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A Texas Electric Capacity Market: The Wrong Tool for a Real Problem

Prepared for Public Citizen of Texas

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Foreword

Debate is raging in Austin at the State Capitol over how to keep the lights on as demand for electricity increases and new power plant construction slows down. Some advocate for giving power plant owners payments for being ready to generate electricity while others prefer to create incentives for reducing electrical usage. Public Citizen commissioned a study to analyze the impact of the former on the electric grid in Texas.

Texas' Reliability Problem

Much of Texas is encompassed in the Electric Reliability Council of Texas (ERCOT), a wholesale electric market administrator. ERCOT's mission, as its name implies, is to "serve the public by ensuring a reliable grid, efficient electricity markets, open access and retail choice."¹ ERCOT's ability to achieve its mission is being tested by a projected capacity deficit that could occur as early as 2013. Capacity resources in ERCOT are expected to fall below the level needed to meet customers' need plus a targeted "reserve margin" of 13.75%.

ERCOT stakeholders are currently involved in a public discussion of policy options to address the state's resource adequacy challenge. Potential solutions have been discussed in a number of forums and include implementing a "capacity market" to using "scarcity pricing." In this report, we focus on the former.

At an October 25, 2012 meeting, the consultant for the Public Utility Commission of Texas (PUCT), the Brattle Group, offered two approaches for addressing Texas' resource adequacy problem. The first was to continue with the energy-only wholesale market but provide additional support for the participation of demand response (DR).² A key piece of this approach is the creation of a DR-only capacity market.³ The second approach was to create a three-year forward capacity market. This market, substantially similar to that operated by another wholesale electric administrator, PJM, would allow buyers to purchase capacity for one year, three years in advance. Under the first approach, the idea is to provide incentives for investment in demand response. Under the second, the goal is to provide incentives for investment in new capacity resources of all kinds. Depending on to whom you speak, capacity markets either have successfully maintained reliability at a low cost or have gouged customers and discouraged investment in new generation.

This report analyzes PJM's experience with forward capacity markets, and evaluates whether a similar market could solve Texas' resource adequacy

¹ ERCOT Board of Directors' Resolution dated February 21, 2012.

² Demand response is a reduction in customer electrical use in response to price or other signals.

³ A capacity market is a wholesale market for the purposes of facilitating buying and selling of supply from power plants and other resources that meet customer electrical demand.

challenge.⁴ Overall, forward capacity markets in other areas of the country have demonstrated the ability to incentivize new demand response resources and thus increase reserve margins and reliability in participating states. However, at the same time, capacity markets have paid billions of dollars to existing generators without evidence that those payments were necessary to ensure reliability.

Given the high potential for DR in Texas and ERCOT's experience with DR as a reserve resource, it is clear that some broader pathway for DR's participation can bring reliability benefits and assist in maintaining an adequate reserve margin. Because of the potential costs and lack of guarantee that payments to existing generators will incentivize new generation, it is unlikely that a forward capacity market is the preferable pathway to expand DR in Texas or to deal with its resource adequacy challenges.

Forward Capacity Market Revenues Would Primarily Flow to the Owners of Existing Generation Facilities and Thus Have a Limited Impact on Texas' Reliability Challenges

PJM's forward capacity market, called the Reliability Pricing Model (RPM), allows both existing and new generating facilities to participate. Participants commit their resources for a one-year period three years in advance of delivery. Nine RPM auctions have been held so far, for capacity in the 2007/2008 through 2015/16 Delivery Years. As shown in Figure 1, below, in these nine RPM auctions the owners of existing power plants will receive over \$54 billion, the largest share of capacity payments, by far, by the 2015/2016 Delivery Year.

⁴ This report focuses on PJM's capacity market because it is the most similar to that proposed for Texas.

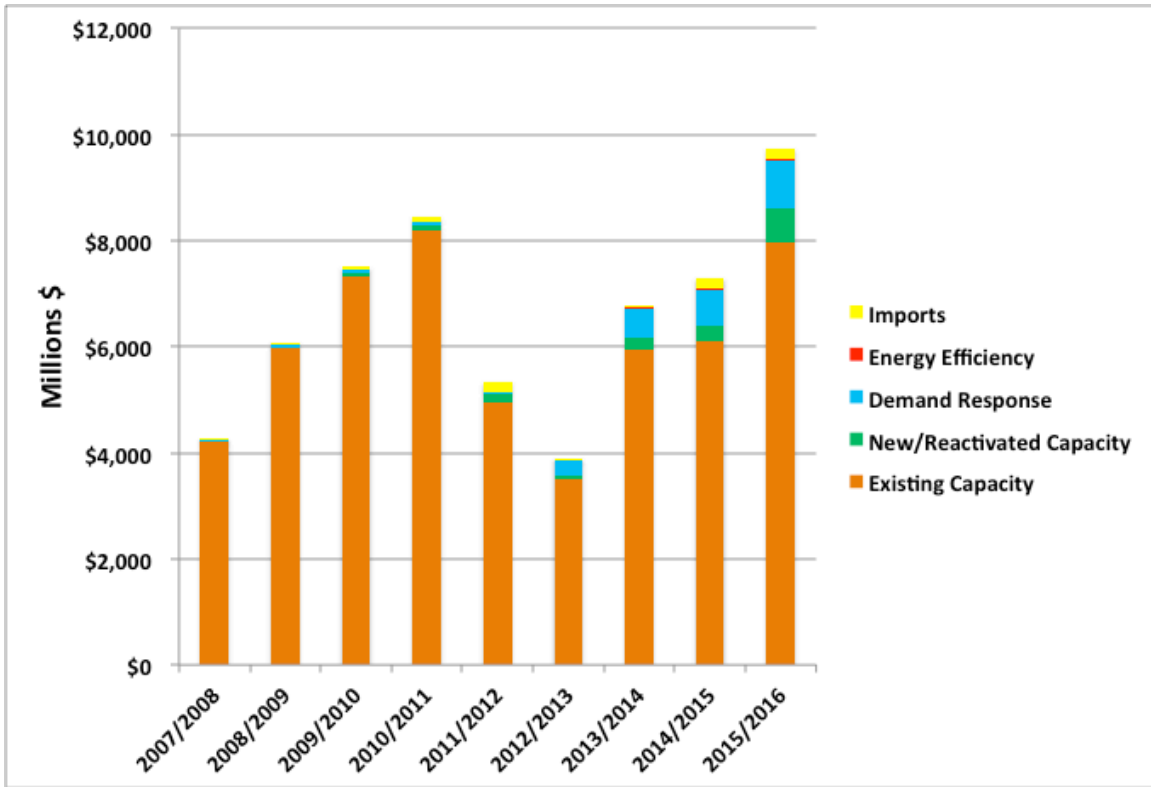


Figure 1. Capacity Revenues by Generator/Resource Type⁵

Capacity revenues flow primarily to existing generators because, in large part, existing generators make up most of the capacity offered in RPM. If the success of RPM is measured by how many new resources have been added, then RPM’s chief success has been in incenting the participation of demand response measures. Figure 2, below, shows the types of capacity that have cleared in each PJM RPM auction conducted to date.

⁵ 2012 Quarterly State of the Market Report for PJM: January through September, by Monitoring Analytics, LLC, the Independent Market Monitor for PJM. Available at <http://pjm.com/~media/documents/reports/state-of-market/2012/2012q3-som-pjm.ashx>, page 106.

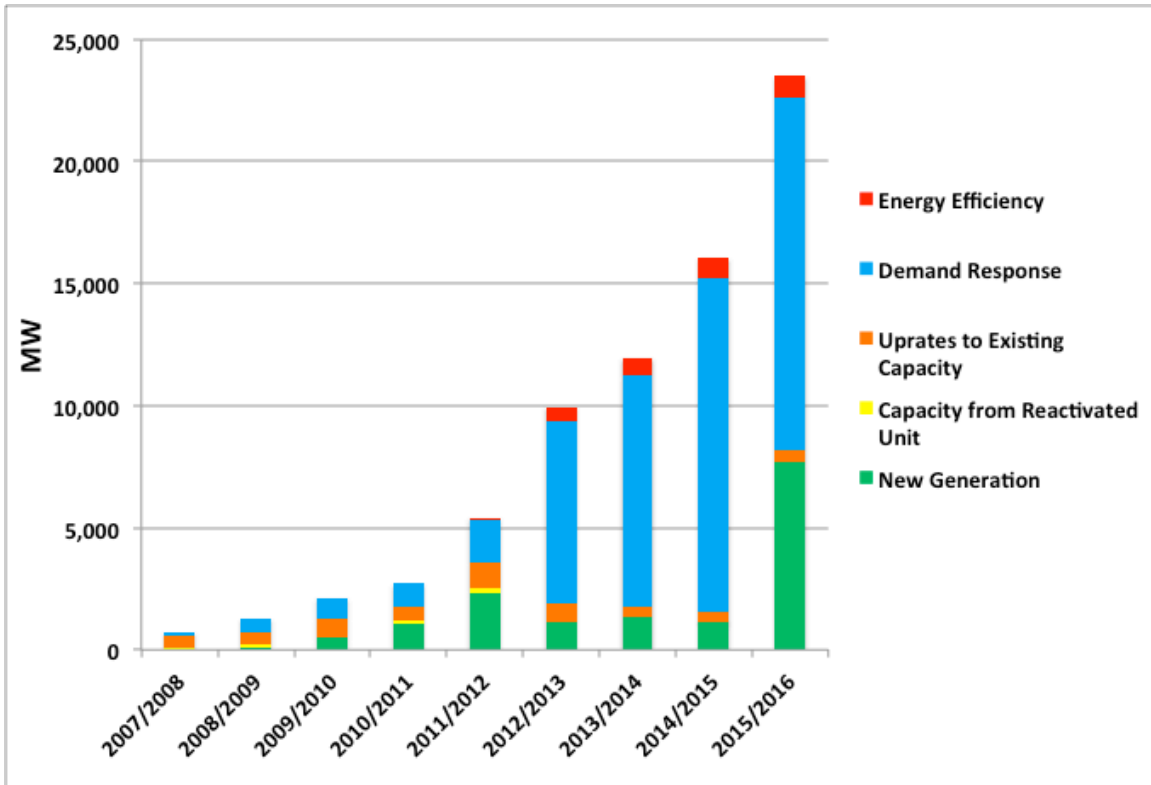


Figure 2. New Resources Additions Clearing RPM Auctions^{6,7}

As shown in Figure 2, demand response has clearly made up the majority of new capacity added to the PJM system. There was a jump in other new generation for the 2015/2016 Delivery Year, but two-thirds of this new generation was from plants supported by state government initiatives. For example, the states of New Jersey and Maryland, out of frustration with RPM’s inability to incent new generation, issued Requests for Proposals for capacity and required the winning respondents to bid their capacity into RPM.

In contrast to the \$54 billion owed to existing generators from the RPM capacity auctions, the owners of new capacity resources will receive only \$4.2 billion through the 2015/2016 Delivery Year. With PJM just over twice the size of ERCOT in terms of peak demand, a three-year forward capacity market in Texas would likely mean a market worth billions of dollars even in its first year. For example, UBS Securities

⁶ 2015/2015 RPM Base Residual Auction Results, available at <http://www.pjm.com/~media/markets-ops/rpm/rpm-auction-info/20120518-2015-16-base-residual-auction-report.ashx>, page 21.

⁷ The demand response and energy efficiency resources shown in Figure 2 include at least some resources that had initially cleared in prior years.

estimated that a forward capacity market in ERCOT would initially result in \$1.1 to \$2.3 billion of capacity payments to generators.⁸ Unfortunately, these payments would not guarantee that any new capacity will be added.

A Capacity Market Cannot Solve Texas' Near-Term Problem

The three year period between auction and delivery is intended to give bidders time to construct or implement their projects. As a result, even if such a market could be up and running in Texas in 2013, delivery of those resources would likely not occur until at least 2016. Auctions could be held less than three years in advance of the delivery year, but it is unlikely that any auction could be held in time for resources to meet the peak 2013 demand. In fact, Sam Newell of the Brattle Group, in his October 25th presentation to the PUCT, stated that an auction could happen in 2015 only if it was announced in the spring of 2013, without benefit of the market rules actually being in place.

In addition, experience with the other two mandatory forward capacity markets in the country, in PJM and in ISO-New England (ISO-NE), strongly suggests that 2015 is the earliest by which a capacity market could be formed.

As the Brattle Group noted in its 2011 report on the PJM capacity market, FERC approved RPM in an order dated December 22, 2006 after “an extensive stakeholder and market design effort lasting more than two years...The first RPM auction took place in April 2007 and procured capacity for the 2007/2008 delivery year.”⁹ Under that timeframe, ERCOT would not have a capacity market running until nearly summer of 2015.

ISO-NE's market took even longer to set up. The Federal Energy Regulatory Commission (FERC), the body that regulates interstate transmission of electricity, directed, in April 2003, that ISO-NE develop the resource adequacy mechanism that

⁸ “What Would Capacity Prices Look Like in Texas?” by UBS Investment Bank, October 5, 2012.

⁹ Pfeifenberger, J., et al. *Second Performance Assessment of PJM's Reliability Pricing Model*. August 26, 2011 by the Brattle Group. Available at: <http://www.pjm.com/~media/committees-groups/committees/mrc/20110818/20110826-brattle-report-second-performance-assessment-of-pjm-reliability-pricing-model.ashx>, page 3.

would eventually be the Forward Capacity Market (FCM).¹⁰ On June 16, 2006, FERC approved the settlement agreement on FCM's design.¹¹ Final market rules were not approved until February 2007 and the first auction was not conducted until February 2008.¹² Under that timeframe, ERCOT would not have a capacity market ready to conduct auctions until February 2018.

In addition, both the ERCOT Board of Directors as well as the PUCT would also likely need to approve a significant increase in ERCOT's budget even in the present year just to get some market changes started. As an example, ERCOT's 2013 budget for implementing pilot projects and protocols has already been spent and committed this year, meaning that ERCOT would have to start the process of increasing their administrative fee in order to begin the market design and protocol revisions needed to implement a forward capacity market.

Litigation and Controversy can be Expected to Accompany a Forward Capacity Market

Because ERCOT is an intrastate market it falls outside of the jurisdiction of the FERC so the disputes and controversies that would inevitably develop would fall within the purview of the PUCT.

In its *Second Performance Assessment of PJM's Reliability Pricing Model*, the Brattle Group noted a large number of areas of disagreement between stakeholders in PJM. A few examples include:¹³

- **RPM Prices** - "End-users and state commissions in eastern PJM stated that RPM prices were too high and may not be commensurate with the value of

¹⁰ FERC Order in Dockets No. ER03-563-030 and ER03-563-055, available at http://www.iso-ne.com/regulatory/ferc/orders/2006/jun/er03-563-030_er03-563-055_6-16-06.pdf

¹¹ *Id.*

¹² Jenkins, C., et al. "Playing with the Big Boys: Energy Efficiency as a Resource in the ISO New England Forward Capacity Market." Presented at the ACEEE Summer Study on Energy Efficiency in Buildings, April 17 – 20, 2008. Available at: http://www.veic.org/Libraries/Resumes/Playing_with_the_Big_Boys_Jenkins_FCM_final.sflb.ashx, pages 2 and 3.

¹³ Pfeifenberger, J., et al. *Second Performance Assessment of PJM's Reliability Pricing Model*. August 26, 2011 by the Brattle Group. Available at: <http://www.pjm.com/~media/committees-groups/committees/mrc/20110818/20110826-brattle-report-second-performance-assessment-of-pjm-reliability-pricing-model.ashx>, page 51.

reliability to customers.” However, “[g]eneration and transmission owners stated that eastern prices were not high enough to attract new investments, while western prices are too low and are creating retirement incentives.”¹⁴

- **Lack of Capacity Additions** - “Concerns about a lack of new generation entry were expressed by eastern state commissions, electric distributors, end use customers, some generators and some transmission owners. Other generators and transmission owners stated that fears of a capacity shortage were overstated and that new investments can be financed when prices are high enough.”
- **Reliability Standards and Customer Reliability Requirements** - “End use customers and state commissions stated their belief that PJM has an institutional bias to overstate load forecast and reliability requirements, causing excess costs to customers.”

Interestingly, the one area of agreement between stakeholders in PJM was “that [forward capacity market] prices are volatile and too difficult to predict.” This alone suggests that a forward capacity market offers a weak incentive to construct new generation. In fact, Moody’s noted during a January 4, 2013 roundtable with UBS Investment Bank that “that capacity revenue is not as creditworthy and dependable as energy revenue due to its short timeframe of certainty, the volatility, and the potential for political intervention should high capacity prices persist. This is particularly relevant for new projects, where capacity revenues are less financeable.”¹⁵

The Brattle Group’s October 25, 2012 presentation to the PUCT suggested a three-year forward capacity market would be the most desirable method to address Texas’s capacity deficit but acknowledged, in response to a question from PUCT Commissioner Kenneth Anderson, that its evaluation of the options was “subjective.”

¹⁴ RPM prices vary by location under the presumption that this will send signals to build generation in deficit or congested areas.

¹⁵ “UBS IPP Power Points: Focus on Texas, Again (A Look at the Week Ahead)” by UBS Investment Bank on January 7, 2013.

On the issue of reliability, the Brattle Group represents a three-year forward market as “[able to achieve] required reserved margins more reliably than other approaches.” However, as the North American Electric Reliability Corporation’s (NERC) most recent reliability assessment¹⁶ has demonstrated, all other regions of the country, most of which do not have three year forward capacity markets, are successfully meeting their reliability criteria. This includes areas, as in Texas, without vertically integrated utilities (utilities who have separated their distribution and generation facilities). It does not follow, therefore, that a three-year forward market would be more reliable than “other approaches.”

On the issue of cost, the Brattle Group maintains that a three-year forward market results in the “least-cost resource solution.” However, there is no evidence to support this claim. Sam Newell of the Brattle Group said that this conclusion was based in part on the fact that a capacity market that does not allow all resources to compete could potentially “discriminate” against lower cost resources. As we noted above, capacity revenues to existing generators in PJM will total over \$54 billion through 2015/2016 while revenues to new capacity including DR and energy efficiency will total only \$4.2 billion. If PJM’s RPM only allowed new capacity to participate, we think it is highly unlikely that payments to new capacity would come close to or even exceed \$54 billion. And even if out of market payments were necessary to support certain existing generators, there is no evidence that those payments would even come close to \$54 billion. Therefore the question remains, where is the evidence that a three-year forward market would result in a “least-cost resource solution”?

On the issue of regulatory stability and investor risk, the Brattle Group admits that in a forward capacity markets there is “no long-term price guarantee for investors” and that there is “ongoing uncertainty in administrative parameters, such as [the] load forecast.” These concerns are substantiated by PJM stakeholders. Both buyers and suppliers of capacity agree that the former is a problem in PJM.¹⁷ And

¹⁶ NERC, “2012 Long-Term Reliability Assessment.” November 2012, page 1.

¹⁷ Pfeifenberger, J., et al. *Second Performance Assessment of PJM’s Reliability Pricing Model*. August 26, 2011 by the Brattle Group. Available at:

there is vociferous debate among PJM stakeholders on whether PJM overstates load requirements.

In fact, within Texas there already is considerable debate over ERCOT's own load forecast projections, and the PUCT has recently opened a separate docket to investigate the latest load forecast report, known in ERCOT as the *CDR*, or the *Report on Capacity, Demand and Reserves within the ERCOT Region*. Thus, even settling on the correct projections and an appropriate reserve margin could take considerable time and will not be without controversy.

Conclusion

Capacity markets in other jurisdictions have had mixed results at best. Their success has been primarily in allowing demand response resources to participate in wholesale energy markets, but that participation has come at the cost of billions of dollars flowing to existing generators with no evidence that those payments result in new generation. Because of these problems, Texas' capacity needs cannot await the construction of or be solved by a capacity market. While it is important to provide more opportunities for demand response to participate in ERCOT markets, we believe the PUCT should pursue other market alternatives.

<http://www.pjm.com/~media/committees-groups/committees/mrc/20110818/20110826-brattle-report-second-performance-assessment-of-pjm-reliability-pricing-model.ashx>, pages 51 - 53.