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PROJECT NO. 48539

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REVIEW OF THE INCLUSION OF §
MARGINAL LOSSES IN SECURITY- §
CONSTRAINED ECONOMIC §
DISPATCH §

PUBLIC UTILITY COMMISSION
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OF TEXAS

COMMENTS OF POTOMAC ECONOMICS

Potomac Economics (Potomac), the Independent Market Monitor (“IMM”) for the wholesale markets in the Electric Reliability Council of Texas, Inc. (“ERCOT”) region, appreciates the opportunity to file the following comments in response to questions posed by the staff of the Public Utility Commission of Texas (“Commission”) on August 9, 2018 regarding Project No. 48539, *Review of the Inclusion of Marginal Losses in Security-Constrained Economic Dispatch*.

I. INTRODUCTION

As the IMM for ERCOT, we strongly support the Commission’s interest in assessing real-time price formation in ERCOT’s current energy-only market. The importance of efficient real-time prices for both energy and ancillary services cannot be overstated. We feel the need for implementation of marginal losses, as well as other market design improvements such as Real-Time Co-optimization (“RTC”) of energy and Ancillary Services (“AS”), go a long way towards achieving this efficient real-timing pricing in ERCOT’s evolving wholesale energy market.

Well-designed energy and ancillary services markets ensure that effective competition among suppliers and buyers will produce efficient real-time energy and AS prices. Such prices not only facilitate efficient use of existing resources to satisfy the system’s needs in the short term, but also provide economic signals that will guide participants’ longer-term capital investment, retirement, and contracting decisions.

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II. DISCUSSION

A. Marginal Losses

The IMM continues to recommend implementation of marginal losses in the ERCOT wholesale electricity market. When electricity is produced in one location and consumed at another location, the electricity flows through the transmission system and will cause transmission congestion and transmission losses, both of which should be recognized and priced. Currently, ERCOT efficiently manages and prices congestion, but effectively ignores transmission losses.

Transmission losses vary depending on the distance the electricity is traveling and the voltage of the lines it must flow over. Ideally, the real-time dispatch model should recognize the marginal losses that will result from dispatching units in different locations and set prices accordingly. Recognizing marginal losses will allow the real-time market to produce more from a higher-cost generator located electrically closer to the load, thus resulting in fewer losses. Optimizing this trade-off in the real-time dispatch lowers the overall costs of satisfying the system's needs.

The ERCOT market is unique in its treatment of transmission losses. Marginal losses are not included in ERCOT real-time energy prices and the costs of losses are collected from loads on an average basis. This approach may have been reasonable at the time ERCOT was implementing its initial real-time energy markets because at the time generators were located relatively close to load centers. However, as open access transmission expansion policies and other factors have led to a wider dispersion of the generation fleet, the failure to recognize marginal losses in the real-time dispatch and pricing has led to dispatch inefficiencies and price distortions. Therefore, we

have been recommending that the ERCOT upgrade its real-time market to recognize marginal losses in its dispatch and prices.¹

Accompanying this change, a revenue allocation methodology will need to be developed because marginal loss pricing results in the collection of more payments for losses than the aggregate cost of losses. This occurs because the marginal losses are always larger than the average losses (i.e., losses increase as more power flows over the transmission system). Most other regional transmission organization (“RTOs”) in the U.S. recognize marginal losses and may provide examples of allocation approaches that could be used in ERCOT. We would also note that the allocation methodology could allow the Commission to mitigate some of the perceived inequities of transitioning to marginal losses at this time.

ERCOT’s study on marginal losses, using the same methodology and computer software used in the regional transmission planning process, incorporated system changes anticipated by 2020, and estimated production costs, generator revenues and consumer costs using three different assumptions regarding natural gas costs.² In the study's base case scenario for natural gas prices, implementation of marginal losses resulted in system-wide production cost savings of \$11.4 million annually, a reduction in generator revenues of \$212.5 million annually, and a reduction in consumer costs of \$135 million annually.³ First Solar Inc., Vistra Energy Corp., and the Wind Coalition had previously hired the Brattle Group to perform their own independent analysis of the potential impacts of implementing a marginal loss methodology for pricing and dispatching generation in ERCOT, as proposed by NRG and Calpine in the FTI Paper, and filed their findings

¹ 2017 State of the Market Report for the ERCOT Electricity Markets at xxviii; 2016 State of the Market Report for the ERCOT Electricity Markets at xxvii.

² ERCOT Studies on Benefits of Real-Time Co-optimization and Marginal Losses, Project No. 47199, *Project to Assess Price-Formation Rules in ERCOT's Energy-Only Market* (June 29, 2018).

³ *Id.*

on October 12, 2017.⁴ Even that study's most conservative estimates showed that \$8.6 million in annual production cost savings would likely be realized in ERCOT through implementation of a marginal loss component. ERCOT's effort only reinforces magnitude of the production costs savings already acknowledged by the opponents of marginal losses.

Finally, the IMM views marginal losses as similar to congestion pricing. Open access to transmission does not guarantee access to the same price. Energy produced or consumed at different locations has different value because of transmission congestion and transmission losses. Not only are the physics behind a marginal loss component uncontroverted, but both ERCOT's and the Brattle Group's studies show that using marginal losses is economically justified because the production costs savings offset the costs of the project.

B. Synergies of Contemporaneous Adoption of Marginal Transmission Losses and RTC

Implementing any market improvements together creates synergies of time and resources with regard to planning and implementation costs. The market synergies include both production cost savings and reductions in consumer costs as a result of contemporaneous adoption and implementation of RTC and marginal losses in system dispatch decisions. The effects of implementing both RTC and marginal losses also includes increased reliability and more accurate and efficient price formation mechanisms.

The IMM believes that implementation of RTC is the more vital and significant market improvement of the two, but fully recommends that the Commission and ERCOT move forward with implementation of both as expeditiously as possible.

⁴ Analysis of Marginal Losses Proposal, Project No. 47199, *Project to Assess Price-Formation Rules in ERCOT's Energy-Only Market* (Oct. 12, 2017).

III. CONCLUSION

The IMM strongly supports the Commission's interest in ERCOT's price formation issues. We continue to recommend implementation of marginal losses in the ERCOT wholesale electricity market. Looking forward to 2019, market conditions will likely be similar to those seen in 2018. As the supply margins remain tight,⁵ the likelihood of sustained high prices will again be higher in 2019. Tighter reserves should lead to an expectation of higher prices and more frequent shortages. Confidence in the reliance on shortage pricing would be higher when reserves and energy are co-optimized because RTC will ensure that shortage pricing will only occur when the system has been dispatched optimally and cannot satisfy all of its requirements. Therefore, as the system transitions to this new equilibrium, it is an ideal time to implement key price formation improvements, including particularly RTC and marginal loss pricing. These changes will likely achieve sizable savings for ERCOT's consumers in the face of rising prices.

⁵ Capacity Demand and Reserves Report May 2018 (Apr. 30, 2018).

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Respectfully submitted,

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