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PROJECT NO. 54335

**REVIEW OF MARKET REFORM
ASSESSMENT PRODUCED BY
ENERGY AND ENVIRONMENTAL
ECONOMICS, INC. (E3)**

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**PUBLIC UTILITY
COMMISSION
OF TEXAS**

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**ENVIRONMENTAL DEFENSE FUND
COMMENTS ON THE PUCT QUESTIONS OF NOVEMBER 10, 2022**

Comes now the Environmental Defense Fund (EDF), a non-profit, non-partisan, non-governmental environmental organization to offer these Comments responding to the Public Utility Commission of Texas's November report on ERCOT market reform and questions about the proposed Performance Capacity Mechanism reform options.

EDF believes that the options outlined in the E3 report, and in Staff's comments about the Performance Capacity Mechanism (PCM) option in particular, are ill-suited to solve ERCOT's reliability and affordability issues.

PCM could compromise both wholesale and retail competition -- EDF believes that well-constructed and managed competitive markets spur innovation and low-cost solutions to environmental challenges. It is why our organization strongly supported the competitive market reforms instituted by the Texas Legislature 25 years ago for our wholesale and retail markets. Wholesale competition within ERCOT between generators, generation technologies and fuels, and business models over the past two-plus decades has led to more efficient gas generation, the development of world-class renewable resources, growth, cost reductions and economic savings that have benefited all Texans. Similarly, competition between retail electric providers across ERCOT has helped to lower customers' electric bills, increased retail options such as green

energy and rate options (such as time of use or dynamic rates versus fixed rate contracts and incentives such as adjustable thermostats and gift cards), and increased choice and options for small retail customers and large industrial and commercial customers.

It is hard to tell what exactly the PCM mechanism entails as many details remain unexplained and ongoing communication from PUC officials modify the methodology outlined in the E3 report. Nonetheless, a few elements of the PCM methodology seem counter to the competitive spirit of ERCOT's energy-only competitive market. Very importantly, the methodology underlying PCM is administratively dominated, particularly in the use of an administratively determined demand curve based on ERCOT demand and supply projections and manipulatable Effective Load Carrying Capacity estimates for ERCOT resources. The PCM mechanism and demand curve also depend upon the PUCT's selection and interpretation of a reliability standard, which will affect the level of the derived PCM values. To date ERCOT's supply levels have been determined by decisions made by myriad competing power purchasers and power producers, informed by economics and administrative decisions such as the ORDC curve; but a shift to PCM and standards-based targets would make administrative determinations more impactful relative to competitive market operations.

No solid analytical basis for PCM – As explained in comments from Alison Silverstein Consulting, the E3 study is deeply flawed and does not credibly analyze the impacts of the market reforms it addresses.¹ The PCM proposal is ill-defined, poorly analyzed and E3 itself does not recommend its adoption.²

¹ See comments filed in this project on December 9, 2022, by Alison Silverstein Consulting.

² E3 study, p. 120.

Name and fix the proper problem -- The stated goal of the PUC's market reform efforts is to improve generation shortfalls relative to customer demand. The headline claim is concern over resource adequacy in the face of extreme weather events such as Winter Storm Uri (even though Uri has been shown to be the combination of widespread generation performance failures and extraordinarily high customer demand). ERCOT must also improve the system's operational flexibility, which is the ability to deploy and ramp resources or reduce demand quickly to deal with challenges such as predictable but sudden wind drops, unpredictable generator forced outages or transmission losses, and poorly forecasted jumps in customer demand.

The E3 report and the Chairman's comments target the PCM mechanism to pay off production in "high reliability risk" hours when there is the tightest gap between "peak net load" (bizarrely defined as those hours when load less solar, wind and storage production are high, even though battery storage is a fully dispatchable and manageable resource) and available generation. But E3 has not performed any analysis of when these "high reliability risk" hours have occurred in recent years, nor determined whether those risks arise due to predictable events (such as high load and sunset) or unpredictable events such as thermal generator forced outages and transmission failures. It would be irresponsible and unwise to consider the PCM further without conducting a competent back-cast of when "high reliability risk hours" occur and why, to learn whether the relevant reliability risks causes are predictable, manageable and hedgeable.

If the reality is that "high reliability risk hours" are driven by unpredictable thermal forced outages rather than predictable events and hours, that unpredictability could make it very difficult for both power producers and load-serving entities to buy Performance Credits in advance or use demand response and other mechanisms to hedge against the high costs of Performance Credit procurement. This lack of predictability would chill generators' ability to

finance new plants, slowing new development and raising energy prices due to higher scarcity. The higher uncertainty and limited hedging capability would also increase load-serving entities' costs of procuring electricity for end-use customers. Thus PCM could drive retail electricity costs up by increasing both the generator-driven market-clearing prices for electricity and load-serving entities' costs of electricity procurement and portfolio management.

The Commission and E3 ignore climate change – Setting up a market mechanism to build more natural gas plants may not protect us from future outage events caused by extreme weather, particularly since E3 assumes perfect fuel delivery absent any proof that recent PUCT and Texas Railroad Commission rules will improve natural gas production and delivery or coal pile usability. E3 also states explicitly that, “The PCM is also less able to reflect infrequent extreme weather conditions because it is assessed each year based on actual conditions that may not reflect any extreme weather.” [E3 report, p. 119]

EDF is deeply concerned about the threat of and need to slow climate change, which the E3 study and ERCOT ignore. There is ample evidence that climate change is having real impacts on Texas with rising temperatures, continuing droughts, worsening inland and shoreline flooding, and sea level rise.³ By only modeling historic weather events, the E3 analysis does not acknowledge future extreme weather getting worse due to climate change and doesn't even test PCM and ERCOT readiness against Uri and 2022 heat wave conditions. Thus the E3 analysis does not provide any useful insights into whether the PCM or any other reliability mechanism

³ See, for instance, Mendez & Douglas, “Climate change is already hitting Texans,” Texas Tribune, May 18, 2022; Nielsen-Gammon et al., “Unprecedented Drought Challenges for Texas Water Resources in a Changing Climate: What do Researchers and Stakeholders Need to Know?,” AGU Earth's Future, June 29, 2020; and Nielsen-Gammon, “Assessment of historic and future trends of extreme weather in Texas, 1900-2036,” Texas A&M University, October 7, 2021.

studied will actually improve grid reliability and reduce the likelihood of bulk power system electric outages in the face of worsening extreme weather events occurring at higher frequencies – even though that is the stated objective of this reliability market reform effort. E3 acknowledges this in their report: “This study implicitly assumes that future weather conditions will have the same variability as observed across these 40 historical years. To the extent that future weather conditions are likely to differ significantly from historical conditions, ERCOT should consider incorporating these factors into future analysis and/or any implementation of market reforms.” [E3 report, p. 34]

E3 encourages the Commission to seek solutions that will both reduce the speed at which climate change is occurring and protect Texans from the harmful societal, public health, and economic impacts of climate change. To the degree that Texas adopts more measures that reduce and manage the growth of our electricity use and facilitate the integration of low-carbon renewable generation into the ERCOT grid, we will be able to slow the rate of carbon emissions and mitigate the harmful impacts of extreme weather and other grid problems upon all Texans.

Texas has a severe energy affordability problem -- Over 40% of Texans are energy-insecure and make trade-offs between paying for energy, food, medicine, and other necessities. The limited analyses conducted to date on ERCOT market reform options look only at wholesale costs and ignore retail cost impacts, even though Texas retail electric contract rates have risen by 50% and more. Phase 1 market reform and operations cost increases, fuel cost increases and Winter Storm Uri fees have already increased ERCOT wholesale and retail customer costs by billions of dollars over the past 18 months, making electricity and gas even less affordable for Texas consumers.

The Phase 2 market measures the Commission is considering could make this problem even worse. Although the E3 analysis suggests that most of the Phase 2 options would offset current wholesale energy costs, the TCA study⁴ of ERCOT market design and common sense indicate that driving up the cost of energy in order to build many new natural gas plants will further increase total wholesale and retail electric costs. And if the PUCT chooses to adopt market design measures that penalize and slow the use of low-cost, low-carbon renewable resources, this will raise costs even faster by increasing ERCOT's dependence on higher-cost natural gas generation.

Electric affordability could become even more problematic if the PUCT and ERCOT adopt strict reliability standards based on achieving Loss of Load Probability or Expected Unserved Energy goals. Such planning or operating reserve margin goals, if implemented as mandatory measures, are wholly indifferent to the cost or cost-effectiveness of achieving those goals, and tend to favor controllable supply solutions without regard to the cost those solutions may impose upon end-use customers. Reliability standards that are cost-blind could add large wholesale costs that translate into huge incremental retail costs on top of the significant cost increases already built into wholesale and retail costs.

What policies should the PUCT adopt instead of PCM?

To improve ERCOT resource adequacy and operational flexibility challenges, manage rising electricity costs, and continue to decarbonize our power grid, we should enhance reliability by managing demand through significant increases in energy efficiency and demand response

⁴ Texas Consumer Affairs study, "Assessment of ERCOT Market Structural Changes," October 26, 2022, PUCT Project 52373, Item 380.

policies, programs and measures for all Texans. The new Aggregated Distributed Energy Resources pilot is a small but excellent start. We must also grow Texas' clean renewables resources, particularly firming those with battery and other storage mechanisms.

As “clean, firm and dispatchable” products improve and new ones come to market, it is likely that we will need to retain some of the older, less efficient thermal plants in a Backstop Reliability Service (BRS) mechanism for a few years as a bridge mechanism to protect resource adequacy against extreme events. BRS resources can be procured on a competitive basis in limited quantities for limited periods of time; they should be penalized if they do not perform properly when needed under emergency conditions. Aggressive development of energy efficiency, demand response, aggregated distributed energy resources and batteries can lower costs and improve affordability for all Texans and buy us time for market reform in the face of continuing rapid load growth and evolving grid operational needs, high prices and renewables integration.

New market reliability mechanisms must be implemented in a technology-neutral fashion and cannot be designed to stifle renewables development. EDF understands that the rapid development of wind and solar creates financial challenges for thermal plants and grid operation; on the other hand, that same development has lowered Texas consumers' electric bills by billions of dollars every year and protected Texas consumers (until Winter Storm Uri) against volatile and rising fossil fuel prices and deliverability failures. Any resource that performs when we need it most should be rewarded for that performance, not penalized.

EDF strongly encourages the PUCT to accelerate the revision and expansion of energy efficiency and demand response. These can be used strategically and cost-effectively to address

all four ERCOT problems – resource adequacy, operational flexibility, affordability and climate change. Additionally, ERCOT should be operationalizing rather than penalizing or deferring energy storage and the dispatchable capabilities of wind, PV, storage, and aggregated distributed energy resources. All these resources are essential tools for ERCOT to use for short-duration emergency needs such as summer capacity shortfalls and operational flexibility needs such as fast ramps.

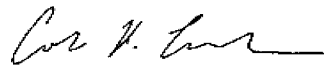
EDF recommends deferring the adoption of any new Phase 2 capacity-building mechanism at this time. The Phase 1 measures are already working to improve reliability. Winterization of power plants (despite little proof that gas supply is fully winterized) and creation of a limited Firm Fuel Service for winter operations should improve thermal plant availability and dependability in future cold weather events. Reform of the Operating Reserve Demand Curve plus higher use of non-spinning reserves, ERCOT Contingency Reserve Service and Reliability Unit Commitments have significantly increased revenue to existing ERCOT generators and the promise of higher revenues to new producers. More new gas generators have come online in 2022 and more are in the ERCOT interconnection queue, scheduled to come online through 2025 without the lure of even richer Phase 2 revenue streams. Therefore, we should give Phase 1 measures time to work and take the time to perform further analysis of the need for and implications of all available Phase 2 options.

EDF encourages the Commission to conduct additional, competent study and analysis of the proposed market mechanisms. A new Phase 2 study should include better analysis of the Phase 1 measures and analysis of the IMM's proposed Uncertainty product, which appears to be consistent with and complementary to ERCOT's competitive energy market. The Commission

should also evaluate the ways in which aggressive energy efficiency, demand response and aggregated distributed energy resources usage could enhance ERCOT's operational flexibility, resource adequacy and wholesale costs, particularly when used to complement supply-side solutions.

We appreciate the opportunity to provide these Comments and look forward to working with the Commission and other interested parties on these issues.

Respectfully submitted,



Colin Leyden
Texas State Director
Environmental Defense Fund

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EXECUTIVE SUMMARY**

EDF believes that the options outlined in the E3 report, and in Staff's comments about the Performance Capacity Mechanism (PCM) option in particular, are ill-suited to solve ERCOT's reliability and affordability issues. EDF offers the following observations and recommendations:

- The PCM mechanism is not yet well-defined because it is still being modified.
- The initial version of the PCM mechanism is poorly analyzed and E3 itself does not recommend its adoption.
- PCM could compromise both wholesale and retail competition because it rests on a foundation of an administratively determined demand curve for performance credit pricing. Additionally, the PCM would reward operation for hard-to-predict hours, which would make future generator revenues unpredictable and complicated load-serving entities' ability to procure performance credits at manageable costs. This uncertainty would chill new resource financing and raise LSE costs and prices.
- Because the PCM mechanism ignores recent and future extreme weather conditions and actual PCM forecasts would not acknowledge near-term extreme weather events, the PCM mechanism will not assure that ERCOT resources are incentivized and rewarded for performing when actual extreme conditions occur.
- E3 encourages the Commission to seek solutions that will both reduce the speed at which climate change is occurring and protect Texans from the harmful societal, public health, and economic impacts of climate change. To the degree that Texas adopts more measures that reduce and manage the growth of our electricity use and facilitate the integration of low-carbon renewable generation into the ERCOT grid, we will be able to slow the rate of carbon emissions and mitigate the harmful impacts of extreme weather and other grid problems upon all Texans.
- Texas has a severe energy affordability problem -- Phase 1 market reform and operations cost increases, fuel cost increases and Winter Storm Uri fees have already increased ERCOT wholesale and retail customer costs by billions of dollars over the past 18 months, making electricity and gas even less affordable for Texas consumers. The contemplated Phase 2 measures will increase both wholesale and retail costs.
- EDF recommends that the PUCT NOT ADOPT any Phase 2 measures at this time. Rather, we should take time for the Phase 1 market and operational measures to work, and study the available Phase 2 options, including reanalysis of PCM and LSEO, the IMM's Uncertainty proposal, and the role of energy efficiency and demand response to improve both reliability and affordability for all Texans.