (whether in competitive areas or not) to maintain nearly 14% reserve of additional generation, or alternatively, adopting a capacity market.

Conclusion

Additional policies should be considered to ensure adequate resources are available to meet Texas' growing electric demand. Demand side resources—if given sufficient opportunity to compete in Texas' electric market—can help manage electric consumption, lower prices, and increase grid reliability. Future Texas Clean Energy Coalition guides will address these policies in more detail.

RESOURCES AND CITATIONS:

The Brattle Group. *ERCOT Investment Incentives and Resource Adequacy*. June 1, 2012

<http://www.brattle.com/documents/UploadLibrary/Upload1047.pdf>

Federal Energy Regulatory Commission. *Assessment of Demand Response & Advance Metering Staff Report*. November 2011.

<http://www.ferc.gov/legal/staff-reports/11-07-11-demand-response.pdf>

Public Utility Commission of Texas. *Commission Proceeding to Ensure Resource Adequacy in Texas (Control # 40000)*. <http://interchange.puc.state.tx.us/>

ERCOT – Generation Adequacy Task Force.

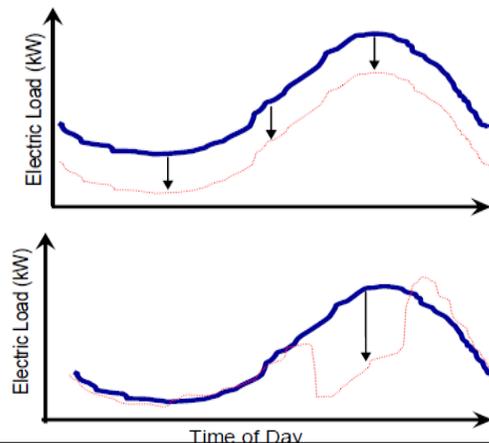
<http://www.ercot.com/committees/board/tac/wms/gatf/index>

ENERGY EFFICIENCY

- Reduce total kWh consumed with permanent efficient technologies.

DEMAND RESPONSE

- Temporary reduction of energy usage
- Curtailment “events” triggered by reliability or high prices.



The illustration above shows the difference between energy efficiency and demand response, and how both can contribute to reduction of peak load.