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PROJECT NO. 52373

REVIEW OF WHOLESALE	**§**	**PUBLIC UTILITY COMMISSION**
	§	
ELECTRIC MARKET DESIGN	**§**	**OF TEXAS**

Cypress Creek Renewables, LLC Response to PUCT Staff's Request for Comments

Pursuant to Public Utility Commission of Texas ("Commission") procedural rules Cypress Creek Renewables, LLC ("Cypress Creek") files this response to the Memorandum filed on December 6, 2021 ("Staff Memo") in Project No 52373 ("52373"), Review of Wholesale Electric Market Design.

Introduction

Cypress Creek is an active developer, owner, and operator of battery energy storage and solar energy facilities interconnected throughout the ERCOT region. Cypress Creek made previous filings on September 30, 2021 and November 1, 2021 that established our view of the key issues, including failure of the market to incent adequate reliable capacity and a need to adapt to changes in the generation mix. Additionally, we set out an evaluation framework that considered three market objectives—Resource Adequacy ("RA"); Resource Reliability ("RR"); and Effective System Operation—and two relevant timeframes—near-term and medium-term—that we use again here to organize our responses.

We appreciate the Commission's distinction between Phase 1 and Phase 2 reforms, and within Phase 1, *immediately actionable* reforms and *next steps*. We note that the Commission has asked for feedback specifically on Phase 2 reforms and focus our responses on these. However, we reiterate that there are many valuable features of the ERCOT market today, and hence, all reforms should be studied with stakeholder involvement to avoid undue risk to market participants and consumers. We appreciate identification of further study under Phase 1 *next steps* and see a similar need for study of Phase 2 solutions following the Commission's blueprint. This should be done in a deliberative, transparent, and inclusive fashion.

Cypress Creek Comments on Staff Memo

We have set out below specific recommendations related primarily to Phase 2 Market Design Proposals that can meet the three key objectives listed above and identify an associated timeline over which they should

be implemented. Insofar as we comment on issues categorized under Phase 1, we do so because we view these as critical complements to Phase 2 reforms for meeting key objectives.

Resource Adequacy

In the near-term, we see the Backstop Reliability Service ("BRS") as a viable, relatively fast-acting mechanism for targeting sufficient responsive capacity in the market. We broadly agree with the principles set out in the Staff Memo associated with BRS, but note several points that are critical to this mechanism's success:

- To reduce the reliability and cost risks of under or oversizing the backstop service, the BRS mechanism should be sized to meet a specific reliability need—namely, the structural capacity shortfall in the market—identified through a prompt evaluation of a new or enhanced longer term planning process.
- The reliability standard should explicitly consider planning reforms needed in light of the rapidly changing electricity system.[1] Existing resource study processes—the *Seasonal Assessment of Resource Adequacy* ("SARA") and *Capacity, Demand and Reserves* ("CDR") reports—should be overhauled to be more granular and on a forward-looking basis aligned with BRS procurement timelines and beyond. In creating this enhanced longer-term forecast, the Commission should pay particular attention for how to treat *correlated* generator and system outage risks as made evident during Winter Storm Uri, as well as changes to *when* probability of shortfalls is considered throughout the year (i.e., not just during peak demand periods).
- Further, the Commission should develop a non-discriminatory method for resource and demand side capacity accreditation with forward stochastic and/or scenario-based analysis to accurately capture observed resource contributions during extreme conditions and heightened demand scenarios, *including thermal generator fuel limits* as well as *capacity contributions of expanded transmission*.
- If the BRS mechanism 'tops up' the amount of reliable capacity available to meet a certain level of reliability, largely in the face of low-probability, high-impact system events, the program's resource qualification criteria should not be unduly limiting. Rather, participation should be as inclusive as possible (e.g., reducing the qualifying response time to avoid the BRS cannibalizing the fastest response units the grid needs in-system) to meet the system needs at lowest cost. Requiring highly efficient, costly new capacity will impose undue costs on ratepayers, as this capacity held out of market would operate infrequently.
- The BRS should apply a robust performance mechanism that ensures performance by these resources when called upon, including penalties in the case of under-performance.

[1] Redefining Resource Adequacy Task Force. 2021. Redefining Resource Adequacy for Modern Power Systems. Reston, VA: Energy Systems Integration Group. https://www.esig.energy/wp-content/uploads/2021/08/ESIG-Redefining-Resource-Adequacy-2021.pdf

The BRS will likely pull existing capacity out of the market in the near-term. While the energy market would respond to this in time, the nature of BRS as a new product paired with regulatory uncertainty may reduce investor confidence in reliable returns from the market and lead to a delayed market response. Hence, there is a role for a mutually reinforcing procurement program similar to the Dispatchable Energy Credits ("DEC") program used to bring *new capacity* into the market in a prompt fashion to replace that which is removed via the BRS. We note several details to the DEC-type program:

- This program should target *new capacity* in a resource-neutral fashion, to ensure that there is prompt replacement of the capacity taken out of the market by BRS.
- As implied above, this mechanism should target *capacity* replacement, and thus, it should be structured around a capacity product, or alternatively, more appropriately targeted energy during the times when it is needed in such a way that results in adequate capacity replacement. It should *not* be structured around generic MWhs, and should be very focused so as to deliver the product that the system needs.

Furthermore, we commend the Commission for the changes that they propose to the ORDC curve and HCAP, which in addition to improving operating incentives, will stabilize market signals and create a more financeable environment, thus supporting near- and medium-term RA.

In the medium term, elements of the proposed Load Service Entity Obligation ("LSEO") should be strongly considered for implementation following rigorous study, since such a load-side reliability mechanism optimizes across both the RA and RR issues. However, we acknowledge that the BRS is a less intrusive change to the market and could be a workable long-term solution to RA if implemented in the context of a robust planning process, as described above.

Resource Reliability

In the near-term, the Commission in conjunction with partner agencies should continue to support weatherization efforts of key pieces of gas and electricity infrastructure. Because those weatherization efforts take time and are not yet comprehensive, the BRS and DEC can only be relied upon if paired with a reliability product. Brattle described a firm fuel product in the November 19 PUCT meeting that could be made to work as an interim solution. This product should be studied, as proposed in the Staff Memo as part of Phase 1 next steps. However, at a high level, this product would need to cover somewhere on the order of 25 Gigawatts of gas generation *in excess of the generation that has on-site fuel today*, require on-site fuel (firm fuel contracts were ineffective during Uri), and not allow on-site fuel to be drawn below a specified level—e.g., four days of fuel—unless called upon by ERCOT during emergency system conditions. Similar to BRS, it should come with a rigorous performance mechanism, with penalties for under-performance.

While the firm fuel product presents a near-term solution that can be used as a stopgap, it will become less reliable and efficient over time. The firm fuel product subsidizes the failure of the underlying fuel supply system, and this subsidy will become increasingly difficult to calibrate as time goes on for two reasons:

- **The integrated gas and power system will change.** Upstream gas supply and downstream gas generation and other sources of gas demand will evolve, making the system dynamics during Uri increasingly less representative of how they would behave during a similar future event.
- **Extreme storms are changing.** With a changing climate, Uri will become increasingly less representative of what a future extreme event might look like in intensity, duration, and geographic distribution.

For these reasons, the administrative challenge to ERCOT of determining product design will increase over time. **In the medium term,** a more dynamic and inclusive mechanism with elements of the LSEO, which can adjust capacity payments with the changing fuel system, could be a more efficient solution than the firm fuel product.

The design details of any load-side reliability mechanism, such as the LSEO, will be immensely important and should be carefully studied by ERCOT and subject to an extensive stakeholder process. However, if done right, such a mechanism can effectively create a non-discriminatory framework that targets an adequate level of reliable resources and ensures performance through a robust incentive mechanism. The transition from a bridging solution set for RA and RR that we set out above to a load-side reliability mechanism should be rather seamless, assuming both are structured around the same, rigorous reliability standard and capacity accreditation process.

System Operation

As we noted in prior comments, various changes should be studied to improve the tools available to ERCOT to operate a changing and aging system – we commend the Commission for looking at a broad spectrum of options when it comes to Ancillary Services ("AS"). Any changes being considered should be passed over to ERCOT for rigorous study and technical review through an inclusive stakeholder process. We will not comment further on these reforms, since they are Phase 1 in Staff's Memo, except for AS cost allocation, where we are concerned that reforms could negatively impact system reliability.

AS costs should continue to be allocated to load as the beneficiary. We note that load is also a major causer of these costs due to highly variable real time demand of ERCOT's growing market. Changing to a causer-pays paradigm risks shocking the market and driving resource market exit right at a time when more reliable capacity is needed. If this change were made, load would effectively continue to bear these costs anyway: in the near-term, via less reliable supply due to market exit of generators forced to retroactively wear this cost; in the

longer-term, in the form of higher supply rates as these costs are passed through. The benefits to making this change do not justify the risks and potential costs, particularly when alternative reforms more effectively solve reliability needs.

If the Commission switches to a causer-pays paradigm nonetheless, this must be pursued in a non-discriminatory fashion as required by SB 3 – discussion has not always acknowledged this to date. One prime example of this is ECRS. Staff's Memo identifies ECRS as a "New Ramping Ancillary Service Product," which is at odds with rationale presented by ERCOT in development of the product, which has implications for its cost responsibility. ECRS is designed to achieve the following:

1. *Restore Responsive Reserve (RRS) within ten minutes of a frequency deviation that results in significant depletion of RRS by restoring frequency to its scheduled value to return the system to normal;*
2. *Provide energy or continued Load interruption to avoid or during the implementation of an Energy Emergency Alert (EEA); and*
3. *Provide backup regulation.*[2]

Functions 1 & 2 above are both largely driven by thermal unit outages, particularly forced outages. A causer-pays cost allocation of ECRS would therefore see the majority of these costs allocated to large thermal units.

If a causer-pays approach is pursued, it should be left to ERCOT for rigorous study. Objective analysis would likely result in large thermal generators being the most negatively impacted, as the primary causer of RRS today—and ECRS in the future—through creation of contingency, and a consequential causer of NCRS as a large driver of generation forecasting errors due to increasingly high EFOR rates. A comparison of variable renewable resource day-ahead forecasting errors and variable thermal resource EFORs is shown in the Appendix below. This shows EFORs that are above forecasting errors and trending upwards over time, versus lower variable renewable forecasting errors that are trending downwards as the resource portfolio becomes more diverse and forecasting software and capabilities improve.

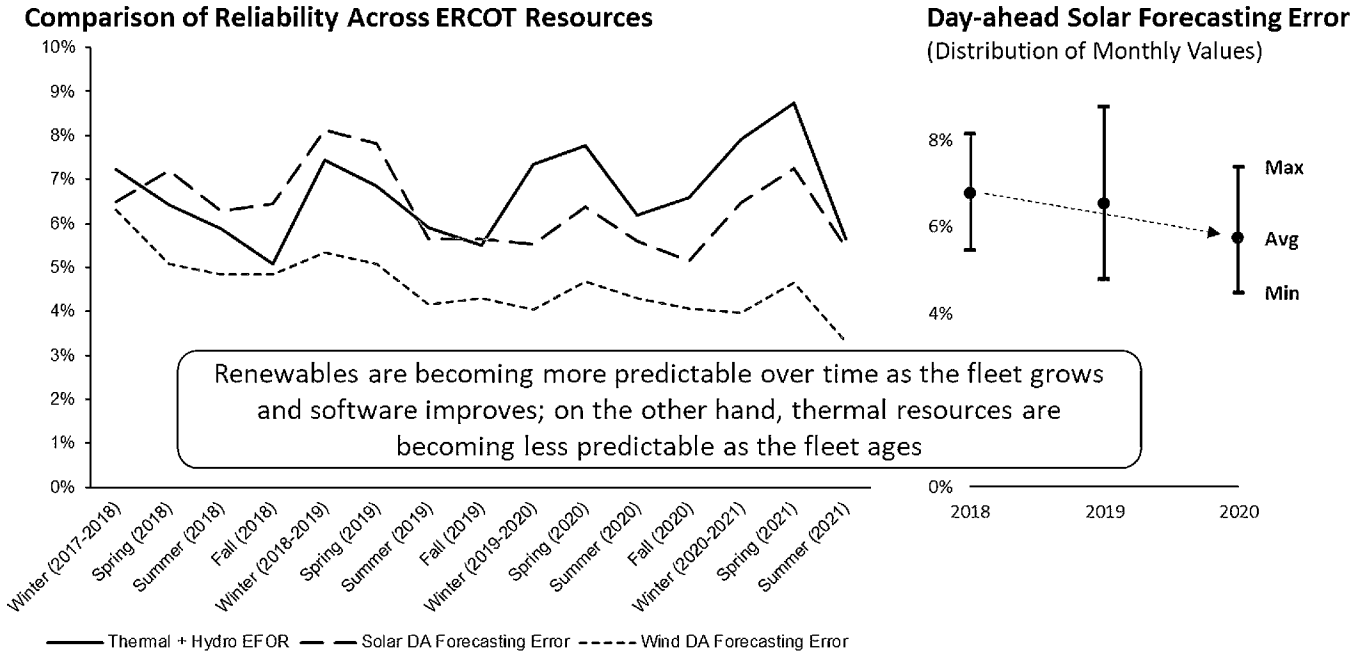
[2] 863NPRR-29 Board Report 021219, pages 11-12

Executive Summary, Cypress Creek Renewables, LLC

Cypress Creek commends the Commission for its actions to date in advancing weatherization and ORDC reforms, as well as reforms to Ancillary Services. The Commission should take stock after passing the forthcoming market design blueprint and lay out a methodical and transparent plan of analysis and stakeholder engagement to resolve the remaining reliability issues in Phase 2. We recommend the Commission set a resource adequacy standard and non-discriminatory resource accreditation process informed by best practices research on planning reforms in light of an evolving system. This standard is critical to ensure accurate sizing of programs like BRS and DEC, and for later use in any load-side reliability mechanism ("LSRM"). We document below near- and medium-term actions within the framework presented as a coordinated approach to Phase 2.

Objective	Near-term Actions	Medium-term Actions
Resource Adequacy	• **BRS:** this mechanism can play an important role in 'topping up' structural shortfalls in capacity in the market, provided it is based on a robust assessment of system needs based on a resource adequacy standard. • **DEC:** this or a similar mechanism can be used to ensure prompt replacement of capacity that is taken out of the market by BRS, so long as the product is structured to meet market needs (capacity/energy during specific windows of time). • **ORDC:** a more stable ORDC mechanism will create more predictable revenues that will function as a more financeable, and thus, actionable market signal.	• **LSRM:** LSRMs such as the LSEO should be reviewed and implemented in a thoughtful fashion that targets a robust level of resources in the system so as to meet the desired level of system reliability in the least-cost fashion. Upon implementation, this would obviate the need for BRS and additional DEC procurements.
Resource Reliability	• **Weatherization:** the PUCT should continue to build on its efforts to date to weatherize key facilities in the integrated gas and power systems. • **Firm Fuel:** a firm fuel product can be used as a stopgap to avoid a similar shortfall in gas supply as occurred during Uri but is likely to become less effective and efficient over time as planning challenges increase.	• **LSRM:** a mechanism like the LSEO can be implemented in such a way that ensures that resources perform when needed by the system through a performance mechanism that includes penalties for under-performance. This can be done in a resource-neutral fashion that minimizes costs. Upon implementation, this would obviate the need for a Firm Fuel product.
System Operation	**Cost Allocation.** Improve AS and implement RTC to improve the tools available to ERCOT to operate a changing and aging system. Continue with a beneficiary-pays approach to avoid an undue shock to the market, which would lead to market exit and diminishment of system reliability. Avoid discriminatory cost allocation of ECRS and other AS to variable resources.	

Appendix



Sources: ERCOT SARA Reports; ERCOT WMWG Data: System-Wide Monthly Mean Absolute Percentage Error – Trend (Day-Ahead 1430 Mean, STPPF)