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PROJECT NO. 48540

REVIEW OF REAL-TIME CO-
OPTIMIZATION IN THE ERCOT
MARKET

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PUBLIC UTILITY COMMISSION
OF TEXAS

FILING CLERK

**JOINT REPLY COMMENTS OF LOWER COLORADO RIVER AUTHORITY AND TEXAS
COMPETITIVE POWER ADVOCATES**

Lower Colorado River Authority (LCRA) and Texas Competitive Power Advocates (TCPA) (collectively, Joint Commenters) file these joint reply comments in response to the initial comments filed in the instant proceeding regarding the implementation of real-time co-optimization (RTC). In sum:

- In designing the key RTC parameters, the overarching goal of the Public Utility Commission of Texas (Commission) should be to do no harm to resource adequacy in the Electric Reliability Council of Texas (ERCOT) region and ensure that the design elements of RTC are consistent with the Commission’s recent market design changes¹ and ongoing efforts to maintain an adequate reserve margin.
- Under RTC, the ancillary services (AS) market should continue to be fully voluntary (both in the day-ahead market (DAM) and real-time market (RTM)), should not presume the value of AS is zero, and should continue to be subject to the “small fish” exemption.
- To further the “do no harm” to resource adequacy goal, the Commission should maintain a narrow scope for the initial RTC implementation, which will be an incredibly complex undertaking without any additional, non-essential features.
- ERCOT should design RTC to optimize the currently effective suite of AS (i.e., those adopted in Nodal Protocol Revision Request (NPRR) 863), but should include software functionality to add new AS when/if adopted by stakeholders in the future.

¹ *Review of Summer 2018 ERCOT Market Performance*, Project No. 48551, Memorandum from Chairman DeAnn T. Walker (Jan. 17, 2019). At the January 17, 2019 open meeting, the Commission approved an adjustment to the loss of load probability (LOLP) curve to the operating reserve demand curve (ORDC) in a two-step process, beginning in spring 2019 with a 0.25 shift and culminating with an additional 0.25 shift in spring 2020.

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I. Replies

A. RTC should do no harm to resource adequacy.

The implementation of RTC should “do no harm” to resource adequacy.² The shape and design characteristics of the operating reserve demand curve (ORDC)—which will continue to have a role in RTC via the AS demand curves (ASDC)—have fundamental impacts on decisions regarding generation resource operation, investment, and retirement. After careful and lengthy consideration, the Commission recently directed changes to the shape of the ORDC to more accurately reflect reliability risk in the ERCOT market. These changes will improve resource adequacy in the years to come and therefore should be replicated in the design of RTC. RTC represents a significant change in the dispatch and operation of the ERCOT generation resource fleet. Improving the utilization of resources during real-time dispatch is the objective of such an initiative. The Commission should reject the attempt by TIEC³ to utilize the RTC project as a means to back out prior scarcity pricing policy decisions regarding the shape and seasonal uniformity of the ORDC. These prior actions by the Commission are already being factored into investment decisions. Each component of the ORDC including the minimum contingency level (MCL), loss of load probability (LOLP) shift, and single blended ORDC shape contributes to critical scarcity pricing. The implementation of RTC should not be used as an excuse to quickly re-litigate and fundamentally alter the shape of the ORDC, which will be replaced by ASDCs.

TIEC cites to “first principles” numerous times when attempting to justify unwinding prior Commission decisions on scarcity pricing.⁴ While it is true that the ORDC (and ASDC in RTC) require administrative design choices to reflect operational realities, TIEC ignores the pervasive departures from “first principles” that occur in many other aspects of the ERCOT market design, operation, and related policies that presumably benefit their members (including, *inter alia*, 4CP transmission cost allocation).⁵

² In addition to the Joint Commenters in their individual comments, the following commenters expressed a desire for RTC to be implemented in a manner consistent with the current ORDC and/or that will not harm resource adequacy: Initial Comments of Texas Electric Cooperatives, Inc. at 2-3 (Apr. 15, 2019) (hereafter, TEC Comments); South Texas Electric Cooperative, Inc.’s Initial Comments to Commission Questions on the Implementation of Real-Time Co-Optimization at 11 (Apr. 15, 2019) (hereafter, STEC Comments); Comments of the Solar Energy Industry Association and the Texas Solar Power Association at 9-10 (Apr. 15, 2019) (hereafter, SEIA/TSPA Comments); and Joint REP Group Response of Texas Energy Association for Marketers to Commission Staff Questions, Joined by Direct Energy, LP at 2 (Apr. 15, 2019) (hereafter, REP Group Comments).

³ Texas Industrial Energy Consumers’ Initial Comments at 6-7 (Apr. 15, 2019) (hereafter, TIEC Comments).

⁴ *Id.* at 5-7.

⁵ Other common practices and policies that violate “first principles” include: utilization of reliability unit commitment (RUC) and reliability must run (RMR); cost-based compensation for RUC resources; curtailment or import of

Since nodal go-live, the Commission and stakeholders have recognized the need to appropriately account for reliability actions in nodal prices. In the early days of the market, it was recognized that the deployment of reliability services such as non-spinning reserve and responsive reserve negatively impacted prices, such that prices were not reflecting system needs.⁶ This issue was first addressed by requiring offer floors, which were later replaced by the ORDC. The market soon recognized that the ORDC alone could not fully account for reliability actions that suppressed the nodal prices to the point that prices were not reflecting reliability conditions. The reliability price adder was developed to address the impact of low sustained limit generation contribution by reliability unit commitment (RUC) units. Because of the reliability responsibility that is placed on ERCOT, it is impossible to design a pure “first principles” market as described by TIEC. We must have a market that allows for reliability actions by ERCOT while also adhering to principles that are necessary to ensure proper pricing in order to maintain adequate reserves for long-term reliability.

Joint Commenters support the need for ERCOT to take reliability actions when necessary and are fully committed to working with all stakeholders to develop protocols that are transparent to the market and ensure proper pricing outcomes.⁷ Joint Commenters strongly recommend that the Commission ignore TIEC’s request to back out recent and important scarcity pricing and resource adequacy decisions due to narrowly selective arguments with “first principles.” The current shape of the ORDC is a careful and intentional design that attempts to at least partially offset the effects of the reliability actions that the Independent System Operator exercises to maintain grid reliability.

The selection of the RTC design parameters of system-wide offer cap (SWOC), ASDC shape, and power balance penalty cap (PBPC) are the most important policy decision regarding RTC. The Commission needs to get this decision right, or future economic incentives and the sustainability of the competitive energy market in ERCOT could be threatened due to an extended period of lower reserves.

direct current tie capacity for emergencies; capacity subsidization for emergency response service programs; deployment of transmission and distribution utility (TDU) load management programs; state funded energy efficiency programs; renewable generation subsidies; energy offer mitigation; TDU voltage reduction programs; and any action ERCOT takes for reliability that does not have a corresponding economic value expressed in prices.

⁶ These issues were initially addressed in Project No. 37897 and then in Project No. 40000.

⁷ A recent example of ERCOT actions that were taken for reliability reasons but are not currently appropriately captured in market prices is the recalling of unit outages that occurred earlier this year. Joint Commenters are currently engaged in workshops and other discussions regarding this incident and hope to work with ERCOT to find a solution that will appropriately compensate resource owners for their costs and send the correct price signals to the market in order to minimize market uplift and to avoid having a negative impact on the long term viability of generation reserves.

Therefore, Joint Commenters recommend the Commission direct an independent consultant to analyze and model the combination of design parameters that “do no harm” to resource adequacy by incorporating the most recent ORDC reforms directed by the Commission. The combination of parameters where SWOC is \$2,000/MWh, ASDC max is \$7,000/MWh, and PBPC is \$9,001/MWh was discussed in the ERCOT stakeholder process, but these parameters would clearly go backwards in terms of scarcity pricing and negatively affect resource adequacy, as demonstrated in the examples provided in TCPA’s initial comments.⁸ Based on ERCOT’s RTC simulator,⁹ a combination of parameters where SWOC is \$2,000/MWh, ASDC max is \$9,000/MWh, and PBPC is \$11,001/MWh appear closer to neutral but could result in prices that go slightly higher than \$9,000/MWh (but up to \$11,001/MWh) under very extreme and rare circumstances.¹⁰ Perhaps the Commission and ERCOT stakeholders should accept such a design where prices can exceed \$9,000/MWh in rare circumstances as this outcome can occur in the current market.¹¹ Even the Independent Market Monitor (IMM) alluded to this in its initial comments, stating that “the choice of these parameters should not be influenced by an objective to *always* set prices below \$9,000/MWh.”¹² It is equally important in the construction of the ASDCs to replicate the MCL, single blended curve, and the LOLP shift in order to maintain an acceptable reserve margin and prevent negative market operational implications. Considering that even structuring these parameters to closely match the current ORDC shape could result in a lower market equilibrium reserve margin under RTC and due to the important implications of these decisions, detailed analysis and study are required to ensure these parameters are set properly.

⁸ Initial Comments of Texas Competitive Power Advocates at 4-6 (Apr. 15, 2019).

⁹ The simulator is available here: <http://www.ercot.com/calendar/2019/3/6/175558>.

¹⁰ For prices to exceed \$9,000/MWh in this scenario, a significant amount of offers would be required at SWOC and nearly all remaining capacity would need to be exhausted. This scenario is extremely rare since ERCOT will shed firm load under Energy Emergency Alert (EEA) Level 3 prior to capacity exhaustion. ERCOT Protocols § 6.5.9.4.2(3).

¹¹ Prices can go higher than \$9,000/MWh in the current design of the market with both the value of lost load (VOLL) and SWOC set to \$9,000/MWh due to transmission system congestion. ERCOT Methodology for Setting Maximum Shadow Prices for Network and Power Balance Constraints (Jun. 20, 2018).

¹² Initial Comments of Potomac Economics at 2 (Apr. 15, 2019) (hereafter, IMM Comments) (emphasis added).

B. In RTC, the AS market should continue to be fully voluntary, allow for non-zero offers, and benefit from the “small fish” exemption.

1. Voluntary RTM and Non-Zero AS Offers

In response to Questions 9 and 11, some commenters indicated that all online capacity should be required to have an offer curve for each AS for which the resource is qualified.¹³ Joint Commenters disagree that RTC should be designed in this manner. It is imperative that generation resource owners be allowed to maintain flexibility regarding how they offer AS. This flexibility is necessary in order to ensure that a resource is indifferent as to supplying energy or AS, which is the fundamental purpose of RTC, and to allow resource owners to maintain the ability to manage various physical and financial issues that can—and often do—arise. Therefore, to ensure compliance, a resource must be able to indicate to ERCOT its ability to participate in AS, as well as its cost for participation through its offer curve. Some examples of common physical limitations that a resource may need to manage include:

- A governor issue that intermittently limits its ability to respond and cannot be fixed until the next outage;
- Operational issues with physical equipment such as forced draft fans, induced draft fans, and boiler feed pumps that limit the unit’s ability to ramp;
- Burner issues on a gas plant that can limit the unit’s ability to ramp. For a combustion turbine, fuel quality variations and particulate contamination into the combustor can lead to flameout and flashbacks, which could possibly damage the combustor;
- Wet coal supply at a coal plant or problems with a coal mill, feeder, or conveyer system that can limit a coal-fired unit’s ability to ramp;
- Emissions system issues that restrict ramp rate of the unit or require a capacity de-rate until the problem is resolved;
- Unit operation near emission allowance limits where the ramp rate is restricted or capacity de-rate is required; and
- Units operating in non-frequency responsive capacity range.

¹³ The ERCOT Steel Mills’ Joint Comments at 6-7 (Apr. 15, 2019) (hereafter, ERCOT Steel Mills Comments); IMM Comments at 6-7 (Apr. 15, 2019); REP Group Comments at 4 (Apr. 15, 2019).

Joint Commenters also disagree with the proposition that the default offer for any qualified AS capacity, if none is submitted, should be \$0/MWh.¹⁴ Generators should not be stripped of the flexibility to reflect additional costs and risk in their AS offers by being forced to offer in at zero cost. A host of considerations, beyond just the opportunity cost of not providing energy, factor into a resource’s offer of AS. For example, one cost to a resource owner of providing AS is the impact to the resource’s gas nomination. Some resources must manage their target fuel burn very closely and, if forced to provide AS, may not be able to hit burn targets, such that they would be required to sell gas back at a significant discount.

There will also be times when a resource needs to operate at a fixed output and, thus, is unable to be in automatic generation control, which is a condition to providing AS. This may be due to testing or tuning equipment, monitoring or measuring emissions, and other operational requirements. Further, because resources are also required to monitor and maintain certain emissions within state and federal limits, there may be times when ramping would increase emissions and thus cause exceedance. In addition to any of these specific scenarios, a resource owner must consider not only the physical limitations of a unit when providing a service, but also the overall wear and tear on the resource. Generators also wear an elevated compliance risk when providing AS. It is appropriate to ensure that all of these types of considerations can be accounted for in an AS offer.

2. Voluntary and Financial-Only DAM

Joint Commenters agree with the majority of commenters¹⁵ that the DAM should continue to operate as a fully voluntary market,¹⁶ although there appears to be some difference of understanding amongst commenting parties regarding whether AS awards would or should continue to be physically binding in the DAM that would benefit from clarification. For instance, TIEC and ERCOT Steel Mills both suggest that the DAM could continue to physically commit AS “until the market has gained more experience with RTC.”¹⁷ While Joint Commenters appreciate the desire to conservatively transition to

¹⁴ IMM Comments at 6 (Apr. 15, 2019).

¹⁵ In addition to Joint Commenters in their individual comments, see IMM Comments at 5-6 (Apr. 15, 2019); REP Group Comments at 3 (Apr. 15, 2019); SEIA/TSPA Comments at 6 (Apr. 15, 2019); STEC Comments at 7-8 (Apr. 15, 2019); TEC Comments at 5 (Apr. 15, 2019).

¹⁶ Today, participation in the DAM—both with respect to energy and AS offers—is fully voluntary, and awards for energy are not physically binding. Only AS awards are physically binding.

¹⁷ TIEC Comments at 7-8 (Apr. 15, 2019); ERCOT Steel Mills Comments at 6-7 (Apr. 15, 2019).

RTC, the TIEC/ERCOT Steel Mills proposal is overly restrictive. A voluntary, financial-only DAM could be designed to procure a minimum quantity of AS deemed necessary by ERCOT to satisfy North American Electric Reliability Corporation standards. Under this approach, RTC would reconfigure the AS awards during real-time dispatch to economically optimize the provision of such AS to meet a defined physical requirement enforced by ASDCs. As an alternative, the DAM could serve purely as a forward hedging mechanism for AS purchases and sales similar to how the DAM clears bids and offers for energy today. In this case, the physical requirement again resides in the RTM (enforced by ASDCs), but bids and offers for AS in the DAM would only reflect pricing expectations in the RTM and no specific quantity of AS offers would be required for procurement in the DAM. Both approaches result in a voluntary, financial only DAM without a physical requirement for specific resources to provide AS offers. Joint Commenters recommend that the Commission solicit feedback from the Texas Reliability Entity (Texas RE) regarding these options, and allow Texas RE, ERCOT, and stakeholders to further discuss the various alternatives of how a voluntary, financial only DAM could be implemented with RTC.

If the TIEC/ERCOT Steel Mills concern is simply one of wanting to better understand RTC market dynamics prior to being exposed economically to those dynamics, Joint Commenters share that sensitivity and would suggest that a more appropriate alternative would be to request that ERCOT produce shadow dispatch and settlement data for market participants for some reasonable time-certain period prior to RTC go-live. While that would be an imperfect substitute for actual experience with physical commitments and real-world consequences, it would be a useful benchmark for market participants to calibrate their expectations prior to implementation. Doing so would likely require establishing a testing environment for market participants to gain experience with new offer and market clearing dynamics to operate in parallel to the existing DAM and RTM, and to be effective may require full market participation.

In addition, Joint Commenters take exception to two specific comments from ERCOT Steel Mills: (1) that generation resources be *required* to carry forward offers from the DAM to the RTM without modification; and (2) that the Commission should take up perceived issues relating to the accuracy of current operating plan (COP) data in this project.¹⁸

¹⁸ ERCOT Steel Mills Comments at 7 (Apr. 15, 2019).

On the first point, requiring that generation resources be held to their DAM offers would in effect be a quasi-physical commitment, one in which the generation resource would be prevented from adjusting its offers to reflect changing market conditions,¹⁹ and in the process would shift financial risk onto generation resources by dislocating the financial from the physical commitment timing for only the supply side of the market. That is both inconsistent with the basic premise of RTC and would ultimately have a chilling effect on generation resources' willingness to participate in the DAM—an outcome that would harm both supply and demand-side interests in the long-run. Furthermore, this proposal is very similar to the controversial NPRR 574 that ERCOT stakeholders considered and ultimately rejected in 2014.²⁰ This proposal is simply asking the Commission to override a prior ERCOT stakeholder decision, and is not a necessary decision point for the Commission to make for RTC implementation. Therefore, the Commission should reject ERCOT Steel Mills' request.

On the second point, ERCOT Steel Mills do not specify the perceived issues with COP accuracy or timeliness, but Joint Commenters believe that the Commission already has sufficient provisions in 16 Tex. Admin. Code (TAC) § 25.503 to address any shortfalls in COP quality.²¹ Further, if ERCOT Steel Mills' are suggesting that COPs must have perfect clarity regarding future operations, then that suggestion is disconnected from reality. Indeed, the Protocols require the COP to provide only “expected” operating conditions for the next seven days²²—meaning a generation resource's operating plan is expected to change over time and need only reflect current expectations.

¹⁹ IMM Comments at 5 (Apr. 15, 2019) (“As supply and demand conditions change, moving from the day-ahead into real time, the markets should re-optimize and settle all deviations. Hence, AS sold by one resource may be reallocated to another resource owned by a different supplier. This scenario can happen if the Market Participant believes the unit is not economic to start in real-time due to changing conditions.”).

²⁰ Nodal Protocol Revision Request 574, PRS Report (Feb. 13, 2014), *available at*: <http://www.ercot.com/mktrules/issues/NPRR574#keydocs>.

²¹ *E.g.*, 16 Tex. Admin. Code (TAC) § 25.503(f)(2) (requiring compliance with ERCOT procedures), (f)(8) (requiring provision of accurate, factual, and complete information to ERCOT), and (f)(9) (requiring compliance with reporting requirements relating to availability of units); ERCOT Protocol § 3.9.1(1) (“Each QSE that represents a Resource must submit a COP to ERCOT that reflects expected operating conditions for each Resource for each hour in the next seven Operating Days.”).

²² ERCOT Protocol § 3.9.1(1).

3. Small Fish Exemption

A few commenters stated that the “small fish” exemption to the determination of market power should be eliminated.²³ Joint Commenters disagree.

The argument for eliminating the “small fish” exemption is largely that the ERCOT market does not depend as much upon high offers to signal scarcity as it did in the past. While it is true that the advent of the ORDC and, in the future, RTC represent an increased reliance on administratively-calculated scarcity pricing to support long-term resource adequacy, that increased reliance does not mean that the market now relies (or will rely) solely upon administrative scarcity pricing to signal investment needs. Indeed, certain proposed values for SWOC and ASDC max (i.e., \$2,000/MWh and \$7,000/MWh, respectively) could result in RTC being a step back towards even greater dependence on offer-based scarcity pricing than the status quo, since they would require very high offer prices in order to achieve a market signal to reflect extreme scarcity, even when firm load shed is either occurring or close to occurring. To be clear, Joint Commenters are not advocating for ASDC max to be capped below the current \$9,000/MWh value of lost load, but are simply pointing out that the mere existence of proposals to do so directly undercuts arguments that the “small fish” rule is outdated and no longer necessary.

Additionally, the Commission has considered and rejected a proposal to eliminate the “small fish” rule in the recent past, reaffirming prior Commission decisions that market discipline from competitors is sufficient to prevent small generators from abusing market power on a system-wide basis.²⁴ There is nothing about the implementation of RTC that should change this analysis. While the IMM notes that AS shortages will drive scarcity pricing under RTC, there is no evidence to suggest that AS would be more susceptible to system-wide market power abuse than energy. Indeed, as noted by SEIA and TSPA, the elimination of the Supplemental Ancillary Services Market (SASM) may result in more resources offering AS than do today because they will no longer bear the risk of buying back AS obligations through the SASM if their DAM AS assignments become undeliverable.²⁵ The same

²³ ERCOT Steel Mills Comments at 7 (Apr. 15, 2019); IMM Comments at 6-7 (Apr. 15, 2019); SEIA/TSPA Comments at 8 (Apr. 15, 2019).

²⁴ *Petition of Raiden Commodities, LP for Rulemaking to Remove §25.504(e), the Exemption from the Market Power Definition for Entities Controlling Less than 5% of the Generation Capacity in the ERCOT Region*, Docket No. 42424, Order Denying Petition for Rulemaking at 5-12 (June 20, 2014).

²⁵ SEIA/TSPA Comments at 6-7 (Apr. 15, 2019).

competitive market discipline already exists in the AS market, where a generator that seeks to offer AS at above-market prices risks being passed over for AS commitment in favor of a competitor—and to the extent that RTC does incentivize greater participation in the provision of AS, that competitive dynamic will only intensify. Furthermore, because the “small fish” rule is only applicable in the system-wide context, the Commission still retains the ability to investigate and prosecute for abuse of locational market power.

In sum, there is very little value to removing the “small fish” exemption at this juncture; and doing so could actually prove counterproductive. At a minimum, if the Commission is considering changes to the “small fish” rule, it should do so in a separate proceeding after the implementation of RTC. As a matter of principle, however, the Commission should retain policies (like the “small fish” exemption) that promote competitive, over regulatory, outcomes as much as possible.

C. The scope of the RTC project should be narrowly tailored to promote the “do no harm” to resource adequacy objective.

The RTC redesign is the most significant, impactful change to the wholesale market design since the implementation of the Nodal market in 2010, and it will require a complete overhaul of ERCOT’s existing dispatch mechanism. The initial comments in this Project, as well as the initial meetings of the RTC Task Force at ERCOT, indicate that the market is still grappling with how to implement the basic design features of RTC, after the Commission makes the initial cuts on the major design elements. The Commission should keep the initial RTC implementation narrow and focused on doing no harm to the already dwindling reserve margins in ERCOT—a concern expressed by a number of the initial commenters.²⁶ RTC should not be used as a vehicle for various stakeholders to push through their wish lists of entirely unrelated market changes that the Commission has previously considered but declined to implement, such as the ERCOT Steel Mills’ suggestions noted in Section I.B.2 above and AEMA’s proposals to revisit multi-interval real-time market or loads in SCED.²⁷ In short, RTC implementation is already going to be costly and complex, and the Commission should decline suggestions to expand the scope to unrelated or potentially distracting and unnecessary initiatives.

²⁶ In addition to the individual comments of the Joint Commenters, see SEIA/TSPA Comments at 9-10 (Apr. 15, 2019); STEC Comments at 7 (Apr. 15, 2019); and TEC Comments at 2-3 (Apr. 15, 2019).

²⁷ AEMA-Texas Initial Comments at 4–6 (Apr. 15, 2019) (hereafter, AEMA Comments).

D. RTC should be designed based on the current suite of AS (NPRR 863), with functionality to add new AS if/when adopted by stakeholders.

Several parties recommended in their initial comments that the current set of AS, as modified by NPRR 863, be applied in developing the ASDCs under RTC.²⁸ Joint Commenters agree that the current suite of AS, including the Contingency Reserve Service and Fast Frequency Response Service introduced by NPRR 863, should form the basis of the ASDCs. NPRR 863 was the product of extensive negotiation and collaboration among market participants. Proposals suggesting revisions to the recently agreed-upon AS product set²⁹ are unnecessary, would significantly extend the project timeline, and are better suited to consideration in the ERCOT stakeholder process. Applying the current set of AS, as determined by NPRR 863, would simplify one aspect of this highly complex project.

While Joint Commenters see no need at this time to design new AS when considering the ASDCs, future changes to the ERCOT system may necessitate the development of different products to maintain reliable operations.³⁰ Joint Commenters therefore recommend that the framework for RTC include ASDCs that reflect the AS established by NPRR 863, but that the design also include the ability to incorporate new or different AS as needed.

II. Conclusion

LCRA and TCPA appreciate the Commission's consideration of their joint comments and request that the Commission carefully evaluate the key RTC parameters, with the aid of an independent consultant, with the objective of doing no harm to resource adequacy.

Dated: April 25, 2019

²⁸ In addition to TCPA's initial comments, see, e.g., ERCOT's Response to Commission's Request for Comments at 3 (Apr. 15, 2019) (hereafter, ERCOT Comments); REP Group Comments at 2 (Apr. 15, 2019); and STEC Comments at 5 (Apr. 15, 2019).

²⁹ ERCOT Steel Mills at 5 (Apr. 15, 2019); TIEC Comments at 5 (Apr. 15, 2019).

³⁰ See, e.g., Comments of Siddiqi, Baldick, and Garcia at 2 (Apr. 17, 2019) (recommending the introduction of an inertial response service).

Respectfully submitted,

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