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ENSURE RESOURCE ADEQUACY	§	**PUBLIC UTILITY COMMISSION**
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TRAM ADVOCATES' REPLY COMMENTS REGARDING POTENTIAL MARKET DESIGN CHANGES TO ADDRESS RESOURCE ADEQUACY IN ERCOT

TO THE HONORABLE PUBLIC UTILITY COMMISSION OF TEXAS:

The Texas Reliability Assurance Market ("TRAM") Advocates submit the following replies, in response to the request for comments by the Public Utility Commission of Texas ("Commission"), regarding elements of a reliability market and other potential market design changes to address resource adequacy in ERCOT. [1] TRAM Advocates include Calpine Corporation; City of Austin[2]; Comverge, Inc.; Consert; EnerNOC, Inc.; Exelon Generation Company, LLC[3]; Johnson Controls, Inc.; Luminant Energy Company, LLC; Luminant Generation Company, LLC; NextEra Energy Resources, LLC[4]; NRG Energy, Inc.[5]; Opower, Inc.; South Texas Electric Cooperative; and SunEdison. In the Electric Reliability Council of Texas ("ERCOT") market, TRAM Advocates include a broad spectrum of active market participants, which provide thermal and renewable generation[6], serve competitive and non-opt in load, and develop leading demand response and energy efficiency programs.[7]

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[1] Public Notice of Workshop and Request for Comments (Nov. 22, 2013).

[2] City of Austin d/b/a Austin Energy.

[3] Exelon Generation Company includes Constellation NewEnergy, Inc.; Constellation Energy Power Choice, Inc.; and Star Electricity, Inc. d/b/a/ StarTex.

[4] NextEra Energy Resources includes Gexa and NextEra Energy Solutions.

[5] NRG Energy, Inc. includes Reliant Energy Retail Services, LLC; Green Mountain Energy Company; Everything Energy, LLC; US Retailers, LLC; Energy Plus Holdings, LLC; Energy Curtailment Specialists, LLC; NRG Texas Power, LLC; and NRG Power Marketing, LLC.

[6] Includes existing owned, operated, and contracted thermal and renewable energy resources.

[7] According to filings from the Texas Demand Response Coalition and the Brattle Group, the ERCOT market has the potential for demand response of at least 7 GWs. *See* Comments of Texas Demand Response Coalition on "Composite" Resource Adequacy Policy Options at 10 (Oct. 23, 2012); the Brattle Group, *ERCOT Investment Incentives and Resource Adequacy* at 96 (Bates) (Jun. 1, 2012) (hereafter "June 2012 Brattle Report").

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I. INTRODUCTION

TRAM Advocates file these replies to address arguments made in the initial comments[8] that: (1) the Commission lacks the legal authority to implement a centralized capacity market; and (2) the changes that ERCOT is currently considering with respect to the methodology for the Report on the Capacity, Demand and Reserves ("CDR") may reveal that ERCOT does not have a near-term resource adequacy problem and that a resource adequacy mechanism is therefore not needed.

Both of these arguments are based on false premises. First, contrary to the claims of some commenters,[9] a centralized forward capacity market is a competitive market, and therefore, the Public Utility Regulatory Act ("PURA")[10] clearly confers authority on the Commission to implement such a market.[11] Second, regardless of the outcome of the changes ERCOT makes to the existing methodology for the CDR, the current energy-only market has resulted in insufficient net revenues to incentivize new entry (or support existing capacity) in all but one of the past seven years,[12] and this design will continue to result in volatility in terms of cost and reliability.[13] As such, ERCOT's revised projection of future reserve margins in the upcoming CDR will not

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[8] *See generally, e.g.*, Texas Industrial Energy Consumers' Response to Commission Questions (Dec. 16, 2013) (hereafter "TIEC Comments"); Comments of the Steering Committee of Cities Served by Oncor and Texas Coalition for Affordable Power (Dec. 16, 2013) (hereafter "Cites/TCAP Comments").

[9] *Id.*

[10] Public Utility Regulatory Act, TEX. UTIL. CODE ANN. §§ 11.001–66.017 (West 2007 & Supp. 2013) ("PURA").

[11] *See, e.g.*, PURA §§ 35.002, 39.001.

[12] *See* Potomac Economics, ERCOT 2012 State of the Market Report at 76–78 (Jun. 2013) (finding that 2012 net revenues were insufficient to support new gas turbine or combined cycle generation, which require between $80 to $105 per KW-year and $105 to $135 per KW-year in net revenues, respectively, to satisfy annual fixed costs, including capital carrying costs); Potomac Economics, ERCOT 2011 State of the Market Report at 78–79 (Jul. 2012) ("Discounting the effect that the 2008 results would have had on forward price signals, we find that 2011 is the first time in five years that net revenues have been sufficient to support either new gas turbine or combined cycle generation."). The seven-year figure cited above is based on the five years referenced in the 2011 report, plus 2012 and 2013 (as of December 18, 2013, the peaker net margin for 2013 was less than $33 per KW-year—*i.e.*, far less than the amount of net revenues needed to support new gas turbine or combined cycle generation).

[13] *See, e.g.*, The Brattle Group, *ERCOT Investment Incentives and Resource Adequacy* at 9–11 (Bates) (Jun. 1, 2012) (hereafter "June 2012 Brattle Report"); The Brattle Group, *ORDC B+ Economic Equilibrium Planning Reserve Margin Estimates* at 5–16 (Bates) (Jun. 25, 2013) (hereafter "ORDC B+ Analysis"). Although the Brattle Group has explained that a significant influx of demand response ("DR") could potentially enable the energy-only market design to achieve a specified reserve margin, the Brattle Group has also projected that such an influx of DR would take years to develop. June 2012 Brattle Report at 9 (Bates) (Jun. 1, 2012).

obviate the need to implement a centralized forward capacity market, because such a market is necessary to consistently and cost-effectively achieve the required reserve margin[14] ultimately adopted by the Commission.

II. COMMISSION'S LEGAL AUTHORITY TO ADOPT A CENTRALIZED FORWARD CAPACITY MARKET

Some commenters have argued that the Commission lacks the requisite legal authority, under PURA, to implement a centralized forward capacity market.[15] One faulty premise underlying this argument is that a capacity market is not a "competitive" market because it may involve some administrative determinations impacting the quantity of capacity procured and the price paid for such capacity.[16] This argument ignores the fundamental aspect of a capacity market that makes it a competitive market and also overlooks the administrative determinations involved in the current market construct. Just like in the current markets for energy and ancillary services, in a centralized forward capacity market, resources compete to be selected to provide a product. The primary difference between these markets is in the specific product that suppliers are competing to provide—namely, energy and ancillary services in the former markets, and capacity in the latter. In all three markets, suppliers submit offer curves and compete to be selected through a centralized auction process, administered by ERCOT. Although both the existing energy-only market (including the market for ancillary services and for energy) and a centralized forward capacity market entail some administrative determinations, that fact does not change their fundamental nature as competitive markets in which suppliers compete to provide a product. In both market designs, it is the market, not the regulator, that determines which resources are paid to provide a product and that ultimately sets the price for that product.

In addition, the administrative determinations impacting the quantity and price of products in the current energy-only market design are numerous. For example, in the energy-only market,

[14] *See, e.g.*, The Brattle Group, *Resource Adequacy in ERCOT: "Composite" Policy Options for the October 25, 2012 Workshop* at 34–38 (Oct. 19, 2012) (hereafter "Brattle Group's Composite Policy Options") ("scoring" the capacity market composite option as better than the energy-only market option, in terms of reliability, economic efficiency, cost, regulatory stability, and investor risks). *See also* Brattle Group "Customer Cost Comparison" Analysis (Sept. 4, 2012).

[15] *See, e.g.*, TIEC Comments at 4–8 (Dec. 16, 2013); Cities/TCAP Comments at 3–6 (Dec. 16, 2013).

[16] *See* TIEC Comments at 5–6 (Dec. 16, 2013); Cities/TCAP Comments at 5–6 (Dec. 16, 2013).

the type and quantity of ancillary services that ERCOT procures are administratively determined[17], rather than being solely a function of the competitive market. In addition, the wholesale price is impacted by administrative interventions and determinations, such as the mitigated offer curves established under the ERCOT Protocols[18] and the low and high system-wide offer caps set by Commission rule.[19] The parameters of the Operating Reserve Demand Curve ("ORDC") are another administrative determination that will ultimately impact wholesale prices.[20] These administrative interventions do not deprive the energy-only market of its character as a competitive market, just as any administrative determinations required to establish the parameters for the competitive capacity auction will not change its fundamental nature as a competitive market.

The conclusion in initial comments that the Commission lacks legal authority to adopt a capacity market is also based on the false premise that a capacity market removes risk from the investor and places it on the consumer, similar to the traditional regulated utility model.[21] In reality, a capacity market (which is a competitive market) does not guarantee that a resource owner will earn a return of and on its investment. Rather, a resource's economic viability is predicated on the combination of revenues it receives in both the energy and capacity markets. If the resource is economically inefficient (*i.e.*, has a high heat rate) for real-time operation, it will be dispatched less often or not at all in the energy market. Similarly, a resource with a high capital need may not clear in future capacity auctions, and a resource experiencing a high forced outage rate will have fewer megawatts to offer in future capacity auctions. These risks are borne fully by the investor. The capacity auction simply provides the best opportunity for a supplier to receive a capacity payment in years when there is a projected shortage (or slight surplus) of supply. However, in those years where the available resources are likely to exceed the forward demand

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[17] *See* ERCOT Methodologies for Determining Ancillary Service Requirements at 4–5, 8, 10 (Eff. Apr. 1, 2013).

[18] *See, e.g.*, ERCOT Nodal Protocols §§ 3.19.4 (setting forth the test to determine if an offer is subject to mitigation); 4.4.9.4.1 (stating that "Energy Offer Curves may be subject to mitigation in Real-Time Operations under Section 6.5.7.3, Security Constrained Economic Dispatch, using a Mitigated Offer Cap" and setting forth the methodology for determining the level of the Mitigated Offer Cap); 6.5.7.3(5)(b)(i) (explaining how the Mitigated Offer Cap is applied).

[19] P.U.C. SUBST. R. 25.505(g)(6)(A) & (B).

[20] *See, e.g.*, ORDC B+ Analysis at 5–16 (Bates) (Jun. 25, 2013); *see also* Nodal Protocol Revision Request ("NPRR") 568 (implementing the ORDC) (approved Nov. 19, 2013 and effective upon system implementation).

[21] *See* TIEC Comments at 1 (Dec. 16, 2013).

curve, there will be an over-supply of resources and the auction may clear at or near zero. Thus, the capacity market does not guarantee recovery of and on investments and thereby does not shift risk from the merchant investor to the consumer.

The argument in initial comments that Chapter 35 of PURA requires an energy-only market based on the use of the term "power" in Section 35.002[22] is similarly strained. PURA § 35.002 states that "[a] provider of generation, including an electric utility affiliate, exempt wholesale generator, and qualifying facility, may compete for the business of selling power." Based on a dictionary definition of "power" that includes the word "energy", the argument has been made that PURA intended for suppliers in the wholesale market to only compete to provide energy, except for the limited categories of "ancillary services" that are set forth in the statute (which the commenter characterizes as "capacity products").[23]

This argument fails for numerous reasons. First, the "business of selling power" is reasonably construed[24] as referring to the sale of both capacity and energy, because "capacity" and "energy" are inextricably linked for purposes of "selling power"—energy is produced from installed capacity, and without such capacity, there can be no energy. Second, this commenter characterizes ancillary services as "capacity products", even though the statutory definition of ancillary services repeatedly uses the term "power"—specifically, ancillary services are defined as "services necessary to facilitate the transmission of electric energy including load following, standby ***power***, backup ***power***, reactive ***power***, and any other services as the commission may determine by rule."[25] No explanation is given for why "power" is not limited to "energy" in this part of the statute, but is so limited in Section 35.002. Third, a single undefined word, "power," does not signal Legislative intent for the Commission to adopt a particular market design. In determining whether PURA has placed any limitations on or expressly required a certain market design, PURA must be read as a whole, not one term in isolation.[26] Reading PURA as a whole,

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[22] *See* Cities/TCAP Comments at 3–4 (Dec. 16, 2013).

[23] *Id.*

[24] *Southwestern Bell Tel. Co. v. Pub. Util. Comm'n*, 888 S.W.2d 921, 926 (Tex. App.—Austin 1994, writ denied) (noting that words in a statute must be interpreted according to their ordinary meaning and not "in an exaggerated, forced, or strained manner").

[25] PURA § 35.004(e) (emphasis added).

[26] *See State v. Pub. Util. Comm'n*, 883 S.W.2d 190, 196 (Tex. 1994).

PURA requires the Commission to establish competitive wholesale and retail electricity markets,[27] as well as to ensure reliability,[28] adequacy[29], and customer protections in the establishment of those markets[30], and PURA places no restrictions or obligations on what market design the Commission may use to achieve these express statutory objectives.

In short, PURA clearly confers authority on the Commission to adopt a centralized forward capacity market.

III. NEED FOR MARKET DESIGN CHANGES

Some commenters have noted that ERCOT is currently considering changes to its methodology for forecasting reserves in the CDR and have argued that the results of this analysis may reveal that ERCOT does not have a near-term resource adequacy problem and therefore that there is no need to make any changes to the existing market design.[31] However, regardless of the outcome of ERCOT's changes to the CDR, the problems that are preventing the energy-only market design from incentivizing the development of new capacity, as well as the retention of existing resources, will persist. As such, the Commission will need to evaluate the market and determine which market design will most efficiently and effectively achieve a required reserve margin, notwithstanding the results of the CDR. The Brattle Group has determined that the market design that will best meet those objectives is a centralized forward capacity market.[32]

As an initial matter, the CDR is a forward-looking projection of reserves. While useful in providing an indication regarding projected supply shortages, the CDR should not drive the decision of whether the Commission implements market design improvements. As a forward-

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[27] *See* PURA §§ 35.002, 39.001(b), (c), (d).

[28] *Id.* § 39.151.

[29] *Id.* In addition, the argument that PURA § 39.151 only refers to "transmission" adequacy is equally specious. That section refers to adequacy of the "regional electric network" generally, which is reasonably read to encompass both transmission and generation, as both are needed to ensure the adequacy of the regional electric network to meet demand. The argument that the term "Independent System Operator," as used in Section 39.151, signals an intent to limit the adequacy requirements to transmission adequacy ignores that generators are specifically required to follow the rules adopted by the ISO. There is nothing about the term ISO that can be read to imply that Section 39.151 only applies to adequacy of the transmission system.

[30] *Id.* §§ 39.001(a), 39.101(a); *see also id.* § 35.004(e) (requiring the Commission to ensure ancillary services are available at reasonable prices).

[31] *See, e.g.*, TIEC Comments at 9–10 (Dec. 16, 2013); Cities/TCAP Comments at 1–2 (Dec. 16, 2013); Comments of Sierra Club at 22–23 (Dec. 16, 2013).

[32] *See supra* note 14.

looking projection, the CDR cannot tell the Commission whether the net revenues earned by resources are sufficient to incentivize new entry on a consistent and reliable basis. Instead, that determination is found in the backward-looking annual State of the Market Reports by the Independent Market Monitor ("IMM"). Over the last several years, those reports have consistently found that net revenues have been insufficient to support new entry for gas-fired peaking units, with the one exception of 2011, which was considered highly anomalous:

- "These results indicate that the ERCOT markets would not have provided sufficient revenues [in 2012] to support profitable investment in any of the types of generation technology evaluated. Higher energy prices in the West zone during 2012 resulted in higher net revenues in that zone, but they were still not high enough to support new entry there."[33]

- "2011 is the first time since 2008 that net revenues have been sufficient to support new gas turbine generation [and] ... combined cycle in generation in ERCOT. ... Even though net revenues for the Houston and South zone in 2008 may have appeared to be sufficient to support new gas fueled generation, it was actually extremely inefficient transmission congestion management and inefficient pricing mechanisms associated with the deployment of non-spinning reserves which led to high prices and resulting higher than warranted net revenues. Discounting the effect that the 2008 results would have had on forward price signals, we find that 2011 is the first time in five years that net revenues have been sufficient to support either new gas turbine or combined cycle generation."[34]

- "[I]t is important to recognize that 2011 was highly anomalous, with some of the hottest summer temperatures on record. Net revenues may have been sufficient to cover the costs of a new combined cycle or new combustion turbine in 2011, however, we would not expect this to be consistently true in years with comparable reserve margins absent the extreme weather conditions, as evidenced by the 2012 net revenue results."[35]

One of the reasons that revenues have been consistently insufficient to support new entry in all but one of the past seven years[36] is because the circumstances that initially created a more attractive investment environment in ERCOT following the transition to competition no longer exist,[37] and current conditions are not supportive of new investment. First, investment in a

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[33] Potomac Economics, ERCOT 2012 State of the Market Report at 78 (Jun. 2013).

[34] Potomac Economics, ERCOT 2011 State of the Market Report at 78–79 (Jul. 2012).

[35] Potomac Economics, ERCOT 2012 State of the Market Report at 78 (Jun. 2013).

[36] *See supra* note 12.

[37] June 2012 Brattle Report at 22 (Bates) (Jun. 1, 2012).

substantial amount of efficient gas-fired units resulted in a very efficient supply stack, which translates into lower marginal costs and lower energy prices.[38] Second, high wind penetration has resulted in lower energy prices because wind energy "enters the supply stack at zero or negative-priced offers," due to federal and state subsidies like the production tax credit and renewable energy credit payments.[39] Third, natural gas prices have fallen, and, because natural gas-fired generators set the price in most intervals, a lower natural gas price means a lower market-clearing price, which erodes support for new development.[40] Fourth, the credit markets that have historically been accessed to finance generation projects have tightened significantly. Finally, various impending environmental regulations create the potential for environmentally-driven retirements because the cost of compliance cannot be justified given the projected revenues for the plant.[41] In sum, while the combination of the energy-only market design and market conditions were initially successful in attracting necessary investment, this market design is no longer inducing (and will not induce) the level of investment needed to maintain the level of reliability historically enjoyed in ERCOT, under current and foreseeable market conditions.

Finally, even if near-term forecasts in the revised CDR project sufficient reserves (as compared to the required reserve margin established by the Commission), the independent expert analysis in this project has demonstrated that the reserve margins in an energy-only market design will fluctuate widely from year to year.[42] This fluctuation in reserve margins will also be reflected in volatile energy prices, which might be extremely high in a year with scarcity and low in a year when reserves are adequate. This extreme level of earnings volatility deprives investors of the certainty needed to make a long-term investment in new resources or in upgrades to existing resources and makes it risky for businesses to locate in Texas.[43] A capacity market, on the other

[38] *Id.* at 24 (Bates).

[39] *Id.* at 25–26 (Bates).

[40] *Id.* at 22–23 (Bates) ("Over 2009 [to] 2011, average Houston Ship Channel prices dropped to $4.01/MMBtu, from an average of $6.27MMBtu in 2002 through 2008. Coincident with falling natural gas prices, electric prices have also decreased to $36/MWh in 2009 through 2011, from an average of $49/MWh over 2002 [to] 2008.").

[41] *See id.* at 31–33 (Bates).

[42] June 2012 Brattle Report at 9–11 (Bates) (Jun. 1, 2012); ORDC B+ Analysis at 5–16 (Bates) (Jun. 25, 2013).

hand, provides a cost-effective and consistent way to meet a required reserve margin and levels out the volatility experienced in an energy-only market design.[44]

In short, regardless of the outcome of the changes to the CDR methodology, the current energy-only market design will not effectively serve to incentivize the retention of existing capacity or the development of new capacity (both generation and demand response); will result in excessive volatility in terms of costs and reliability; and cannot consistently achieve a specified required reserve margin. Therefore, notwithstanding the results of the revised CDR, the Commission should implement a centralized forward capacity market, because it can cost-effectively and consistently achieve a required reserve margin and will level out the volatility of the energy-only market design.

IV. CONCLUSION

TRAM Advocates appreciate the Commission's consideration of these comments and respectfully requests that the Commission proceed expeditiously with the development and implementation of a Texas capacity market.

Respectfully submitted,

By: ____________________

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[44] June 2012 Brattle Report at 115–116 (Bates) (Jun. 1, 2012) ("In capacity markets as well as energy-only markets, the all-in "price" paid by customers must be sufficient to support investment in new generation. It is even conceivable that such all-in prices could be lower with a capacity market, if it reduces revenue volatility and regulatory risk, thereby lowering investors' cost of capital."). *See also supra* note 14.

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