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OF THE OPERATING RESERVE	§	
DEMAND CURVE	§	**OF TEXAS**

NRG ENERGY INC.'S REPLY COMMENTS ON ORDC REFORMS

TO THE HONORABLE PUBLIC UTILITY COMMISSION OF TEXAS:

NRG Energy, Inc., including its subsidiaries,[1] (collectively "NRG") hereby submits the following reply comments on the Public Utility Commission's ("Commission", or "PUCT") *Review of the Parameters of the Operating Reserve Demand Curve,* Project No. 45572. NRG appreciates the opportunity to further comment on this important topic and to address aspects of proposals described in the position papers previously filed in this docket regarding reforms to the Operating Reserve Demand Curve (ORDC).[2]

In the ERCOT energy-only market, the integrity of the scarcity pricing mechanism is of the utmost importance. It is the primary source of financial incentive and it drives behavior by resources and loads as they react to energy prices. Past reliance on offering behavior by market participants for scarcity price formation proved ineffective, as evidenced by various analyses including the June 2012 "Brattle Report."[3] Ancillary service offer price floors, implemented for a time beginning in 2012 through part of 2014, provided marginal improvement but introduced other disruptive issues such as price reversals. The implementation of the ORDC in June of 2014 replaced the use of ancillary service offer price floors and established a mechanism to provide needed discipline in real-time price formation. Detailed examination of ORDC performance and all factors that influence scarcity price formation in ERCOT reveals that improvements can be made through minor technical adjustments. After reviewing stakeholder positions regarding potential reforms to the ORDC, NRG provides the following comments:

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[1] NRG subsidiaries include Reliant Energy Retail Services LLC, Green Mountain Energy Company, Everything Energy LLC, US
Retailers LLC, Energy Plus Holdings LLC, NRG Curtailment Solutions LLC, NRG Texas Power LLC, NRG Power Marketing LLC.

[2] http://interchange.puc.state.tx.us/WebApp/Interchange/Documents/45572_2_881033.PDF

[3] The Brattle Group, *ERCOT Investment Incentives and Resource Adequacy (June 1, 2012)* ("Brattle Report") pp. 14 – 28.

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1) **Recent development of new generation capacity does not prove that the current scarcity pricing regime is working properly.**

The effectiveness of ERCOT's scarcity pricing mechanism does impact resource adequacy. However, resource adequacy and investment decisions are influenced by many other factors including, but not limited to:

- Natural gas prices
- Access to capital and financing
- Observed weather events
- Subsidies

A thorough review of the ERCOT interconnection queue history will show that the gas-fired generation capacity brought online for commercial operation within the past three years was planned well before the ORDC was ever discussed and was more likely encouraged by the high prices observed in 2011.[4,5] In fact, most of the installed generation capacity constructed in ERCOT after 2013 consists of renewable resources supported by federal subsidies and has little to do with ERCOT's scarcity pricing regime.[6,7]

2) **Most stakeholder positions focused on narrow issues regarding ORDC performance and therefore are missing a comprehensive scarcity pricing performance evaluation.**

Many stakeholder positions on ORDC reforms focused on narrow issues such as the difference between Physical Responsive Capability (PRC) and ORDC reserves observed on August 13th, 2015. As mentioned in his memo on October 7th 2015, Commissioner Anderson proposed items to be reviewed but also encouraged stakeholders broaden their review. "The foregoing list is not intended to be exhaustive and market participants can suggest other areas of inquiry."[8] NRG encourages the PUCT, ERCOT, and fellow stakeholders to consider ***all factors*** that influence the performance of scarcity pricing in the ERCOT market including the design and

[4] http://www.ercot.com/content/news/presentations/2011/ERCOT_2011_%20Capacity,_Demand_and%20Reserves_Report.pdf
[5] http://www.ercot.com/content/news/presentations/2012/CapacityDemandandReserveReport-2012.pdf
[6] http://www.ercot.com/content/gridinfo/resource/2016/generation/GIS_REPORT__January_2016.xls
[7] http://www.ercot.com/content/gridinfo/resource/2015/adequacy/cdr/CapacityDemandandReserveReport-December2015.pdf

[8] http://interchange.puc.state.tx.us/WebApp/Interchange/Documents/40000_667_868214.PDF

configuration of the ORDC and policies external to the energy market like the 4CP transmission cost allocation mechanism.

3) Prices that deviate from the underlying fundamentals of market conditions will inevitably distort behavior and lead to uneconomic decisions; balance is needed.

The energy-only market design relies on the delicate balance of sending appropriate scarcity price signals during the very few times of the year when it is justified. Any interference in that important process must be eliminated or, if that is not possible, managed through adjustments. As NRG described in its position paper, submitted to ERCOT,[9] there are lingering concerns with out-of-market reliability actions and non-market behavior motivated by incentives external to the ERCOT energy market. The methodology for allocating Transmission Cost of Service (TCOS) using the four coincident peak (4CP) cost allocation methodology has resulted in significant summer peak demand reduction with the objective of reducing regulated *utility charges*, not a response to the real-time energy price. TDSP sponsored load management programs also have the effect of diminishing peak demand but are not driven by real-time energy price. The outcomes of these policies tilt the supply and demand balance at exactly the wrong time in regards to scarcity price formation and are based on objectives unrelated to the price of electricity. Setting aside their independent merits, the impact of policies such as these on scarcity price formation in ERCOT fundamentally conflicts with the energy-only market design and can no longer be ignored. The ORDC provides a means to help adjust for these impacts. Artificially low prices, especially during times of scarcity, are just as damaging to the long-term health of the ERCOT market as artificially high prices.

4) Implementing the ORDC in the ERCOT Day-Ahead Market would alter the purpose that the Day-Ahead Market serves.

As currently designed, the Day-Ahead Market (DAM) in ERCOT acts as a ***voluntary*** hedging tool as well as the mechanism to procure ERCOT's ancillary service obligation. Typically, loads and resources submit bids and offers in the DAM to hedge incremental positions not already covered by bilateral transactions. Bids and offers submitted to the DAM reflect

[9] Project 45572, *ERCOT Submission of Filing of Technical Advisory Committee (TAC) Work Product on Review of Operating Reserve Demand Curve (ORDC) Parameters*, February 4, 2016, pp.84 – 87

expectations for pricing in the real-time market. If real-time market conditions are anticipated to result in scarcity prices created by the ORDC, DAM prices will also reflect that expectation. Therefore, implementing the ORDC in the DAM is not necessary.

Being a ***voluntary*** market, ERCOT's DAM is influenced by variability in the amount of offers submitted in that market. This characteristic makes comparisons between ERCOT and the Northeast markets invalid regarding DAM design. Although the Northeast markets have implemented mechanisms like the ORDC in the DAM, those markets ***also have "must offer" requirements*** (i.e., resources must offer in the DAM to fulfill capacity obligations) that cause activity in their DAM to more closely mimic real-time conditions. For example, the ISO-NE has routinely observed cleared volumes in the DAM near 100% of forecasted load for the real-time.[10] As comparison, in ERCOT, resources are not required to offer in the DAM, and that market typically clears around 50% of expected load in real-time.[11] Thus, the DAM in ERCOT clears volumes that look very different from real-time. This means that if the ORDC was implemented in the DAM in ERCOT, scarcity prices produced by the DAM could be triggered by the participation level (i.e. offers submitted in DAM) and lack any resemblance to real-time scarcity. Although NRG acknowledges a need for penalty pricing in the DAM (if ERCOT fails to procure its Ancillary Service requirement), implementing the ORDC in the DAM for that purpose would force participation in the ERCOT DAM since the penalty for failing to participate could be severe. This is a structural change outside the scope of this proceeding that would cause significant behavioral change and result in potentially adverse consequences that would need to be explored in much more detail.

5) NRG supports ERCOT staff's proposal to reduce the Reserve Discount Factor.

ERCOT has used the Reserve Discount Factor (RDF) to "haircut" PRC for approximately ten years in order to provide a level of conservatism in this important reliability metric. The results of recent unannounced resource capacity testing provided ERCOT with confidence that they can reduce utilization of the RDF.[12] Having a more accurate representation of the amount of

[10] http://www.iso-ne.com/static-assets/documents/2016/02/february-2016-coo-report.pdf, pages 34-36.
[11] http://www.ercot.com/content/wcm/key_documents_lists/27311/ERCOT_Monthly_Operational_Overview_201601.pdf, page 24.

[12] http://www.ercot.com/content/wcm/key_documents_lists/77584/07._Results_of_Unannounced_Testing_and_Reserve_Discount_Factor_02022016.pptx

frequency responsive capacity available in the real-time market (i.e., PRC) will benefit stakeholders and will help reduce the difference between PRC and ORDC reserves. NRG notes that the presence of quick start generation resources will continue to cause an observed difference between PRC and ORDC until those resources have been fully committed. In order to more gracefully manage the price transition caused by the reduction of this PRC/ORDC difference during scarcity events, NRG suggests to modestly increase Responsive Reserve Service (RRS) procurement above Energy Emergency Alert (EEA) Level 1 (currently 2300MW). This will ensure that an effective price signal is sent prior to reaching EEA Level 1. ERCOT's proposal currently includes such an increase in RRS procurement, but for different reasons.

Other stakeholder proposals on potential ORDC reforms gravitate towards opposite ends of the spectrum: "do nothing" (which ignores clear deficiencies of the current scarcity pricing regime) or aggressive changes (that risk creating irrational and distortionary market behavior). NRG's proposal recognizes the strides made by the Commission in establishing a viable structure for scarcity price formation through implementation of the ORDC. Dramatic changes to the ORDC structure or input parameters are not justified and would likely do more harm than good. However, the current design includes a structure that exacerbates volatility and fails to recognize non-market behavior motivated by policies external to the energy market that influence scarcity pricing at critical times. Therefore, NRG offers a balanced approach focused on minor technical adjustments to the ORDC that will improve scarcity pricing in ERCOT.[13,14,15]

Summary of NRG Position on ORDC Reforms[16]

- Configure the ORDC to send effective price signals prior to EEA Level 1 and adjust for non-market influences motivated by policies external to the energy market.

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[13] http://www.ercot.com/content/wcm/key_documents_lists/80837/ORDC_Parameter_Review___NRG_01042016.docx

[14] http://interchange.puc.state.tx.us/WebApp/Interchange/Documents/45572_2_881034.PDF

[15] http://interchange.puc.state.tx.us/WebApp/Interchange/Documents/45572_4_881050.PDF

[16] As noted earlier, NRG's positions are fully described in Project 45572, *ERCOT Submission of Filing of Technical Advisory Committee (TAC) Work Product on Review of Operating Reserve Demand Curve (ORDC) Parameters*, February 4, 2016, pp.84 – 87

- Keep the ORDC parameters static and do not adopt a methodology that includes intra-day parameter changes.
- Address volatility resulting from ORDC shape by adjusting VOLL, but DO NOT increase the effective price cap.
- Manage the impacts of the difference between PRC and ORDC reserves by modestly increasing RRS to be above EEA Level 1.
- Proposed implementation by summer of 2017.

NRG appreciates the opportunity to provide reply comments in this proceeding. NRG supports the Commission's oversight efforts to ensure that the ERCOT market is served by a well-functioning scarcity pricing mechanism. NRG urges the Commission to direct ERCOT to make reasoned and moderate adjustments to the ORDC that supports rational market behavior and considers all factors that influence scarcity pricing. As the Commission provides its guidance, and as other parties provide their positions and suggestions, NRG reserves the right to refine and modify its positions herein and to take positions on other issues not addressed in these comments.

Respectfully submitted,



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