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**COMMENTS**

**PROJECT NO. 52373**

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

## COMMENTS OF THE ADVANCED POWER ALLIANCE AND AMERICAN CLEAN POWER ASSOCATION IN RESPONSE TO 10/26/2021 STAFF MEMO

The Advanced Power Alliance and the American Clean Power Association submit the following response to the request for stakeholders to submit market design proposals to the Public Utility Commission of Texas (Commission) in Project 52373: *Review of Wholesale Market Design*. An executive summary is included as the final page of this filing. The comments submitted do not reflect the opinions of any individual member company.

## I. Introduction

APA and ACP Support the Commission's efforts to quickly address the issues exposed by Winter Storm Uri, particularly by moving expeditiously in docket 51840 on weatherization, and by coordinating with the RRC to ensure natural gas fuel supplies. As noted by the UT Austin Energy Institute's review, of the ~46,000 MW of power plant failures experienced during winter storm Uri, 36,700 MW, or ~80%, were due to "weather-related" issues or fuel limitations, with other outages potentially being related to insufficient weatherization as well.[1] Further actions being considered by the Commission that can be implemented in 2022 to support system reliability in the near- and long-term include: contemplated improvements to the ORDC, increasing the use of the Emergency Response Service, continuing to move forward on Ancillary Services enhancements, and the potential addition of ancillary service products to support system voltage and inertia.

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1 https://www.puc.texas.gov/agency/resources/reports/UTAustin_(2021)_EventsFebruary2021TexasBlackout_(002)FINAL_07_12_21.pdf (p.9)

APA and ACP believe this suite of comprehensive changes represents substantial progress in ensuring the reliability of the ERCOT grid against increasing instances of extreme weather as required by SB3. We agree with the comments filed by the ERCOT Stakeholders[2] supporting the Commission's rapid action on these issues. Given the scale and scope of these changes, we believe the Commission is now at an important juncture where a review of the changes' potential impact is warranted, including a rigorous analysis of the impacts to reliability, to ratepayers, and to the competitive market. It is a testament to the urgency recognized by this Commission and the stakeholder community that these changes to prevent future outages due to extreme weather have been undertaken so quickly.

Additionally, APA and ACP support the Commission's objective to ensure long-term supply adequacy, which could be achieved through the establishment of a System Reliability Standard, and implemented by a variety of mechanisms such as an obligation on LSEs, an obligation on generators, a phased in approach prioritizing the 8 "no regrets" proposals provided by the ERCOT Stakeholders in Phase 1,[3] or several other proposals submitted by commenters that for unclear reasons appear to have been dismissed.[4] Fundamentally, we believe that these proposals require cost-benefit analyses from an independent third party with sufficient opportunity for stakeholder review, which must take into account all of the Commission's high priority actions initiated to date.

While we commend the Commission for its swift actions taken to mitigate the risks of extreme weather to the electric system going forward, it is unclear whether further market redesign proposals are intended to bolster those actions or address issues not fully captured in SB3. Simply put, the problem for which the Commission is now solving has not been clearly defined, and identifying a solution should come after the issue(s) have been identified and quantified. An important part of any major change to the energy-only market is to understand and assess how those changes achieve the desired outcome of improving reliability, while also understanding the likely cost to ratepayers,

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[2] http://interchange.puc.texas.gov/Documents/52373_181_1160620.PDF
[3] Ibid. (p. 6)
[4] See, e.g., the comments of the Regulatory Assistance Project on 9/30/2021

and impact to the competitive markets. To date there has been no independent analysis of any of the proposals put forward. We respectfully request that the Commission have an independent third party undertake such an analysis, comparing costs and benefits across the range of solutions proposed against the benefits vis-à-vis the defined problem set, including those steps already being taken by the Commission identified as "Phase 1" steps by the ERCOT Stakeholder comments. Any such analysis provided to the Commissioners by the third party should be provided in full to the public to ensure a transparent process with sufficient opportunity for review and input.

## II. Responses to Questions

1. **The ORDC is currently a "blended curve" based on prior Commission action. Should the ORDC be separated into separate seasonal curves again? How would this change affect operational and financial outcomes?**

Given the information currently available, while APA and ACP do not oppose re-separating ORDC curves, the benefit from doing so is unclear. Other changes proposed, including the increased MCL, an increase in the standard deviation of the LOLP curve, and other changes to the shape of the curve will likely have a greater and more quickly financeable impact. The continued growth of extreme weather events indicates that seasonal variations are likely to be less predictable, leading us to conclude that the most successful market design will address unexpected gaps between supply and demand, whether due to extreme weather, resource outages, or other factors.

Regardless, it is critical for the Commission to undertake an independent analysis examining the details of any changes to assess their impacts to both reliability and ratepayers. We commend the Commission for working with the Brattle Group and the Independent Market Monitor to analyze those impacts, and look forward to the opportunity to review those analyses in order to provide a more complete evaluation of these proposed changes.

2. **What modifications could be made to existing ancillary services to better reflect seasonal variability?**

APA and ACP support the continued development and modernization of ERCOT's Ancillary Services markets. As the Commission and ERCOT accelerate these efforts, co-optimization of ancillary and energy markets becomes more critical to ensure that an

increased emphasis on ancillary markets does not undercut the vital role of the real-time energy market. APA and ACP agrees with comments from the Independent Market Monitor in the October 14th Commission Workshop on the critical role that co-optimization will play in any changes that affect energy or ancillary services markets. We encourage the Commission to prioritize co-optimization[5] alongside the development of new Ancillary Services (AS) and modifications to existing AS. APA and ACP reserve comment on AS modifications to address seasonal variability at this time.

Regarding specific Ancillary Services changes discussed in this docket, including those already being undertaken by ERCOT, APA and ACP support the implementation of Fast Frequency Response and ERCOT Contingency Reserve Services. In his xxx memo, Chairman Lake proposes to allocate costs of the ECRS to IRRs,[6] however the basis for such a radical shift in cost allocation is unsupported by the evidence.

Net load uncertainty results from forecasting uncertainty around load and generation. Load uncertainty is material and drives much of this need. Generation uncertainty differs by resource – this has been improving over time for intermittent resources due to increasing diversification of the fleet as well as improvements in ERCOT's modeling capabilities and declining over time for thermal resources as they have aged, and their operations have become less reliable. A review of ERCOT's SARA[7] and data from the Wholesale Market Working Group[8] shows that while forced outage rates for thermal units in ERCOT up,have increased by 0.7% since 2018, while forecast errors for wind and solar have each fallen by roughly 1%.

The impact of continued struggles on the part of thermal generators to operate reliably was made clear during the week of October 18th, when over 20 GW of natural gas generation was offline, presumably for maintenance or some other unplanned outage which, combined with higher demand and lower wind output, led to elevated real time prices. While some stakeholders erroneously attempted to attribute the price increases – and associated concerns about grid reliability – to the lower than average wind output, the week's events were clearly and unequivocally the result of a variety of factors., the most material of which was natural gas plant outages.

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[5] http://www.ercot.com/content/wcm/key_documents_lists/214207/7._Passport_TAC_Update_20210728.pptx

[6] Chairman Lake Memo regarding ERCOT market redesign, 10/20/21 (p. 4)

[7] http://www.ercot.com/content/wcm/lists/219840/SARA-FinalFall2021.xlsx

[8] http://www.ercot.com/calendar/2020/1/27/191957-WMWG

All generation types have strengths and weaknesses, limited ramp rates, inability to cycle multiple times within a day, use of potable water, air emissions, and highly variable fuel costs are all negative downsides of traditional dispatchable resources. Load compensates these assets for their operating costs, including ramping to meet changes in net load, through each asset's efficiently priced bid curve. Firm load benefits from intermittent renewable generations lack of fuel/water/emission costs and should not be able to enjoy these benefits without also being encumbered by the firming costs inherent in including intermittent renewables in the supply mix

Regarding new AS proposed in this docket, APA and ACP support the creation of a technology-neutral voltage support service. As has been well demonstrated in a variety of service territories including ERCOT, Inverter-Based Resources (IBR) can provide voltage support along with other grid-forming capabilities.[9] It will be critical to send a signal to new and existing IBR capacity that their ability to provide these grid-forming services is not only welcomed, but desired as a part of providing overall grid reliability. Similarly, APA and ACP are open to the development of an Inertial Response Service; however, to date the data do not indicate a need for such a service in the foreseeable future.

3. **Should ERCOT develop a discrete fuel-specific reliability product for winter? If so, please describe the attributes of such a product, including procurement and verification processes.**
    a. **How long would it take to develop such a product?**
    b. **Could a similar fuel-based capability be captured by modifying existing ancillary services in the ERCOT market?**

With over 31 GW of thermal capacity unavailable during Winter Storm Uri[10] and the almost 50 percent drop in natural gas production as one of the primary contributing causes of a significant portion of those outages,[11] it is clear that steps are needed to

[9] See: NREL, FSLR, Avangrid studies

[10] https://www.puc.texas.gov/agency/resources/reports/UTAustin_(2021)_EventsFebruary2021TexasBlackout_(002)FINAL_07_12_21.pdf (p. 21)

[11] Ibid. at 41

address the fuel dependency of thermal resources especially given the continued uncertainty around action to address the natural gas supply chain. Notwithstanding the Texas Railroad Commission's proposal to allow gas suppliers to opt out of ensuring fuel supply in emergencies, the Public Utilities Commission must not ask ratepayers to pay the costs of insufficient action from natural gas producers and their regulators.

APA and ACP recognize the need for cost recovery within and potentially outside the market to ensure thermal generation units are able to operate in extreme weather despite their vulnerabilities, including in particular the vulnerable fuel supply network (e.g., via multiple gas line interconnections, onsite gas storage). However, absent a rigorous independent analysis it is not clear that the winter reliability products proposed in this project are the most cost effective approach to ensure reliability from the unknown impacts of future events. Furthermore, any fuel-specific service should also include enforcement and performance standards; if thermal generators are compensated for a new fuel product, the Commission should ensure that the product would deliver desired reliability outcomes. We also note the proposed differentiated treatment of variable but controllable resources like wind and solar. It has been suggested that thermal resources should benefit from a competitive product to compensate them for the capital and operating expenditures associated with addressing their fuel dependency–a characteristic inherent in the technology. Yet at the same time some have proposed allocating additional costs to variable resources to address "weather-dependency." Contrary to the proposals offered by some stakeholders, APA and ACP do not believe that costs arising from the fuel-dependency of thermal units can be assigned to variable resources consistent with the requirements of cost-causation and non-discriminatory treatment contained in SB 3.

The Commission may wish to evaluate whether a separate fuel-specific reliability product is needed in conjunction with broader market design decisions. For instance, both E3 and Potomac Economics have indicated that a separate fuel-firming requirement would not be needed with an LSE reliability obligation as this characteristic would be reflected in the resource accreditation process. Should the Commission determine that a separate fuel-specific reliability product is needed to address the fuel dependency of thermal generation resources, APA and ACP believe that the costs associated with such a product should either be assigned in the current manner to all

loads for the reliability benefit that the product delivers or should be assigned to thermal generators and loads.

4. **Are there alternatives to a load serving entity (LSE) Obligation that could be used to impose a firming requirement on all generation resources in ERCOT?**

The explicit assumption in this question is that a firming requirement for all generation resources is needed in ERCOT. No independent analysis that been provided to stakeholders to date to suggest that firming all generation resources would produce reliability benefits commensurate with its costs. A resource firming requirement would have significant detrimental impacts to a wide range of generation units, including over 40 GW of installed natural gas capacity with capacity factors less than 65%,[12] with no demonstrated benefit to operational reliability. It is unclear why the Commission would seek to require generators to guarantee a capacity factor so far above the system's ~50% load factor[13] when ultimately generation is developed and operated to meet the needs of system load.

ERCOT data suggest that the market is already responding to deliver additional firming of variable resources–especially solar PV–today. According to the September 2021 ERCOT GIS Report, 29,138 MW of battery energy storage projects with a Full Interconnection Study (FIS)—or nearly one-third of solar resources in the queue–are co-located with solar.[14] If ORDC reforms and other market-based changes provide sufficient opportunities to increase net revenues by co-locating or pairing with battery storage, one would expect this trend to accelerate to the point at which it is economically optimal.

By contrast, reliance on blunt mandates or out-of-market mechanisms to impose a firming requirement on all generation resources would saddle ratepayers with significant unnecessary costs. In an environment of rising natural gas prices such a mandate poses the threat of dramatically increasing the cost of power at the same time that additional costs are being introduced into the market via other measures to enhance reliability. The

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[12] Capacity factors calculated using the eGRID2019 database (latest data available) for natural gas units in ERCOT
[13] http://www.ercot.com/content/wcm/lists/219736/ERCOT_Fact_Sheet_10.13.21.pdf
[14] http://mis.ercot.com/misapp/GetReports.do?reportTypeId=15933&reportTitle=GIS%20Report&showHTMLView=&mimicKey

discriminatory impacts of such a proposal on variable resources are at odds with the open access and non-discriminatory treatment of resources that are a hallmark of the ERCOT market and would have distortionary impacts on resource development that would ultimately undermine rather than enhance reliability.[15]

Reliance on out-of-market mechanisms is fundamentally at odds with the ERCOT energy-only market design. There is no precedent nor basis for requiring that resources provide some degree of 'firmness' in the absence of a corresponding product to which this is tied – i.e., in capacity markets, insofar as resources are providing a capacity product (commitment to be available when needed in some amount), it is reasonable to place a performance obligation on them and penalize/reward them for under-/over-performance. In the case of an LSE obligation, this would certainly be a feature as well.

ORDC reforms and similar market-based mechanisms that reward resource availability to meet needs are likely provide appropriate market signals to encourage the desired resource traits while avoiding an outcome where ratepayers are burdened with unnecessary costs. While we look forward to careful examination of market design proposals to provide desired levels of reliability, we oppose reliance on discriminatory out-of-market mechanisms to achieve goals that have yet to be substantiated and do not believe that they are consistent with an energy-only market construct.

**5. Are there alternatives to an LSE Obligation that could address the concerns raised about the stakeholder proposals submitted to the Commission?**

APA and ACP support further analysis of specific proposals for an LSE reliability obligation, and other proposals to address the Commission's concerns regarding long-term supply adequacy, including the ERCOT Stakeholders proposed "Phase 1" reliability actions, Dispatchable Standby Reserves, and Contingent Reserves that were presented but not fully explored for reasons that are unclear. The identification of the optimal solution to meet ERCOT's reliability needs must be the result of a rigorous process with substantial stakeholder involvement. While we commend the Commission

[15] See. e.g., ERCOT Market Redesign: NextEra Energy Resources ("NextEra") Recommendations (September 30, 2021), at 14-15 (noting that "penaliz[ing] low-cost non-dispatchable generation which would undermine financial markets, hurt investment, drive up prices, and worsen reliability"), http://interchange.puc.texas.gov/Documents/52373_169_1156773.PDF

for pro-actively engaging the stakeholder community, to date no independent analysis has been shared identifying the needs to be met, nor of the solutions proposed to meet those needs.

There are a number of approaches that can achieve many of the same outcomes as an LSE Obligation, each approach with a set of trade offs. However, in order to design a best-fit solution for a system as complex as the ERCOT market, the problem to which the solution is applied must first be identified and quantified. Choosing a solution to a problem neither ERCOT nor the Commission has clearly identified and rigorously quantified is premature and likely to lead to significant unintended consequences including increased costs to ratepayers and unpredictable impacts to investments.

6. **How can an LSE Obligation be designed to protect against the abuse of market power in the wholesale and retail markets?**

As part of a full and robust market re-design process, questions 6-16 must be evaluated by an independent third party expert, with their analysis provided in full for public review and time provided for stakeholder comment. Few stakeholders will have the capacity within the 6 day timeframe allotted for these responses to provide the kind of thorough analysis required to make such decisions, significantly limiting the responses to narrow individual stakeholder interests. With the exception of questions 6(e), 8, 11, and 13, APA and ACP have no comment at this time and requests that the Commission ask the Brattle Group and/or the IMM to undertake comparative cost-benefit analysis of the various proposals offered by stakeholders to address long-term supply adequacy. We look forward to the opportunity to thoroughly evaluate and respond to these questions once such an analysis has been completed.

8. **Can the reliability needs of the system be effectively determined with an LSE Obligation? How should objective standards around the value of the reliability-providing assets be set on an on-going basis?**

The reliability needs of the system should be an input to, not an output from, any decision regarding market redesign. Once reliability needs are established, the proper redesign will become far easier to design, including whether an LSE Obligation is a 3-year forward obligation, a seasonal hedge mechanism, or some other sort of LSE

Obligation. Those determinations in turn will aide in establishing objective standards around the ability of different assets to meet identified needs.

11. **How will an LSE Obligation help ERCOT ensure operational reliability in the real-time market (e.g., during cold weather events or periods of time with higher than expected electricity demand and/or lower than expected generation output of all types)?**

As described by the Brattle Group, an LSE Obligation is fundamentally a supply adequacy mechanism, though it may provide additional support to operational reliability. The Commission has already taken many steps – discussed above – to address the vast majority of operational reliability issues uncovered in Uri and the subsequent months. This is another area where independent analysis will be critical in determining whether any supply adequacy mechanism, including an LSE Obligation, creates additional operational reliability commensurate with associated costs to ratepayers.

13. **What is the estimated market and consumer cost impact if an LSE obligation is implemented in ERCOT? Describe the methodology used to reach the dollar amount.**

This question again raises the need for this proposal and others to be analyzed by an independent third party, with sufficient time for stakeholder review and feedback. The response time provided by the staff memo is insufficient to provide the kind of rigorous analysis that is needed to properly examine this question. The analysis should compare costs and benefits across the range of solutions proposed, including those steps already being taken by the Commission identified as “Phase 1” steps by the ERCOT Stakeholder comments.

## III. Conclusion

The Advanced Power Alliance and the American Clean Power Association appreciate this opportunity to staff questions regarding issues identified in the aftermath of Winter Storm Uri. The APA and ACP are committed to working with this Commission and other stakeholders to ensure a reliable and affordable competitive market for Texans.


/s/Jeffery Clark

President

The Advanced Power Alliance

3571 Far West Boulevard, #230

Austin, Texas 78731

512-651-0291

/s/ Tom Darin

Senior Director, Western State Affairs American Clean Power Association

1501 M Street, NW, Suite 900

Washington, DC 20005

720-244-3153

## IV. Executive Summary of Comments from APA and ACP

**APA and ACP Support Commission's Efforts to Quickly Address Extreme Weather Risks in Generation and Fuel Supply**

APA and ACP support the Commission's efforts to quickly address the issues exposed by Winter Storm Uri, particularly by moving expeditiously in docket 51840 on weatherization. We also commend the Commission for its work coordinating with the RRC to ensure our fuel supply; these two factors accounted for 80% of power plant failures during the storm. Further actions by the Commission, including contemplated changes to the ORDC, Ancillary Services enhancements, expansion of the Emergency Reserve Service, and the addition of ancillary service products to support system voltage and inertia, all will further support system reliability in the near- and long-term.

**APA and ACP Support Improvements to Move ORDC From a Crisis-based Revenue Model to a System Needs-based Revenue Model**

Given the information currently available, while APA and ACP do not oppose re-separating ORDC curves, benefit from doing so is unclear. Other changes proposed, including the increased MCL, an increase in the standard deviation of the LOLP curve, will likely have a greater and more quickly financeable impact.

**APA and ACP Support New and Enhanced Ancillary Services Products, as well as Getting Co-Optimization "Back on Track"**

APA and ACP support the continued modernization of ERCOT's Ancillary Services markets, including FFR, ECRS, the possible creation of voltage & inertial response services. None of these services warrants changing the current cost allocation methodology, as the reliability requirement demanded by load remains the ultimate driver for all of these services. As the Commission and ERCOT accelerate these efforts, co-optimization is critical to preserve the vital role of the real-time energy market and to avoid unnecessary costs to load.

**Assess Cost-Benefit Impact to Customers of Changes Already Made & Currently Being Contemplated While Contemplating Additional Major Steps**

An important step in deciding on any major change to the energy-only market is to assess how those changes achieve the desired outcome, while also understanding the likely cost to ratepayers. We respectfully request that the Commission have the

Independent Market Monitor or Brattle Group undertake such an analysis to be published in this docket. The analysis should compare costs and benefits across the range of solutions proposed, including those steps already being taken by the Commission identified as "Phase 1" steps by the ERCOT Stakeholder comments.

**APA and ACP Support Review and Analysis of an LSE Obligation and Other Proposals to Address Long-Term Resource Adequacy Concerns.**

APA and ACP support further analysis of specific proposals for an LSE reliability obligation, and other proposals to address the Commission's concerns regarding long-term supply adequacy, including the ERCOT Stakeholders proposed "Phase 1" reliability actions, Dispatchable Standby Reserves, and Contingent Reserves that were presented but not fully explored for reasons that are unclear. The identification of the optimal solution to meet ERCOT's reliability needs must be the result of a rigorous process with substantial stakeholder involvement.

With regard to the Commission's question about a resource-firming requirement, APA and ACP believe a resource-firming requirement would have significant detrimental impacts to a wide range of generation units, including over 40 GW of installed natural gas capacity with capacity factors less than 65%. Imposing additional costs on generation resources increases the likelihood of generation retirements, and raises barriers for the development of new generation, further eroding reliability. Additionally, no proposal to address long-term supply adequacy concerns will provide operational reliability without addressing fuel supply chain issues, which remain largely unresolved.

**The Commission is Not Providing Stakeholders Sufficient Time for Robust Analysis, Discussion, and Debate**

In addition to providing publicly available analyses of major market redesign proposals under consideration, APA and ACP encourage the Commission to provide stakeholders with sufficient time for review, analysis, and discussion, particularly as it relates to proposals that constitute major changes to the ERCOT market. While we recognize the need to move quickly to prevent another outage due to extreme weather, we believe the Commission is moving expeditiously on those critical issues and can do so while taking the necessary time to consider and analyze larger market design issues which will take years to implement.