Control Number: 40000

Item Number: 537

Addendum StartPage: 0

PROJECT NO. 40000

COMMISSION PROCEEDING TO ENSURE RESOURCE ADEQUACY IN TEXAS	§ § § § §	**BEFORE THE PUBLIC UTILITY COMMISSION OF TEXAS**

LUMINANT'S RESPONSE TO REQUEST FOR COMMENTS REGARDING ADJUSTMENTS TO THE VALUE OF LOST LOAD

TO THE HONORABLE PUBLIC UTILITY COMMISSION OF TEXAS:

Luminant Energy Company LLC and Luminant Generation Company LLC (collectively, "Luminant") submit the following comments, in response to the Public Utility Commission of Texas's ("Commission") request for comments at the October 25, 2013 open meeting, regarding GDF Suez Energy North America, Inc.'s proposed adjustments to the Operating Reserve Demand Curve ("ORDC") parameters adopted by the Commission at its September 12, 2013 open meeting.

I. INTRODUCTION

At the September 12, 2013 open meeting, the Commission directed ERCOT to move forward with implementation of the Hogan Proposal "Solution B+" ORDC with a 2,000 megawatt ("MW") minimum contingency level ("MCL"), Value of Lost Load ("VOLL") of $9,000, and "smooth" curve (cumulative distribution function shape) in lieu of a piecewise linear curve. GDF Suez filed comments on October 18, 2013, recommending that the Commission increase the VOLL to $25,000/MWh.[1] GDF Suez also recommended that the total of the ORDC adder and Locational Marginal Price ("LMP") be capped at $9,000/MWh.[2] Luminant provides its analysis below regarding the impacts of GDF Suez's proposal. However, Luminant submits that other, more fundamental ORDC issues remain outstanding and should be addressed by the Commission. Specifically, Luminant respectfully urges the Commission to fully address the abrupt downward price effects that could occur with the deployment of Emergency Response Service ("ERS"), as well as the ORDC price suppressing effects that could be caused by the use of Reliability Unit Commitment ("RUC") and Reliability Must Run ("RMR") units.

[1] Comments of GDF Suez Regarding Adjustment to the Value of Lost Load in the Operating Reserve Demand Curve at 3 (Oct. 18, 2013).

[2] *Id.*

II. ADJUSTMENTS TO THE VALUE OF LOST LOAD WILL HAVE ONLY A MINIMAL IMPACT ON RESOURCE ADEQUACY

Although much of the recent focus in the Commission's resource adequacy proceeding has been directed toward implementation of the ORDC, changes in the VOLL parameter of the ORDC will not materially impact scarcity pricing and will not present a long-term solution to the resource adequacy problems facing ERCOT. It has been demonstrated that an energy-only market design (even with enhancements, such as the ORDC) will not consistently achieve a required reserve margin.[3] While an energy-only market enhanced with the ORDC provides an average reserve margin over time, it will provide no assurance of achieving a specific reserve margin. Instead, the reserve margin in such a market is primarily the product of the price signals generated during shortage conditions and is, thus, heavily impacted by weather outcomes year to year. As a result, Luminant believes this resource adequacy proceeding should focus on long-term solutions that will produce a predictable reserve margin.

Luminant's forward-looking analysis, based on a model developed by the NorthBridge Group,[4] shows that adjustments to the VOLL parameter of the ORDC to $18,000 or $25,000 will have only a minimal impact on Peaker Net Margin ("PNM"). This analysis demonstrates that the ORDC is not expected to achieve, on average, even a 10 percent reserve margin, which is well below ERCOT's current reserve margin target of 13.75 percent.

Based on this analysis, Luminant believes that ERCOT's recent back-cast analysis,[5] when viewed in isolation, overstates the projected benefits of changing the VOLL. This is primarily due to ERCOT's back-cast model, which was not designed to capture structural differences that occurred in post-2011 or other structural differences that are anticipated to occur after the implementation of the ORDC adder. For example, ERCOT's back-cast model does not reflect the impact of removing the offer floors for ancillary services (to occur at implementation of the

[3] The Brattle Group, ERCOT Investment Incentives and Resource Adequacy at 4, 5 (Jun. 1, 2012). *See also* Report on ORDC B+ Economic Equilibrium Planning Reserve Margin Estimates Prepared by the Brattle Group (Jun. 25, 2013). Note that this analysis estimated that the equilibrium reserve margin with a 2,300 MW MCL (*i.e.*, higher than the one adopted) and a piecewise curve (instead of the smooth curve actually adopted) would only be around 10 percent. *See also* Luminant's Response to Request for Comments for October 8, 2013 Workshop at 10 (Sep. 23, 2013).

[4] *See* Luminant's Response to Request for Comments for October 8, 2013 Workshop at 9 (Sep. 23, 2013) (explaining that the NorthBridge Group is an economic consultant retained by Luminant to perform a forward-looking analysis of the impacts of the ORDC and detailing the model used for such analysis).

[5] ERCOT Back Cast Analysis Regarding Proposal in GDF Suez North America, Inc. Comments (Oct. 28, 2013).

ORDC) that were present in 2011 and 2012. Also, ERCOT's back-cast only analyzed two historical years that ranged from dramatically above normal to above normal temperatures based on an energy-degree day perspective. Thus, ERCOT's back-cast analysis exaggerates the projected benefit of changing the VOLL by including the extreme weather of 2011 and the above normal weather of 2012[6] (the two historical years chosen for the back-cast). Performing a back-cast analysis where a particular historical year is merely re-played as though the impact of implementing the ORDC is a simple top-side adjustment with no adjustments to the original data can produce unreliable results. In contrast, a forward-looking analysis that attempts to capture the elimination of price floors and key uncertainties like weather is less likely to overstate the benefit of changing the VOLL. Therefore, Luminant conducted a forward-looking analysis using the NorthBridge Model, which attempts to account for peak demand uncertainty, weather year uncertainty (using 15 weather years from 1998 to 2012), generator real time availability, and wind production variability.[7]

Luminant's analysis, shown in Table 1, indicates that increasing the VOLL, even up to $25,000, will not substantially improve PNM, especially at increasing reserve margin levels. Further, increasing the VOLL will increase the equilibrium reserve margin at most by 0.8%, as compared to the ORDC with the parameters chosen by the Commission at its September 12, 2013 open meeting. Increasing the VOLL to $25,000 will not materially change the investment incentives in ERCOT, and thus will not materially change the resource adequacy situation.

[6] ERCOT has characterized 2012 weather as hotter than normal. *See* ERCOT Update to the Senate Business and Commerce Committee (Oct. 9, 2012), *available at* http://www.senate.state.tx.us/75r/Senate/commit/c510/downloads/2012/QR12_3-ERCOT.pdf.

[7] For a more detailed discussion of the comparative strength of a forward-looking analysis versus a limited back-cast analysis, *see* Luminant's Response to Request for Comments Regarding Hogan Proposal at 9–13 (May 31, 2013).

Table 1: Expected Impact ($ / kW) to PNM as Compared to Base Case								
	Reserve Margin (%)						Equilibrium	Impact
	6%	8%	10%	12%	14%	16%		
Base case[8]	$210	$144	$95	$63	$45	$36	9.5%	
ORDC[9] • VOLL $9,000/MWh • Minimum Contingency Level = 2000 MW • Smooth (Cumulative Distribution Function) Shape	$223	$135	$83	$54	$41	$34	9.0%	-0.5%
ORDC • VOLL $9,000/MWh • Minimum Contingency Level = 2000 MW • Piecewise Linear Shape	$259	$156	$95	$60	$43	$35	9.6%	0.1%
ORDC • VOLL $18,000/MWh • Minimum Contingency Level = 2000 MW • Smooth (Cumulative Distribution Function) Shape	$252	$153	$93	$60	$43	$35	9.5%	0.0%
ORDC • VOLL $25,000/MWh • Minimum Contingency Level = 2000 MW • Smooth (Cumulative Distribution Function) Shape	$273	$165	$100	$64	$45	$36	9.8%	0.3%

An energy-only approach, even with the ORDC, does not represent a solution to long-term resource adequacy concerns. The reserve margin produced by an energy-only market structure will fluctuate from year to year, and implementing the ORDC will not stabilize volatility in the reserve margin. Furthermore, it has been demonstrated in this proceeding that an energy-only construct will not deliver an equilibrium reserve margin close to the current 13.75 percent target.[10] A capacity market, on the other hand, both forecasts and procures the needed reserves ahead of time, which would stabilize the market and create far less reserve margin volatility. Whatever decision

[8] Base case uses a SWOC of $9,000/MWh and retains existing floors for ancillary services.

[9] The parameters for this version of the ORDC are the parameters adopted by the Commission at its September 12, 2013 open meeting.

[10] The Brattle Group, ERCOT Investment Incentives and Resource Adequacy at 3, 9 (Jun. 1, 2012).

the Commission makes on the ORDC VOLL, Luminant recommends that the Commission continue to evaluate the best market design to deliver a predictable reserve margin.

III. THE COMMISSION SHOULD FIRST ADDRESS THREE IMPORTANT ISSUES REGARDING ORDC IMPLEMENTATION

Luminant supports the Commission's guidance at the October 25, 2013 open meeting that it is not appropriate to include ERS capacity in the calculation of available reserves. However, as noted in Luminant's previously filed comments, excluding ERS from the reserve calculation does not address the abrupt price change that is likely to occur when ERS is deployed.[11] Luminant therefore respectfully requests that the Commission offer stakeholders guidance on this remaining ERS issue related to deployment, as well as whether RUC and RMR should be excluded from the calculation of available reserves. The calculation of available reserves should be adjusted for these out-of-market services in order to preserve the integrity of price formation during times when resources are scarce.

A. ERS, when Deployed, Should be Excluded from Available Reserves to Avoid Price Suppression

Although the Commission has decided that ERS capacity should not be added to the reserve calculation, further consideration regarding the adjustment to the calculation of reserves is needed. To prevent ERS from abruptly changing the ORDC adder when ERS is deployed, Luminant recommends that the reserve calculation be adjusted when ERS is deployed. Specifically, the ORDC reserve calculation should subtract out the amount of ERS deployment that is instructed by ERCOT, which is the best way to account for the load going off-line.

The deployment of ERS as a supply resource (*i.e.*, reducing demand, which has the same impact as increasing reserves) will fundamentally impact the calculation of the ORDC. Reducing demand during the deployment of ERS would cause an abrupt change in the ORDC price. Moreover, given that ERS is only deployed during emergency conditions, the price change would occur at times when it is most important for the market to experience appropriate shortage pricing.

As shown in Figure A, by not subtracting out ERS that is deployed, energy and reserves that were priced at $9,000/MWh on the ORDC pre-ERS-deployment would suddenly be priced at less than $3,500/MWh if 444 megawatts of ERS were deployed when reserves reached 1,750

[11] Luminant's Response to Request for Comments Regarding Emergency Response Service at 5–6 (Oct. 11, 2013).

megawatts,[12] and less than $2,500/MWh if 700 megawatts of ERS were deployed. Thus, the deployment of an out-of-market service would directly result in the devaluation of the ORDC adder for all resources providing energy and reserve services. Unless the reserve calculation is adjusted when ERCOT deploys ERS, scarcity price formation will be negatively affected, and the ORDC will not reach the $9,000 VOLL until reserves are much lower than the 2,000 megawatts that the Commission chose as the minimum reserve contingency level. Figure B shows a smaller, but still abrupt, price change if ERS were deployed at 2,300 megawatts of reserves.

Figure A

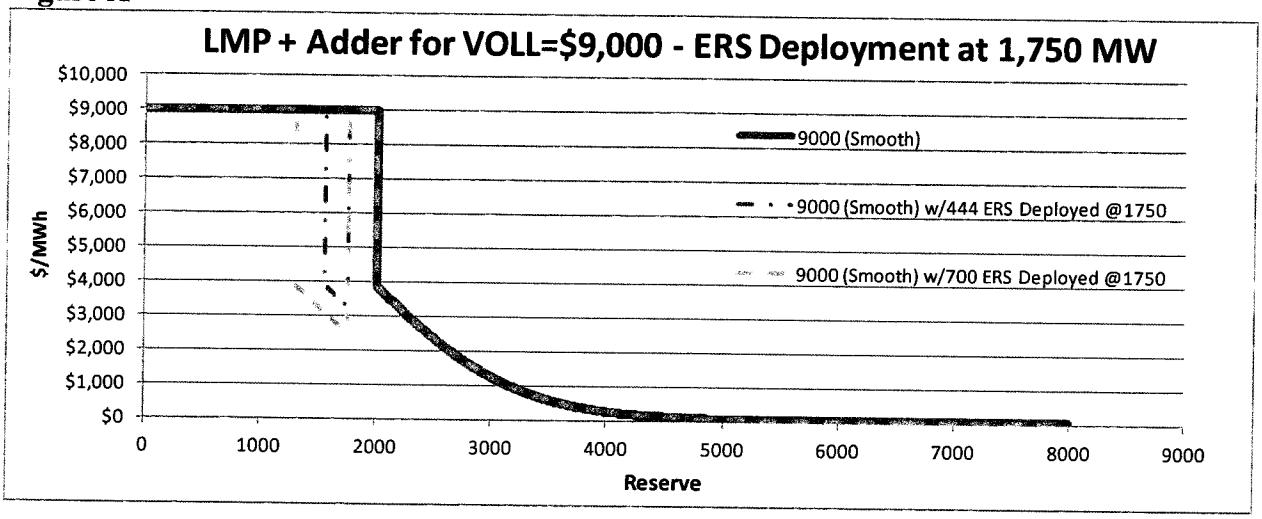
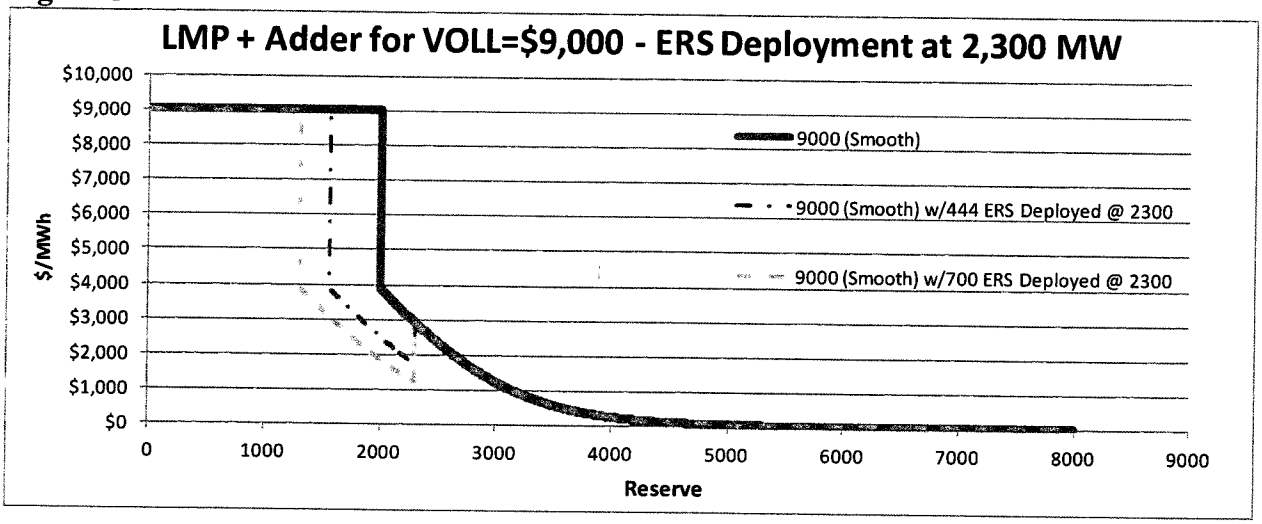


Figure B



[12] Under the current ERCOT Protocols, ERS is deployed during Energy Emergency Alert Level 2, which is coincident with a Physical Responsive Capability level of 1,750 megawatts. ERCOT Protocols § 6.5.9.4.2 (2)(a)(ii). Under a proposal pending in the ERCOT stakeholder process, ERS that needs 30 minutes to respond would be deployed by ERCOT during Energy Emergency Alert Level 1, which is coincident with a Physical Responsive Capability level of 2,300 megawatts. *See* ERCOT Nodal Protocol Revision Request ("NPRR") 564, Thirty-Minute Emergency Response Service (ERS) and Other ERS Revisions.

Luminant acknowledges that some ERS providers curtail their load before receiving a deployment instruction from ERCOT, and actual quantities of responsive deployment are not measured and verified until after the fact. Under Luminant's proposal, the price-correcting reserve adjustment would not occur until ERCOT actually issues an ERS deployment instruction, and for the amount of deployment ERCOT instructs. This is a conservative approach, because historically ERS providers have curtailed more than their committed ERS capacity.[13] Even though Luminant's proposal does not perfectly resolve all ERS deployment issues, perfection should not be the enemy of the good. Accordingly, Luminant requests the Commission advise that the ORDC reserve calculation should subtract out deployed ERS such that the quantity of available market-based reserves post-ERS-deployment represents pre-ERS-deployment reserves.

B. RUC and On-line RMR Should be Excluded from Available Reserves to Mitigate Price Suppression and to Avoid Interfering with Price Formation

RUC and on-line RMR should also be excluded from available reserves for the purposes of applying the ORDC. Because greater quantities of RUC and RMR capacity may be committed in the future (for either capacity shortages or for transmission constraints), it is necessary to address their potential interference with the scarcity pricing formation that the ORDC is intended to produce. Unlike ERS capacity, which, given the Commission's recent guidance, is not counted in the reserve formula, RUC and on-line RMR are included in the reserve calculation proposed in the ERCOT Implementation Documents.[14] For the reasons set forth below, the reserve calculation should be modified so that RUC and on-line RMR capacity are not counted when being used by ERCOT. Attachment A to these comments contains a redline of Luminant's proposed changes to the current formula.[15]

When a unit is committed by ERCOT through the RUC process, the unit will operate, at a minimum, at its low sustained limit ("LSL"). To accommodate this energy and maintain energy balance in the Security Constrained Economic Dispatch ("SCED"), the base point of other on-line units will be decreased by ERCOT. The quantity of available reserves will increase by the amount of energy delivered from the RUC unit, plus any additional unloaded capacity available on that

[13] See ERCOT Presentation to QSE Mangers Working Group, 2011 EILS Deployments (May 4, 2012), *available at* http://www.ercot.com/calendar/2012/05/20120504-QMWG.

[14] ERCOT Nodal Protocol Revision Request ("NPRR") 568 and its related documents (hereafter "ERCOT Implementation Documents").

[15] *See* Luminant's Response to Request for Comments Regarding Emergency Response Service at 9 (Oct. 11, 2013).

unit. Due to this out-of-market reliability action, the reserve level would be calculated to have increased by the High Sustained Limit ("HSL") of the RUC unit. To avoid this increase in calculated reserves from out-of-market capacity, the reserve formula should be modified to subtract the HSL of RUC units so that reserves are not inappropriately calculated as including the out-of-market RUC unit's HSL.

The ORDC is intended to properly value reserves and energy during scarcity conditions. In an energy-only market, which is significantly dependent on scarcity prices to provide demand response and investment signals, out-of-market services should not interfere with this scarcity pricing mechanism. Excluding the RUC unit's HSL from the reserve calculation is important in order to not depress the ORDC's calculation of the value of all available market reserves. As depicted above, the ORDC calculates a price adder that decreases as the quantity of reserves increases. If RUC units are added to the reserve quantity (*i.e.*, if the reserve formula is not modified as suggested in the preceding paragraph), then commitment of a RUC unit (an out-of-market action) would lead to a direct decrease in the ORDC-assigned monetary value for all available market reserves. To avoid this detrimental impact, RUC units' HSL should be excluded from the calculation of reserves.

With respect to RMR, when ERCOT makes a decision to bring an RMR unit on-line, that is a similar out-of-market action (*i.e.*, similar to RUC) that would have the same price-suppressing impact on the ORDC-calculated price if the HSL of an on-line RMR unit is not excluded from the reserve calculation. Thus, the HSL of on-line RMR units should also be excluded from the reserve calculation just as ERS and RUC units' capacity should be excluded.

Making these adjustments to the ORDC reserves calculation would largely resolve the zero-to-LSL price suppression from RUC and RMR capacity that stakeholders have struggled to address for the last two years. If RUC and on-line RMR capacity were included in the calculation of reserves, out-of-market reliability decisions would inappropriately impact price formation intended to apply to market-based energy and reserves and would harm market outcomes. Thus, RUC and on-line RMR megawatts should not be included in the calculation of reserves. In an energy-only market, out-of-market reliability services should not undermine the scarcity pricing mechanism intended to properly value energy and reserves during shortages. In the future, if a different market design is implemented, the parameters of the ORDC could be revisited.

IV. CONCLUSION

Luminant appreciates the Commission's consideration of these comments and respectfully requests that the Commission provide stakeholders guidance on the proper treatment of deployed ERS, RUC, and on-line RMR in relation to the implementation of the ORDC. Luminant also suggests that the Commission proceed with developing and implementing a market design that can deliver the Commission's desired reserve margin and price signals to trigger investment in order to ensure a stable electric supply for Texas far into the future.

Respectfully submitted,

LUMINANT

Thomas E. Oney
State Bar No. 24013270
Vice President – Regulatory Law
1601 Bryan St., 22nd Floor
Dallas, Texas 75201
(214) 875-9086 (phone)
(214) 875-8660 (fax)

ENOCH KEVER PLLC

Andrew Kever
State Bar No. 11367050
William A. Moore
State Bar No. 00794330
Michelle V. Hanlon
State Bar No. 24072460
Mandy Kimbrough
State Bar No. 24050613
600 Congress Ave., Suite 2800
Austin, Texas 78701
(512) 615-1200 (phone)
(512) 615-1198 (fax)

By: _____
Attorneys for Luminant

ATTACHMENT A

Below are Luminant's proposed changes (in redline) to the current Version 1 formula contained in the ERCOT Implementation Documents. Luminant would recommend that the Version 2 formula, which would replace Version 1 upon the implementation of NPRR 555, would also be changed consistent with the principles below.

1) R_S is calculated based on SCED telemetry and solution as:

$$R_S = (1 - DF) * (HSL_{GEN} - HSL_{IRR} - HSL_{NUC}) - (BP_{GEN} - BP_{IRR} - BP_{NUC}) + RRS_{LR} + REGUP_{CLR} - \underline{ERS_{DEP} - \Sigma HSL_{RUC} - \Sigma HSL_{RMRONLINE}}$$

Where

- DF is the discount applied to the Real-Time High Sustained Limits (HSLs) of Generation Resources.
- HSL_{GEN} and BP_{GEN} are the system total SCED On-Line HSL and Base Points respectively.
- HSL_{IRR} and HSL_{NUC} are the system total SCED telemetered On-Line HSL of Intermittent Renewable Resource (IRR) and nuclear Resources respectively. The IRRs in this formula exclude Synchronous Condenser Units having an RRS Ancillary Service Schedule.
- BP_{IRR} and BP_{NUC} are the system total SCED On-Line Base Points of IRR and nuclear Resources respectively.
- RRS_{NCLR} is the system total SCED telemetered RRS Ancillary Service Schedules from Load Resources other than Controllable Load Resources.
- BP_{CLR} is the system total SCED Base Points from Controllable Load Resources.
- LSL_{CLR} is the system total SCED telemetered Low Sustained Limit (LSL) from Controllable Load Resources.
- $NONSPIN_{CLR}$ is the system total SCED telemetered Non-Spin Ancillary Service Schedule from Controllable Load Resources.
- RRS_{LR} is the system total SCED telemetered RRS Ancillary Service Schedules from all Load Resources.
- $REGUP_{CLR}$ is the system total SCED telemetered Regulation Up Ancillary Service Schedules from Controllable Load Resources.
- $\underline{ERS_{DEP}}$ is the amount of ERS resources currently deployed.
- $\underline{HSL_{RUC}}$ is the sum of all capacity committed as reliability unit commitment.
- $\underline{HSL_{RMRONLINE}}$ is the sum of online capacity committed as a reliability must run.