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PROJECT NO. 40000

COMMISSION PROCEEDING  
TO ENSURE RESOURCE  
ADEQUACY IN TEXAS

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**COMMENTS OF THE DEMAND RESPONSE COALITION IN RESPONSE TO  
QUESTIONS POSED BY THE COMMISSION IN THE AUGUST 29th OPEN MEETING**

**I. Introduction**

The Demand Response Coalition<sup>1</sup> is pleased to provide its comments in response to the questions posed by the Commission in the August 29<sup>th</sup> Open Meeting regarding Project No. 40000. In that meeting the Commission requested responses to the following questions:

- Should a reserve margin be mandated?
- If a reserve margin is mandated, what is the standard on which it should be based?
- Is the ERCOT load growth forecast methodology sound?
- What is the most effective way of meeting a mandated reserve margin?

At the subsequent Open Meeting on September 12<sup>th</sup>, the PUC directed ERCOT to proceed with the development of an Operating Reserve Demand Curve (ORDC) with the Value of Lost Load (VOLL) set at \$9,000 and the capacity threshold at 2,000 MW. As

<sup>1</sup> The following companies in the Demand Response Coalition, which consists of the leading national demand response service providers and technology companies and represents most of the U.S. demand response industry, are sponsoring these comments: Comverge, Inc., Consert, EnerNOC, Inc., Johnson Controls, Inc. North America Power Partners, and WeatherBug (Earth Networks, Inc.).

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members of the Demand Response Coalition have noted in previous comments, the ORDC should be a complement to efforts to improve resource adequacy in ERCOT. The ORDC is not the total solution. Dr. Hogan made the same point in his paper proposing the ORDC.<sup>2</sup> The ORDC is expected to improve scarcity pricing to some degree, and to send price signals to resource developers in order to incent the development of new resources.

We are encouraged by the Commission's direction to ERCOT to develop and publish "shadow" ORDC prices based on the Commission's stated preferences for VOLL and the MW threshold, but scarcity conditions during shoulder and winter months are rare and may depend on extreme weather conditions. In addition, for the summer of 2014, ERCOT's most recent Capacity, Demand and Reserves Report<sup>3</sup> is projecting a reserve margin above the current reliability planning reserve margin, which indicates a diminished likelihood of reaching scarcity conditions. Without such scarcity conditions, developers may see little demonstration of how ORDC is likely to affect long term prices in ERCOT, and thus may not see the price signals prevailing in the market as a reliable indicator for investment decisions.

Therefore, while the ORDC may address certain long-term structural market issues it remains critical for the Commission to focus resources and action on proposals that will directly impact resource adequacy and preserve system reliability. Our responses to the questions below indicate our recommendations for such action.

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<sup>2</sup> "Electricity Scarcity Pricing Through Operating Reserves: An ERCOT Window of Opportunity," Hogan, p. 1 & 10.

<sup>3</sup> See ERCOT's Capacity, Demand and Energy Report –May 2013 at <http://ercot.com/news/presentations/index>.

## II. Summary of key recommendations and conclusions

- The Commission should adopt a mandated planning reserve margin to ensure resource adequacy both for market participants and electric customers in ERCOT. A mandated reserve margin is a critical component of a larger set of requirements to ensure system reliability.
- Consistent with the Brattle Group's recommendation, the reserve margin should be based on a thorough review of the costs and benefits of alternative reserve margin levels, levels in regions of the country with similar characteristics to ERCOT, and customers' expectations. However, a significant reduction in the level of reliability is not appropriate and, at a minimum, customers should have the expectation for a bulk power system that is at least as reliable as in other parts of the country.
- A capacity market design is the most effective way to meet a mandatory planning reserve margin for ERCOT going forward.
- The Brattle Group in its report provides compelling reasons to adopt a capacity market construct.<sup>4</sup> Additionally, the ERCOT independent market monitor has stated that, "consistent with Brattle's findings, it is our view that, if the planning reserve margin is viewed as a minimum requirement, implementation of a capacity market is the most efficient mechanism to achieve this objective."<sup>5</sup>
- In our collective experience in capacity markets throughout the U.S. and Australia, such markets work well for maintaining resource adequacy and do a far better job of incenting customers to participate in demand response than energy-only markets. Brattle has indicated that participation of demand side resources is critical to maintaining resource adequacy.<sup>6</sup>

## III. Should a reserve margin be mandated?

The Demand Response Coalition believes the Commission should adopt a mandated reserve margin to ensure resource adequacy in ERCOT. As noted in the Brattle Report (2012) administrative price-adder approaches such as the ORDC do not dependably meet target reserve margins.<sup>7</sup> Reserve margins serve as critical measurements of future resource availability to meet demand. The forecast reserve margins provide valuable

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<sup>4</sup> Brattle Report at 115-117.

<sup>5</sup> Potomac Economics, Ltd., *2012 State of the Market Report for the ERCOT Wholesale Markets*, (June 2013), at 90.

<sup>6</sup> Brattle Report at 88.

<sup>7</sup> Brattle Report at 111.

information for interested parties within the state as well as those businesses outside of Texas that are considering expanding into Texas. Reliable electric supply is a critical consideration for the energy intensive industries that have made Texas an economic powerhouse over the last century. Electric generation and demand response capacity are central components of providing customers reliable service, and reserve margins are the most effective tool to measure the resource capacity needs in the future.

One of the areas where the reliability standards should be improved in ERCOT is reserve margins, where the current margins are targets, and there is no mechanism to ensure that the targets are met. In our view, a system of a mandated reserve margin and a mechanism to meet it, under the Commission's supervision, is an essential improvement to the ERCOT market structure.

**IV. If a reserve margin is mandated, what is the standard on which it should be based?**

The Brattle Group, in its 2012 Report, recommended determining an economically desirable reserve margin target as well as a minimum acceptable reserve margin target, noting that the "1-in-10" standard applied in ERCOT and elsewhere has not been evaluated from an economic perspective.<sup>8</sup> During recent open meeting discussions, the Commission has indicated its intent to seek additional analysis from Brattle on the economically optimal reserve margin, and the Demand Response Coalition looks forward to reviewing this study when it is completed. However, we note that customer expectations also are important (including the expectations of business customers who

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<sup>8</sup> Brattle Report at 4.

are located in or considering relocating to Texas) and, accordingly, a significant lowering of reliability standards in ERCOT is not a prudent policy choice. At a minimum, customers should have the expectation of the same level of reliability that is available to customers in other parts of the U.S. We would expect that the Commission would propose reserve margins based on the considerations set forth above, with an opportunity for interested persons to comment before the reserve margins are set.

#### **V. Is the ERCOT load forecast methodology sound?**

The Coalition recognizes the importance of using sound forecasting methods in setting reserve margins and in administering any mechanism to meet a mandated reserve margin. We do not, however, have specific comments on ERCOT's forecasting methods.

#### **VI. What is the most effective way of meeting a mandated reserve margin?**

Over the past year, the Demand Response Coalition has participated actively in resource adequacy proceedings at the Commission.<sup>9</sup> The Coalition has come to the conclusion that a capacity market as a mechanism to achieve a mandatory reserve margin is the most effective approach to addressing the resource adequacy issue in ERCOT. This approach is best for the market and for customers. The DR Coalition has

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<sup>9</sup> The Coalition has submitted the following comments in Project No. 40000 on the important role for demand response in addressing resource adequacy:

- On July 11, 2012, the Coalition provided comments on the recently released Brattle Report. (Item 186).
- On August 30, 2012, the Coalition provided comments on the five policy options identified in the Brattle Report (Item 286).
- On October 23, 2012, the Coalition commented on the two "composite" options identified by the Commission (Item 337).

changed its position on resource adequacy, and we explain how we reached this conclusion below.

In the following section, we discuss what we see as the underlying rationale for a capacity market and then in the subsequent section we discuss some core principles that the Commission should adopt to ensure that demand response has an equal opportunity to participate in a capacity market.

#### **A. Need for a Capacity Market**

The key conclusion of the Brattle Group in their 2012 Report is summed up in this statement: “Our finding that the energy-only market will not dependably support ERCOT’s current reliability target until sufficient DR penetration is achieved suggests that either the market design needs to be adjusted or the reliability objectives have to be revised.”<sup>10</sup> This view is echoed in a recent report from UBS Investment Research, which states the following: “*We see an energy-only market structure as largely unsustainable, given its extreme price volatility (inherently capped in all markets), higher cost of capital for investors, and lack of predictability in analyzing reliability outcomes for regulatory institutions.*”<sup>11</sup> The Demand Response Coalition agrees that the current energy-only market is not sustainable in the long run. Further, the Demand Response Coalition believes that the second option offered by Brattle – to revise reliability objectives (in other words, to *lower* reliability objectives) – is not truly an option. Therefore, the only viable option is to modify the market design.

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<sup>10</sup> Brattle Group Report at 4.

<sup>11</sup> Julien Demoulin-Smith, UBS Investment Research, “Assessing the Effectiveness of US Capacity Markets,” Sept. 10, 2013, at 1 (emphasis in the original).

The economic literature has long recognized the need for a bifurcated approach to restructured electric markets in which different needs of the marketplace are met through the development of different markets, such as Ancillary Services markets. The need to price energy supply and resource adequacy separately is well established in both the economic literature and in real-life electric market experience. Until recently, Texas has been able to avoid the question of the need for a forward centralized reliability market primarily because of competitive forces. In the early 2000's, significant capacity was added in Texas as more efficient combined cycle generators entered the market to compete with steam turbine capacity. Later, wind and coal capacity was added during a period of high gas prices. Dramatically lower natural gas prices have eliminated such clear competitive opportunities, with the result that the market today faces an acute problem of inadequate incentives for the construction of new generation facilities. The downturn in new construction suggests that "energy-only" markets do not produce adequate revenues to attract investment in generating capacity."<sup>12</sup> Several leading economists have recognized this pattern in other restructured markets,<sup>13</sup> noting that the benefits of forward reliability markets include reduced market power, reduced risk and increased efficiency.

The view of economists Steven Stoft (MIT) and Peter Cramton (University of Maryland) best characterize our current situation: "The misconception most responsible for the current state of affairs is the notion that a cleverly designed 'energy-only' market

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<sup>12</sup> "Lessons Learned From Electricity Market Liberalization," Joskow (2007).

<sup>13</sup> "Economics and Design of Capacity Markets for the Power Sector," Cramton and Ockenfels (2011).

can induce optimal adequacy, or something close to it, even while the market has insufficient demand elasticity.”<sup>14</sup> In this sense, a forward market for reliability addresses two key issues: by attracting more demand response it increases demand elasticity, thus improving market efficiency while simultaneously bringing the market closer to optimal resource adequacy. The need for such an approach has long been established in the economic literature on “peak load” pricing issues, which has indicated a need for market mechanisms that value reliability/capacity separately from the real-time provision of energy.<sup>15</sup>

As noted by FERC Staff in their recently released report, *Centralized Capacity Market Design Elements*, centralized capacity markets were implemented in the northeastern markets (ISO-NE, NYISO, and PJM) “to provide more lead time and certainty for investment in new capacity resources, including an adequate opportunity for all resources to recover both their variable and fixed costs over time.”<sup>16</sup> The Demand Response Coalition agrees that centralized capacity markets offer greater market stability to allow for more rational investment decisions surrounding capacity resources, including demand response. Capacity payments provide the foundation for resource adequacy, whether for supply-side resources or for demand-side resources, because they provide a degree of revenue certainty for investors.

Further, capacity markets have attracted a diverse portfolio of assets, giving system operators greater flexibility to address extreme economic conditions, changes to

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<sup>14</sup> “Forward Reliability Markets: Less Risk, Less Market Power, More Efficiency,” Cramton and Stoft (2008).

<sup>15</sup> “Peak Load Pricing,” Boiteux (1960)

<sup>16</sup> FERC Docket No. AD13-7-000, Commission Staff Report: “Centralized Capacity Market Design Elements,” Aug. 23, 2013, at 2.

environmental requirements, and changes in fuel and resource mix. Overall, capacity markets have been more conducive to the development of competition from a wide variety of resources. As stated in the previously mentioned UBS Investment analysis:

Among the greatest successes of structured capacity markets has been their unique ability to allow novel technologies to compete on a nearly fungible basis with conventional generation. This phenomenon has substantially muted capacity prices during its nascent years, and should have a comparable mitigating effect on markets contemplating more formalized capacity markets (CAISO, ERCOT). While the CONE has been appropriately tagged to a conventional gas peaking plant, the effective source of incremental new capacity in recent years for PJM has been Demand Response (DR). DR has provided this incremental capacity at a fraction of the cost and efforts should be taken to continue to encourage such innovative solutions, including the continued development of mechanisms to allow energy efficiency and storage products to bid into auctions. These products have tangibly delivered great value to consumers.<sup>17</sup>

The economic impact of a capacity market design is an important consideration, as the benefits to consumers should outweigh the costs to implement the market. As noted above in the UBS commentary, the northeastern capacity markets “have tangibly delivered great value to consumers” by fostering greater competition among different types of resources. The ERCOT Independent Market Monitor (IMM) also discussed the economic benefits of a capacity market design versus energy-only in the 2012 State of the Market Report, noting that the low incremental costs to be incurred would result from having a higher reserve margin, rather than from introducing a capacity market. In return, consumers would have significantly higher reliability certainty. Referring to the Brattle report, the IMM summarized as follows:

Brattle estimates that even with \$9,000 per MWh system-wide offer caps, economic equilibrium for the ERCOT energy-only market is achieved at an 8 percent planning reserve margin, although the actual reserve margin outcomes will be uncertain. Brattle further estimates that in the energy-only market at annual equilibrium, wholesale generation costs will be \$18.3 billion. In contrast, Brattle’s assessment of a capacity

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<sup>17</sup> Demoulin-Smith at 2.

market with a more certain 14 percent reserve margin expectation, estimates generation costs at annual equilibrium to be \$18.7 billion. It is important to recognize that this increase in cost is not due to the introduction of the capacity market, it is due to the requirement to sustain a planning reserve margin greater than 8 percent. In fact, the Brattle analysis indicates that a capacity market would deliver the higher planning reserve margin at a relatively low incremental cost with much more certainty.<sup>18</sup>

In the long run, a capacity market – if designed in a manner that provides all resources a reasonable opportunity to compete on a level playing field – will deliver more competitive, economic outcomes to the benefit of consumers.

A recent experience in PJM demonstrates the value of demand response in meeting resource adequacy needs during challenging conditions. During the week of September 10<sup>th</sup>, normally a shoulder period in PJM, unexpectedly high temperatures led demand to spike at 10% over the previous September peak demand. In spite of a number of generation facilities being offline for typical seasonal maintenance,<sup>19</sup> operators were able to meet system demand except for areas that experienced local equipment failures (according to PJM, only a total of 0.1% of demand served was so impacted)<sup>20</sup>. PJM's capacity market has been successful in attracting new capacity, including demand response resources, which provided approximately 6,000 MW of demand response during this emergency. According to PJM officials, "Generation performance and demand response played significant roles in balancing the supply and demand on the grid during unusual conditions this week," and "PJM continues to see the value and success of demand response participating in PJM markets."<sup>21</sup> Without the mandatory reserve margin

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<sup>18</sup> Potomac Economics, Ltd., *2012 State of the Market Report for the ERCOT Wholesale Markets*, (June 2013), at 88-89.

<sup>19</sup> <http://www.reuters.com/article/2013/09/11/utilities-pjm-demand-idUSL2N0H72L920130911>

<sup>20</sup> According to Marketwatch.com, out of 144,370 MW of peak demand served on Tuesday September 10, an estimated 150MW were curtailed to stabilize local grid conditions.

<sup>21</sup> <http://www.pjm.com/~media/about-pjm/newsroom/2013-releases/20130912-pjm-meets-high-electricity-demand-during-unusual-heat-wave.ashx>

structure in PJM, it is unlikely that the 6,000 MW of demand response would have been available to system operators to avert a larger system blackout.

**B. Core Principles for Ensuring a Competitive Capacity Market Including Demand Response**

In developing a capacity market, the Commission should consider the following touchstone: the Commission should ensure that all qualified entities should be able to participate in the capacity market, including demand response. Moreover, all customer classes should have the opportunity to provide demand response to help address ERCOT's resource adequacy needs. In support of these fundamental tenets, we suggest the following principles that the Commission should recognize as it considers implementing a capacity market:

- **Broad Participation:** A capacity market must be structured so that all market participants in the ERCOT market can participate.
- **Resource Comparability:** There should be a "level playing field" that permits all types of resources to participate in the market. It is important to note, however, that does not mean that all resources must follow the same exact set of rules. Just as not every form of generation is capable of following the exact same set of rules (such as nuclear generation compared to gas fired generation), loads should not be forced to replicate the peculiar capabilities of any particular form of generation. Rather, loads should have comparable market rules that incentivize the participation of resources that have a reliability value.
- **Reasonable Performance Requirements:** Performance standards are required to ensure that all resources are available when needed for resource adequacy.<sup>22</sup>

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<sup>22</sup> See Comments of EnerNOC, Inc in FERC Docket No, AD13-7-000, Centralized Capacity Markets in Regional Transmission Organizations and Independent System Operators.

### **C. Rationale for Supporting a Capacity Market**

The Brattle Group has indicated that participation of demand side resources is critical to maintaining resource adequacy, regardless of the market design.<sup>23</sup> Further, both our prior comments to the Commission and the Brattle Group's assessment of the potential for demand response identified up to 7 GW of achievable demand response potential in the ERCOT market.<sup>24</sup> When we initially filed comments in this project, the Demand Response Coalition was optimistic that demand response would have an opportunity to develop in ERCOT, regardless of whether the market was structured as an energy-only or an energy-plus-capacity market, thus solving ERCOT's resource adequacy problem without requiring significant market changes. Over the past year, however, we have seen little progress in the development of opportunities for significant demand response in ERCOT, nor does there appear to be any new opportunity for significant demand response in the near future without significant market design changes and clear policy direction from the Commission.

We recognize that the ERCOT Board recently approved NPRR 555 ("Loads in SCED 1.0"), which allows loads to participate in the real time energy market if permitted by their retail electric provider, and this change may prove beneficial to the long run operation of the market. While we support the abilities of loads to participate in the real time energy market, the initial implementation of Loads in SCED will not result in substantial new demand response, and much more work remains to be done. We also continue to support

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<sup>23</sup> Brattle Report at 88.

<sup>24</sup> See the DR Coalition's August 30, 2012 comments at 6.

improving opportunities for demand response to participate in ancillary services markets through aggregations of loads, where recent progress also has been made at ERCOT.<sup>25</sup> Nevertheless, we believe that these mechanisms ultimately should be enhancements to an overall capacity market construct rather than the foundation for demand response or resource adequacy.

This conclusion is consistent with our experience in other markets throughout the world. In no market has a robust base of demand response participation been built exclusively upon an energy-only or an ancillary services-only market opportunity. Other market participants in ERCOT previously have argued that the key to ERCOT's future resource adequacy is a capacity market, and the Brattle Group, the Independent Market Monitor and investment analysts all agree that a capacity market is the best competitive solution to address resource adequacy. We join with these parties in suggesting that it is time to begin working toward implementation of a capacity market.

## **VII. Interim steps needed to ensure resource adequacy**

While a mandatory reserve margin, coupled with a mechanism to achieve it, will ensure that the ERCOT market achieves sufficient levels of resource adequacy over the long term, it does not address ERCOT's immediate short term reserve margin issues.<sup>26</sup> There is a growing concern that ERCOT may face reliability issues as soon as 2015, before a capacity market could be implemented. For example, ERCOT's summer 2013

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<sup>25</sup> For example, NPRR 532 provides an opportunity for aggregated loads to participate in non-spin.

<sup>26</sup> This Section follows the suggestions that the Demand Response coalition made on our prior comments filed in Project 40000 (See Item 286 at p. 6) and in Project 40268 (See Item 26 at p. 11). Our recommendations in those comments which should be referenced for additional suggestions on short term reliability options.

Capacity, Demand and Reserves Report (CDR) shows that, by 2015, ERCOT will have approximately 8,783 MW of generation in excess of peak demand, which equates to an 11.6% reserve margin. Based on these projections, ERCOT would need an additional 1,469 MW of capacity in 2015 in order to achieve the existing 13.75% reserve margin.<sup>27</sup> Any mechanism that the Commission adopts to achieve a mandatory reserve margin is not likely to be in effect quickly enough to provide incentives for additional resources as soon as summer 2015.

This resource gap presents the Commission with a difficult dilemma because market design changes cannot be implemented rapidly enough to significantly alleviate this resource adequacy shortfall. Interim steps will be needed to ensure short term resource adequacy as the Commission (and later, ERCOT stakeholders) establish and implement broader market design changes to address the long term resource adequacy problem. Demand Response can and should be part of the solution, and we look forward to working with the Commission and other stakeholders on those interim steps.

## **VIII. Conclusion**

The Demand Response Coalition appreciates the opportunity to provide comments on these critical resource adequacy issues. Customers in Texas are best served by a mandatory reserve margin with a mechanism to enforce it, both of which are supervised by the Commission. A forward capacity market is the most effective mechanism to enforce a mandatory reserve margin. A capacity market provides a

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<sup>27</sup> See ERCOT's Capacity, Demand and Energy Report –May 2013 at <http://ercot.com/news/presentations/index>.

market-based mechanism to support capacity, whether by generators, demand response or other resources, and the Brattle report makes it clear that such a market will not result in significant increases in costs in the ERCOT market.

Respectfully submitted,



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