



City of Dallas

Public Utility Commission Power Market Re-Design Comments

**Environment & Sustainability
Committee**

December 07, 2021

Celina Bonugli, Clean Energy Innovation,
World Resources Institute

Susan Alvarez, P.E. Assistant Director
Office of Environmental Quality &
Sustainability

Presentation Overview



Photo: NBCNews/ 2021 Getty Images

- Background
 - FERC Report of Texas' February Storm
 - PUC Market-Redesign Effort
- Texas Cities Cohort
- Draft PUC Market Re-design Comments

Federal Energy Regulatory Commission Report



- Federal Energy Regulatory Commission (FERC)
- Report issued November 16, 2021
- Describes investigation by FERC, the North American Electric Reliability Corporation (NERC), the Regional Commissions and over 50 experts on grid reliability, including the Texas Reliability Entity

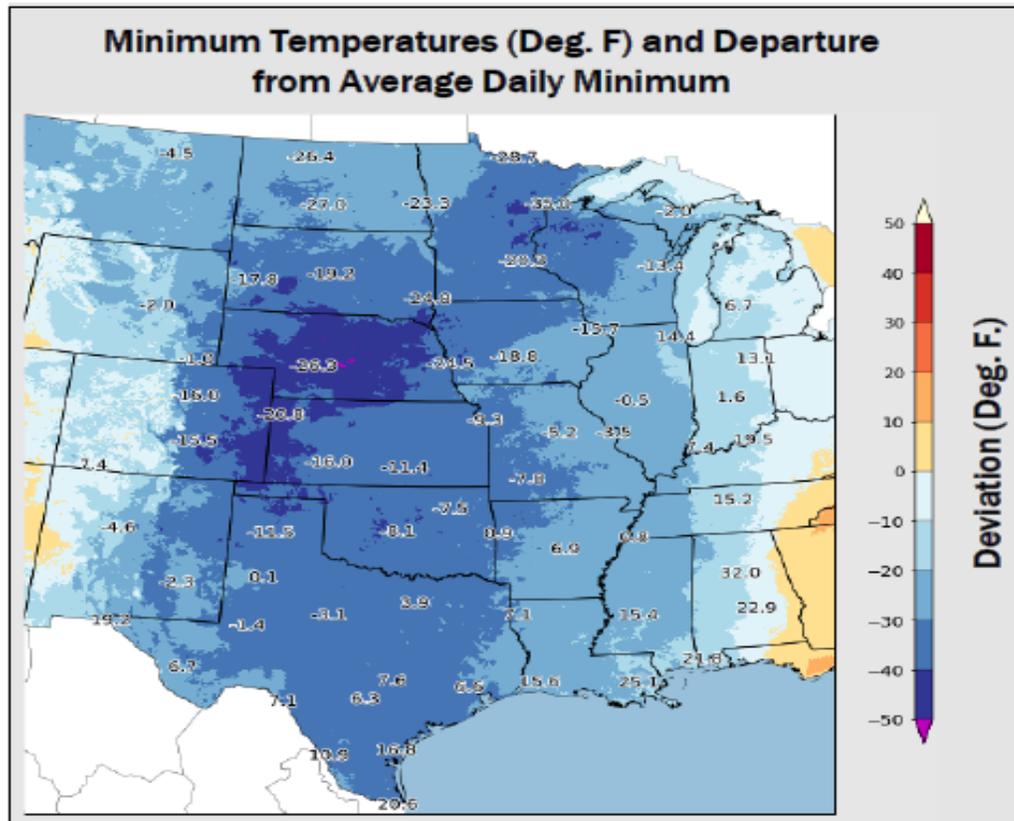


Source: <https://www.ferc.gov/media/february-2021-cold-weather-outages-texas-and-south-central-united-states-ferc-nerc-and#>





Cold Weather Conditions – February 15, 2021



- The February 2021 event is the **fourth** in the past 10 years which jeopardized bulk-power system reliability due to unplanned cold weather-related generation outages:

- 2011 – 29,700 MW
- 2014 – 19,500 MW
- 2018 – 15,800 MW
- 2021 – **61,800 MW**

Source: <https://www.ferc.gov/media/february-2021-cold-weather-outages-texas-and-south-central-united-states-ferc-nerc-and#>

(Source: NOAA)



Federal Energy Regulatory Commission Report



Inquiry Commencement Cold Weather Week of February 14, 2021

- Unprecedented electric generation outages
- Affected Balancing Authorities (BAs) declared Energy Emergencies and ordered firm load shed at different points of time within their respective footprints, in total exceeding **23,400 MW** during severely cold weather to avoid entire system blackouts.
 - ERCOT BA: nearly three consecutive days and at its worst point, **20,000 MW**
 - SPP BA: approximately five hours total and at its worst point, **2,700 MW**
 - MISO BA (MISO South): over two hours and at its worst point, **700 MW**

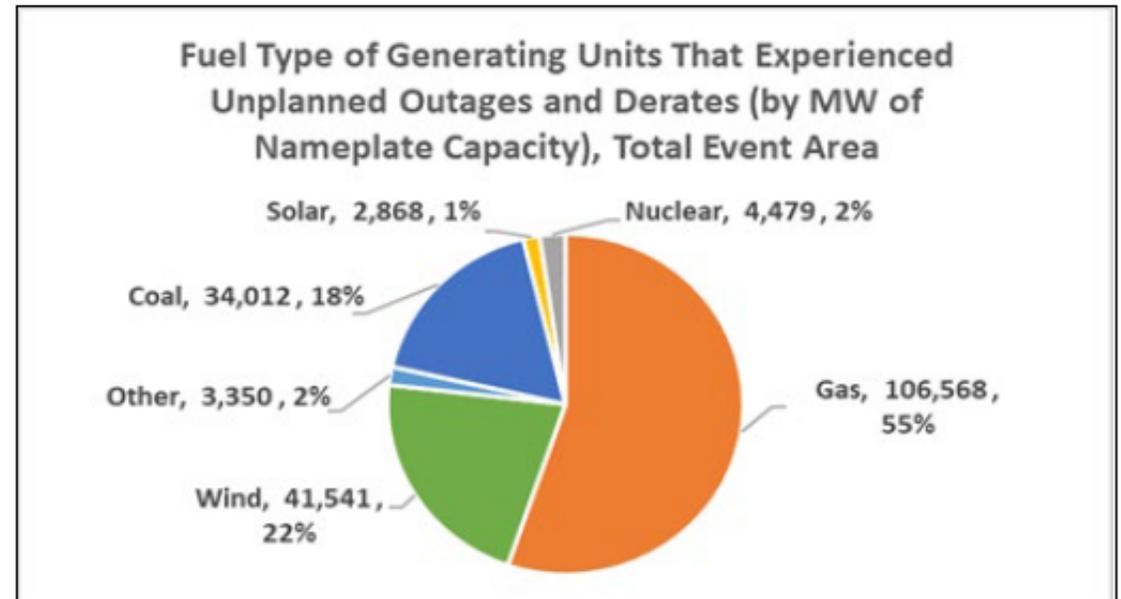
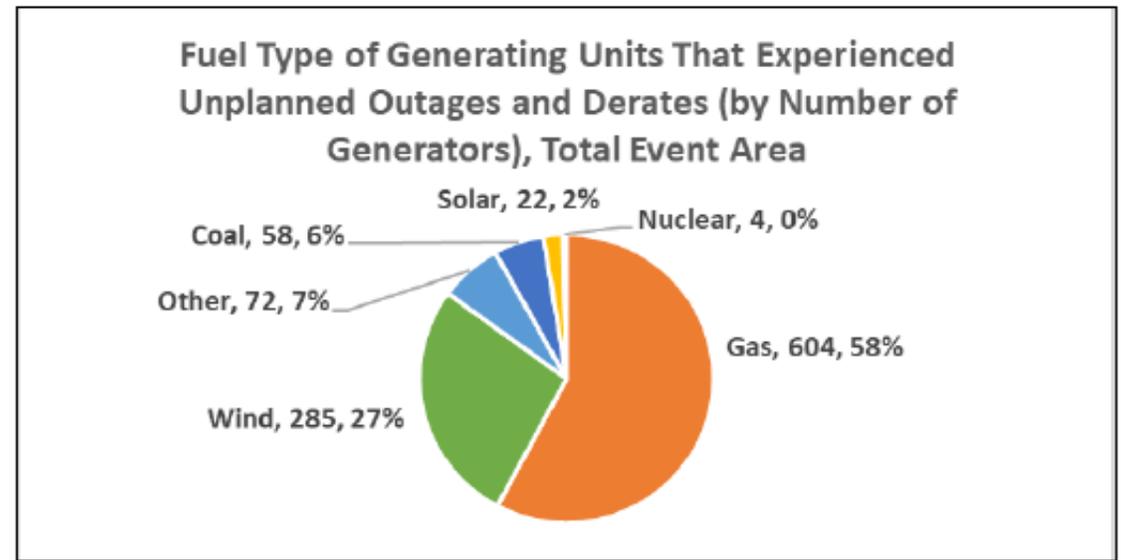


Source: <https://www.ferc.gov/media/february-2021-cold-weather-outages-texas-and-south-central-united-states-ferc-nerc-and#>



Unprecedented Electric Generation Shortfalls Due to Cold Weather Conditions

- **1,045** individual generating units experienced **4,124** outages, derates or failures to start, of which **604** were natural-gas fired generators.
- During the week of February 14, 2021, for over two consecutive days, ERCOT averaged **34,000 MW** of generation outages, **49%**, or **nearly half** of ERCOT's 2021 actual all-time winter peak load of 69,871 MW.

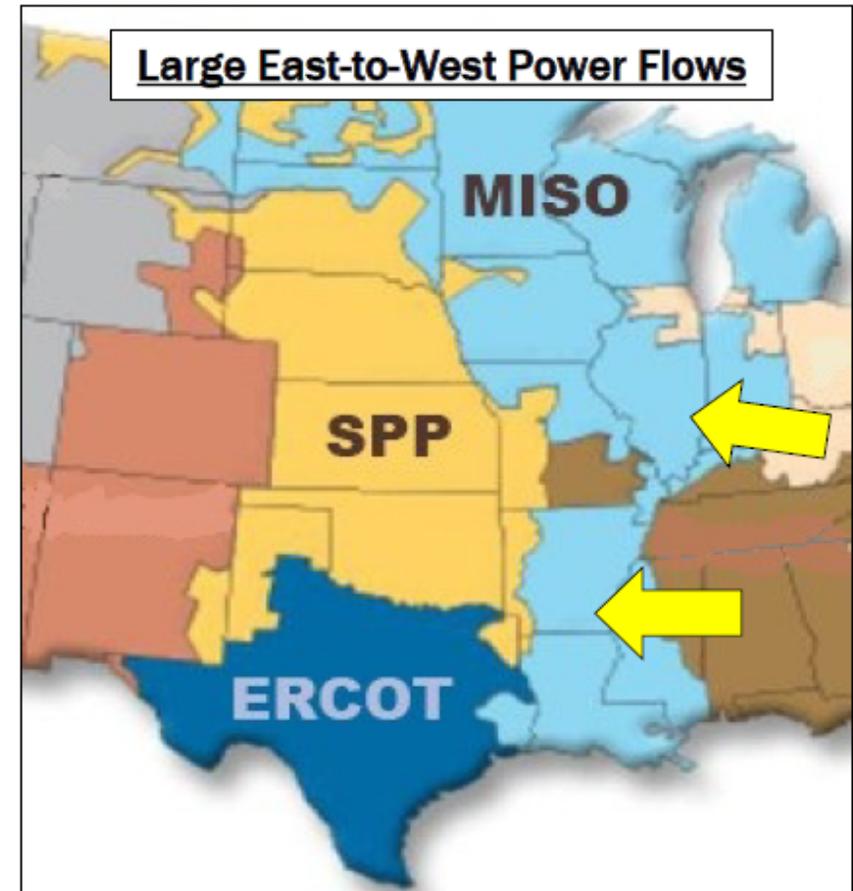




Generation Shortfalls Also Led To Transmission Emergencies in MISO and SPP

- The bulk-power system was heavily constrained with large power flows.
- On February 15, 2021, east-to-west import power flows approached **13,000 MW** to help mitigate generation shortfalls and meet winter peak energy demands in MISO and SPP.
- MISO shed in total over **2,000 MW** firm load at different points in time on February 15 and 16 to avoid transmission overloads.

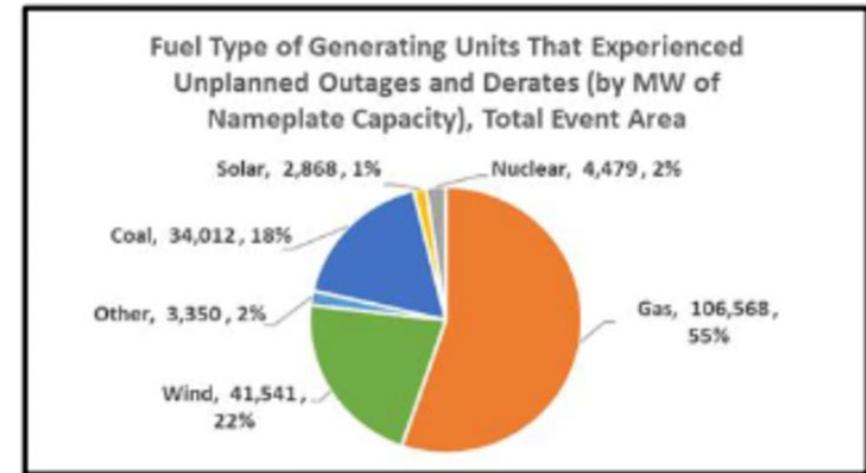
Source: <https://www.ferc.gov/media/february-2021-cold-weather-outages-texas-and-south-central-united-states-ferc-nerc-and#>



What happened?



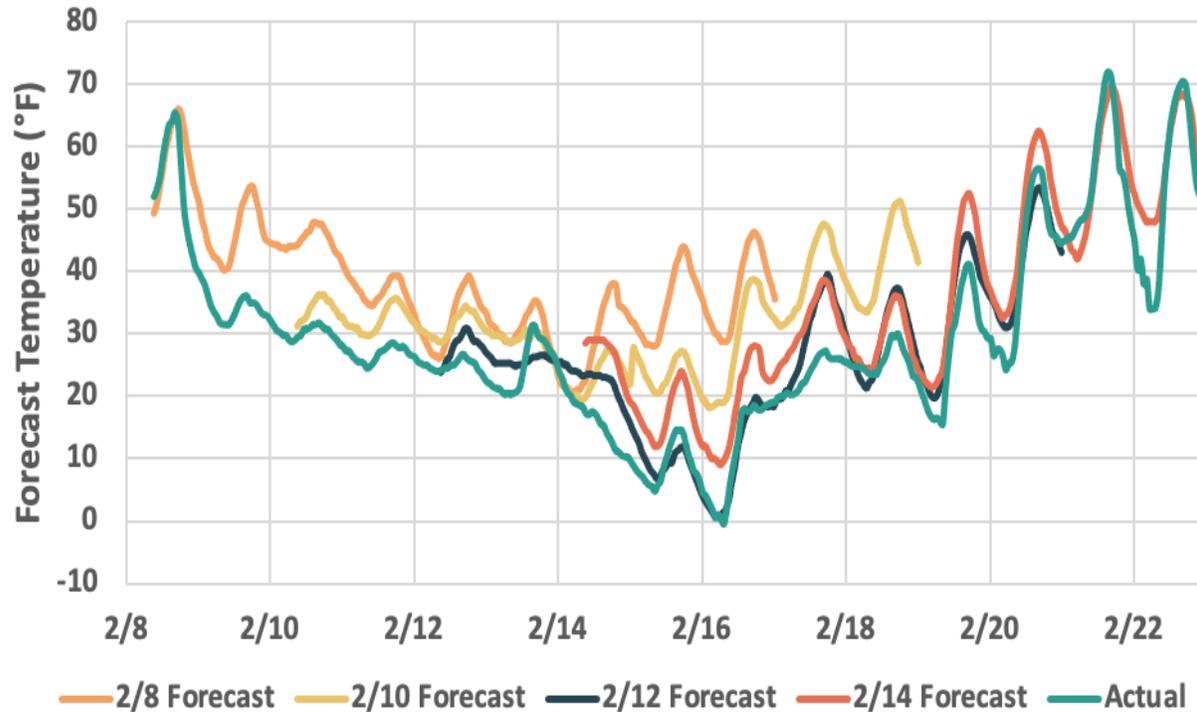
- Natural gas production and delivery failures started on 2/9 due to frozen natural gas production
- Natural gas delivery failure facilities before 2/15, compounded by loss of electricity starting with load-shed beginning 2/15 1:25am.
- Texas production and pipeline outage impacts rippled across entire Midwest.
- Power generation outages – 1,045 units out of service for multiple days between 2/8-20 across ERCOT, SPP and MISO South.
 - Generation failed due to frozen equipment and insufficient fuel
 - ERCOT lost 49% of its generation capacity of every type
- Texas impacts
 - Over 250 deaths electricity failure, hundreds more from cold
 - Millions without safe drinking water
 - Millions of homes and buildings damaged by burst water pipes
 - \$60 billion of excess charges for ancillary services, natural gas and electricity priced at up to 1,000x over normal condition prices
 - \$ Estimated economic impact >\$130 billion (US. Federal Reserve Dallas)



Much Colder + Less Power Online than Expected



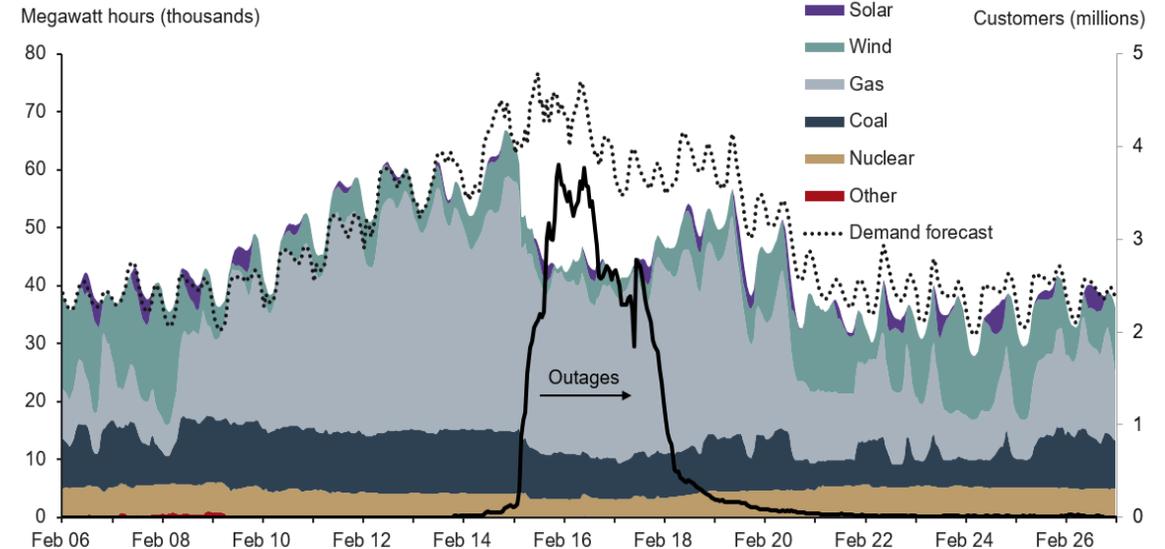
Hourly Temperature Forecasts: North Central Texas



[https://www.puc.texas.gov/agency/resources/reports/UIAustin \(2021\) EventsFebruary2021TexasBlackout \(002\)FINAL 07 12 21.pdf](https://www.puc.texas.gov/agency/resources/reports/UIAustin (2021) EventsFebruary2021TexasBlackout (002)FINAL 07 12 21.pdf)

Chart 1

ERCOT Electricity Generation by Source, Demand and Outages During Texas Deep Freeze



NOTES: "Demand forecast" is what is anticipated in the Electric Reliability Council of Texas day-ahead market. "Other" includes hydroelectric power and grid interchange.

SOURCES: Energy Information Administration; Poweroutage.us; Federal Reserve Bank of Dallas.

Federal Reserve Bank of Dallas

Source:

<https://www.dallasfed.org/research/economics/2021/0415.aspx>

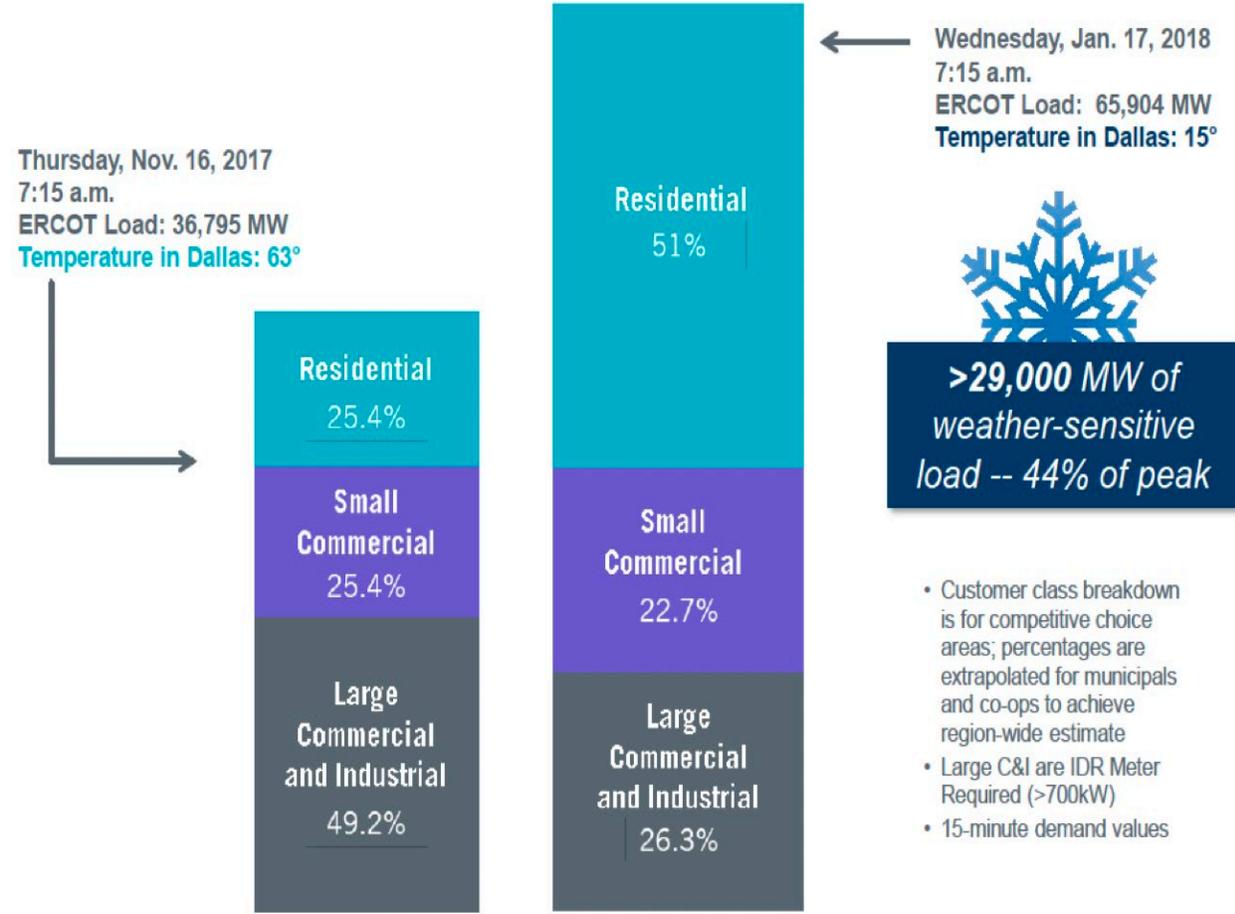




Why it happened –

- Texas buildings and appliances are generally inefficient and under-insulated;
- Energy efficiency building codes not implemented until 2001, still lag...
- 60% of Texas buildings use inefficient electric resistance heating, so in frozen temperatures kept running w/o actually heating air
- TX utility energy efficiency programs put most \$ into Commercial & Industrial programs, not much into residential, low-income and multi-family housing or weatherization.

Winter Weather Impacts on Load by Customer Type



Insufficient preparation



- No regulatory requirements for power plant/ gas system winterization to prevent freezing and failure to perform;
- ERCOT power market designed and managed for minimal costs, not adequate reliability
- Minimal recognition of interdependencies and insufficient coordination between gas, electric and water infrastructures
- Minimal transmission lines to neighboring interconnections so no ability to import energy to alleviate energy shortfalls
- Multi-day power outages exacerbated by “critical facilities” without backup power sources and too-large distribution circuits, so no ability to rotate outages among customers
- Terrible communication and warnings between ERCOT, governments, utilities and public
- Decision-making by the PUC about how and how long to apply electric energy price caps
- Under-investment in energy efficiency and demand response.



Texas Legislature Actions:



What Passed?

- Changes to ERCOT Market Design, PUCT, and ERCOT (SB 2, SB 3, SB 2154, and SB 713)
- Securitization of Winter Storm Uri Costs (HB 4492, SB 1580, HB 1510, and HB 1520)
- Transmission and Distribution System Planning (SB 1281 and HB 2483)
- Targeted Increase of Backup Generation (HB 3916)

What Did Not Pass?

- No increase of energy efficiency goals.
- No increase in demand response, distributed energy resources, or virtual power plants.
- No increase in building standards.
- No real weatherization requirement for natural gas supply.





- Four new Commissioners (one vacancy)
- New ERCOT Board of Directors
- Significant Increase in Regulatory Proceedings (20+)
 - Weatherization of Generation and Transmission & Distribution (51840; 52691; 52785; 52786; 52787)
 - Fuel Supply for Generation Resources (51839; 52345; 52404)
 - Critical Load Designation (51888)
 - Customer Communication (51889; 52287)
 - Securitization of Costs from Winter Storm Uri (52321; 52322; 52364; 52709; 52710; 52731)
 - Wholesale Market Design (51871; 52373; 52631)



Governor's Direction to the PUC (July 6, 2021):



- Streamline incentives within ERCOT to foster development and maintenance of adequate and reliable sources of power, like natural gas, coal, and nuclear power.
- Allocate reliability costs to generation resources that cannot guarantee their own availability, such as wind or solar power.
- Instruct ERCOT to establish a maintenance schedule for natural gas, coal, nuclear, and other non-renewable electricity generators to ensure supply.
- Strategically schedule routine maintenance of natural gas, coal, and nuclear plants to prevent too many plants from being offline at the same time.
- Order ERCOT to accelerate the development of transmission projects that increase connectivity between existing or new dispatchable generation plants and areas of need.

<https://gov.texas.gov/news/post/governor-abbott-directs-public-utility-commission-to-take-immediate-action-to-improve-electric-reliability>



ERCOT Market Re-Design on Fast Track



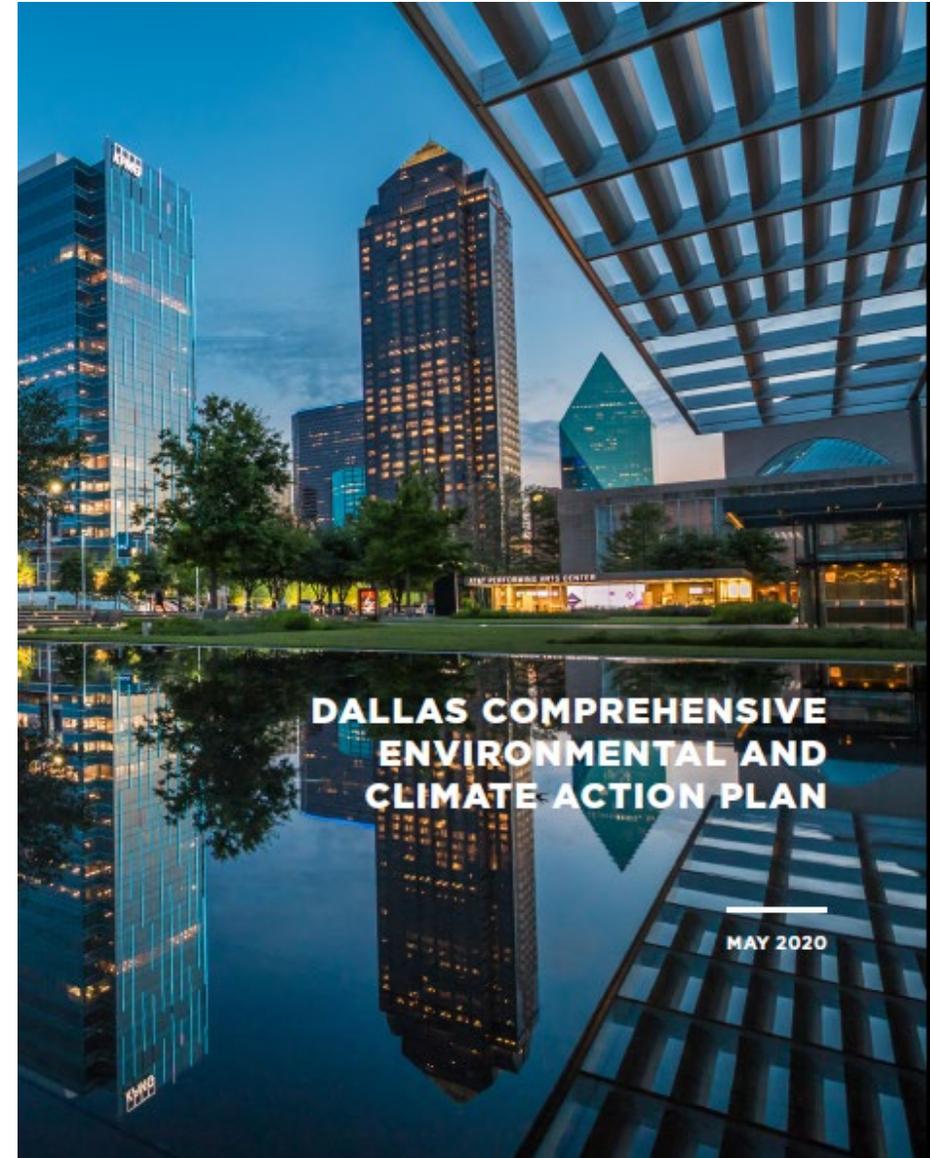
- What and Why? : Wholesale Market Design per 52373
- Multiple PUC Work Sessions since July 1, 2021
- Governor's Letter on July 6, 2021
- Strawman Blueprint #1 – October 20
- Strawman Blueprint #2 – December 3
 - [We are here!!]
- Final Blueprint – December 20



City of Dallas Involvement?

CECAP Actions:

- **E1:** Maintain a high level of reliability in the electric delivery grid through cooperative actions between City & PUC
- **E10:** Advocate for renewable energy policies at the state and federal levels



Texas Climate Cities Cohort



- Implemented by RMI/ WRI with funding from the George P. Mitchell Foundation
- Technical assistance to local governments working towards greater climate resilience
- 9 cities and Travis County participating
- Supports local efforts in four areas:
 - Increased Energy Grid Reliability
 - Energy Efficiency
 - Weatherization
 - Green Infrastructure Implementation

Local government, and community action network, involvement



City of Dallas



LEWISVILLE



THE TEXAS ASSOCIATION OF COMMUNITY ACTION AGENCIES, INC.



Summary of Comments?



Elevate local priorities in wholesale market design:

- 1. Increase the use of energy efficiency and demand response programs*
- 2. Value and encourage a diversified resource base*
- 3. Minimize the severity and disproportionate impacts of power outages.*
- 4. Consider expanding Texans' access to reliable electricity by connecting with adjacent grids.*

Prioritize equity as an integral component of any market reform and associated policy and rule changes.^[2] This is in alignment with the Commission's public-interest mandate to ensure rates, operations, and services are just and reasonable to all Texans.^[3]

Ensure a robust and inclusive stakeholder process

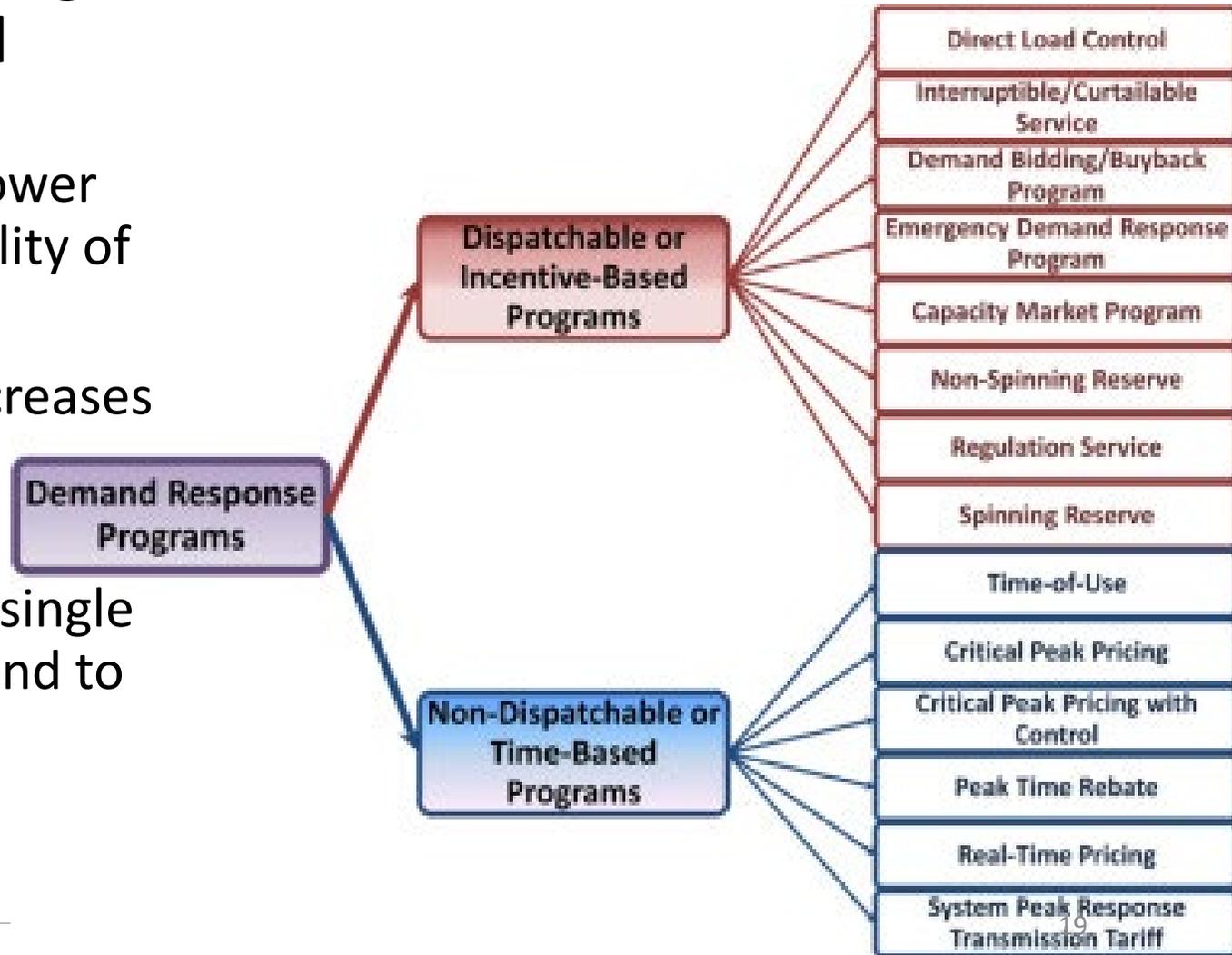


Increase Energy Efficiency/ Demand Response



Increase energy efficiency and demand response programs to equitably manage electricity demand and improve grid reliability:

- Provides tangible benefits through lower customer energy bills, improved quality of life, and decreased energy burden
- Lowers peak load on the grid and increases residential resiliency during extreme weather.
- Benefits low- and moderate-income single and multifamily residences, which tend to be aging, energy inefficient, and less weather prepared.





Encourage a diversified fuel base:

Value and encourage a diversified resource base to provide a variety of grid benefits and services, and further strengthen grid reliability and resilience.

- A desirable market design would permit all types generation, storage, and distributed energy storage (like residential solar) equal access to the grid.

Minimize impacts of power outages



Minimize the severity and disproportionate impacts of power outages on different customer types:

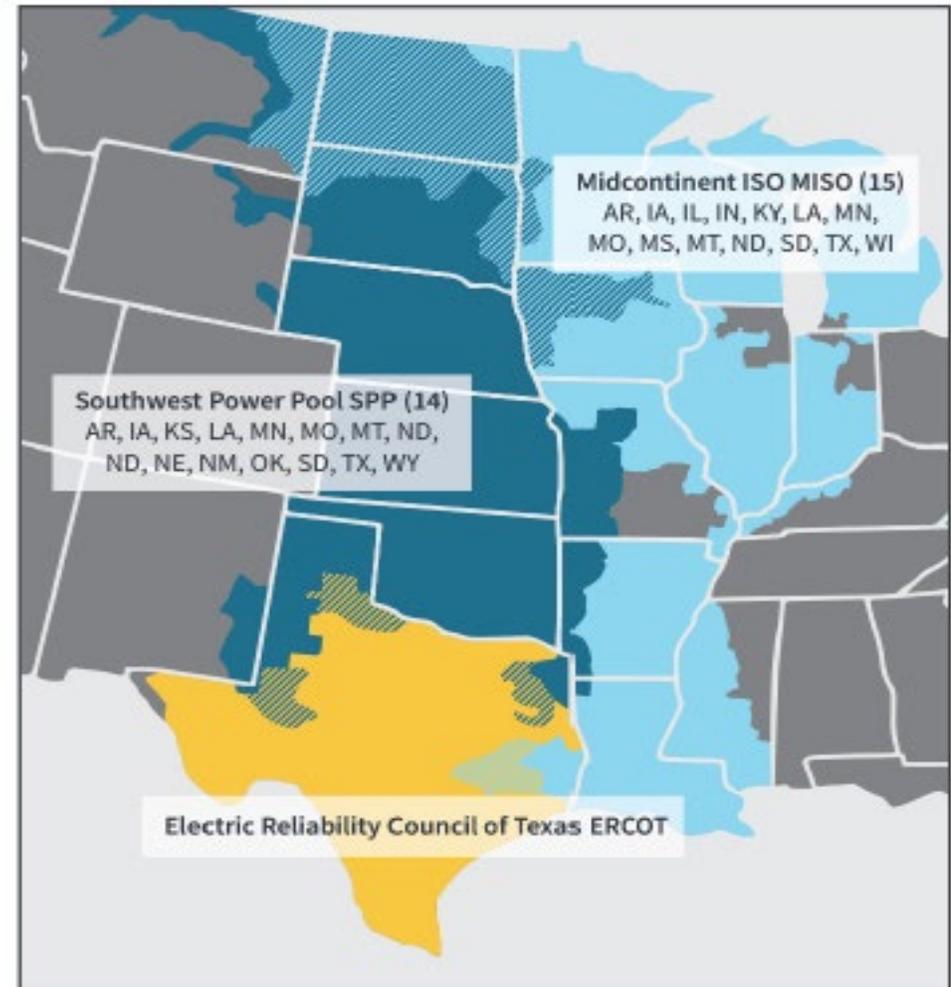
- Modify current distribution circuit designs to increase circuit segmentation to provide smaller sections to minimize outages and supporting critical facilities.
- Better identification of critical facilities
- Transmission and distribution utilities are encouraged to work more closely with customers, especially local governments, in disaster planning and response efforts.





Consider expanding Texans' access to reliable electricity by connecting with adjacent grids.

This creates redundancy and improves emergency management response during grid outage events.

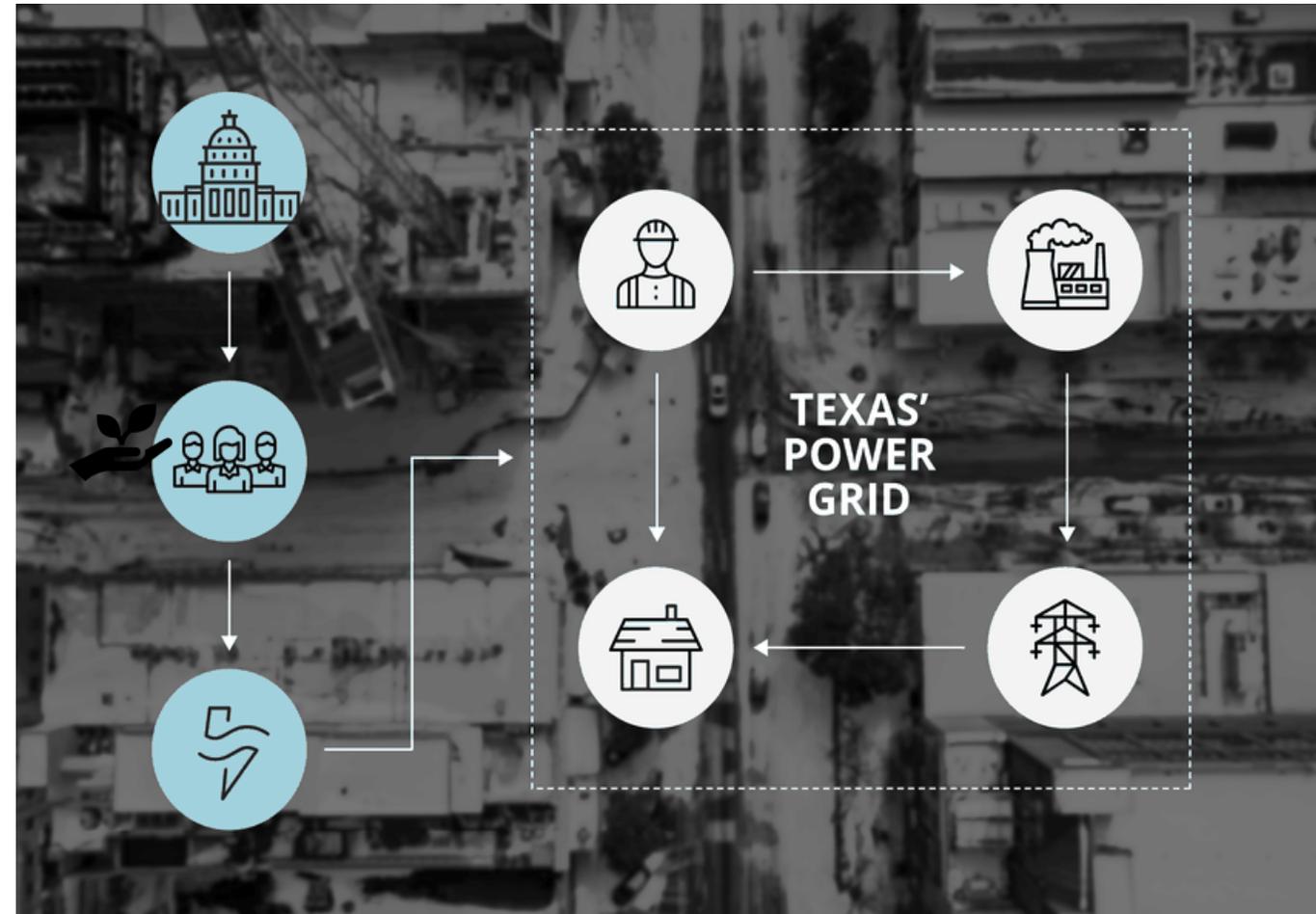


Ensure there is a robust and inclusive market redesign stakeholder engagement process



Local governments are large electricity consumers and have unique voices that are essential to wholesale electric market redesign decisions.

They should be engaged in the process to ensure that electricity is affordable for all customers, that communities are safe and resilient, and that local governments can achieve their energy goals.





Questions or Comments?





Public Utility Commission Power Market Re-Design Comments

Environment & Sustainability Committee

December 07, 2021

Celina Bonugli, Clean Energy Innovation,
World Resources Institute

Susan Alvarez, P.E. Assistant Director
Office of Environmental Quality &
Sustainability



PROJECT NO. 52373

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

**COMMENTS OF THE CITIES OF DALLAS, EI PASO, LEWISVILLE, MESQUITE, PLANO,
SAN ANTONIO, AND TRAVIS COUNTY**

The City of Dallas, El Paso, Lewisville, Mesquite, Plano, San Antonio and Travis County (subsequently referred to as “the undersigned” or “we”), respectfully offer these joint-filed comments for consideration in Project No. 52373, the Review of Wholesale Electric Market Design.

Introduction

The undersigned are large municipal energy consumers and represent a diverse array of energy customers in the state. As local governments, the undersigned are also frontline responders and critical actors in crisis prevention and management. During Winter Storm Uri, we experienced firsthand the far-reaching impacts of energy loss. These went beyond enormous customer bills, loss of life and over 130 billion in property damages, the untenable living situations caused our communities great physical suffering, death, and emotional harm. Further, as political subdivisions of the state of Texas, we also have a legislatively mandated goal per SB 241 to reduce municipal electric consumption by at least five percent each state fiscal year for seven years, beginning September 1, 2019.^[1] Together, we share a vision of a safe, reliable, and resilient energy system, that is affordable, clean, and equitable.

The undersigned, and the constituents we represent, are greatly impacted by energy market decisions—including those being considered in Project No. 52373—and how those decisions are implemented. In alignment with the undersigned’s shared vision, we encourage the Commission to elevate local priorities in wholesale market design.

We urge the Commission to:

1. Increase the use of energy efficiency and demand response programs to equitably manage electricity and improve grid reliability;
2. Value and encourage a diversified resource base to provide a variety of grid benefits and services, and further strengthen grid reliability and resilience;
3. Minimize the severity and disproportionate impacts of power outages on different customer types;
4. Consider expanding Texans’ access to reliable electricity by connecting with adjacent grids; and
5. Ensure that there is a robust and inclusive market redesign stakeholder engagement process.

Across our recommendations and throughout the entire market redesign effort, the Commission should prioritize equity as an integral component of any market reform and all associated policy and rule changes.^[2] This is in alignment with the Commission’s public-interest mandate to ensure that rates, operations and services are just and reasonable to all Texans.^[3] In application, this may include more diverse stakeholder engagement across all phases of a reform effort. The Commission could explicitly include traditionally underrepresented communities, mandate program or rate directives that both ensure equal access and reduce the disparity of energy burden across all residents and communities, ensure equitable economic and environmental impacts of any market changes, and more.

We appreciate the Commission’s effort to host a collaborative process to understand market redesign opportunities and challenges. As this and other related proceedings unfold, the undersigned encourage the Commission to consider opportunities to reduce the burdens associated with participation that will help build a truly robust and inclusive process for all stakeholders. This may include providing more notice of processes, extending timelines for responses, and offering additional assistance to new parties. By expanding engagement to more stakeholders, the Commission can more effectively make decisions that benefit all Texans.

We offer the following comments for your consideration:

1. Increase the use of energy efficiency (EE) and demand response programs (DR) to equitably manage electricity demand and improve grid reliability

The undersigned are aligned with the Commission on the importance and prioritization of grid reliability and resilience to future extreme weather-related or other crises. A reliable grid is central to ensuring that electricity in our communities remains adequate, safe, and stable on a day-to-day basis. Further, a resilient grid is paramount to ensuring that the grid and our communities are prepared for and able to operate through significant disruptions no matter the cause.

An immediate opportunity to achieve grid reliability and resilience is to utilize integrated energy efficiency (EE) and demand response (DR) programs for customers across Texas. The undersigned believe that EE and DR programs should be designed and utilized simultaneously to maximize customer benefits, that EE programs should be deployed aggressively to lower peak load, that new and existing EE programs should be designed to support residential home preparedness for extreme weather and that—overall—the Commission should increase program target for EE programs and residential DR aggregation.

These programs are not only highly effective and cost-competitive grid resources, but these programs can also tangibly benefit Texans on a day-to-day basis by lowering customer energy bills, improving quality of life, and decreasing energy burden. Integrated programs—where EE and DR are utilized simultaneously—can increase the benefits of EE and DR measures beyond what either type of program could deliver alone.^[4] Given this, we ask that the Commission mandate that transmission and distribution utilities (TDUs) implement complementary residential DR programs with EE programs. This will help to optimize grid reliability for Texas communities.

According to an October 13, 2021 study from the American Council for an Energy-Efficient Economy (ACEEE), deploying residential EE and DR measures under statewide direction over five years in Texas could offset about 7 GW of summer and 11 GW of winter peak load.^[5] These measures could offset the need for new gas combined-cycle generators, which would likely only operate during peak demand. They would also likely cost 39% less than the addition of new gas plants, resulting in significant customer bill savings.^[6]

To expand EE programs, the undersigned urge the Commission to conduct an exploratory study to raise EE targets in the state and subsequently direct TDUs to create and promote new EE programs.^[7] Both new and existing programs should place an emphasis on home(insulation, smart thermostats, and home heating and cooling, and other energy efficiency improvements to reduce both energy use and peak loads and improve the preparedness of residential homes for extreme weather or other crisis conditions.^[8]

To better optimize and increase the impact of aggregated residential DR programs, the undersigned suggest that the Commission require TDUs to design DR aggregation programs that are transparent to customers,

are standard across the state, and compensate customers for the services that they provide to the grid.^[9] Through these program design changes, customers will be better educated on their real-time energy data and program options, be able to make educated decisions to enroll, and be compensated for the value of their services.^[10] The undersigned believe that this would increase residential customers' willingness and ability to participate in DR aggregation programs.

EE and DR programs in Texas could provide a particularly high benefit for low- and moderate-income (LMI) residences. They should be designed transparently so that LMI customers can understand and utilize the programs. Programs should not create the unintended negative impacts that can arise from other load shaping mechanisms like responsive tariffs. This is because LMI and multi-family (MF) residences in Texas tend to be less weather-prepared, energy-efficient homes that waste large amounts of energy.^[11] To achieve this, the Commission could require that at least 40% of electric utility energy efficiency program savings come from retrofits of LMI and MF housing.^[12] They could also look to ACEEE's October 13, 2021 report for specific programs and program compensation plans that would target LMI and MF residences. The development of energy efficiency programs could—and should—have significant equity impacts. Well-designed programs would reduce barriers to more affordable energy for those communities most confronted with energy burden.

Implementing EE and DR programs in low income areas are immediate opportunities to improve Texas' grid reliability and can complement a full wholesale electric market solution that includes firm capacity and other market design changes. That said, we look forward to the opportunity to grow these EE and DR programs in our communities to assist the Commission in building a more reliable and resilient grid in Texas.

2. Value and encourage a diversified resource base to provide a variety of grid benefits and services, and further strengthen grid reliability and resilience

In addition to EE and DR programs, we urge the Commission to design a market that permits all generation, storage, and distributed energy resources (DERs)—like residential solar—equal access to the grid. Enabling these resource types to participate in the competitive wholesale market expands the resources that can contribute to a stable, resilient wholesale energy market. Many local governments in Texas—and some of the undersigned—have specific energy goals which are driving investment in and construction of renewable energy and storage projects. Residents are also investing in DERs. Furthermore, as local governments continue to evolve their thinking about community resiliency and consider options, such as microgrids or facilities centered around shelter-in-place services, there is an increasing opportunity that customer assets can be utilized to beneficially serve the grid. These non-traditional generating resources and storage assets should be maximized to provide services when needed and increase grid reliability.^[13]

We also encourage the Commission to establish policies that allow residential customers to see and respond to real-time electric prices and requests for demand flexibility to enable them to make well-informed decisions about participating in residential DR aggregation. The Commission can facilitate this by using mechanisms to make individual customer energy data accessible to customers and aggregators (with customer agreement), enhance availability of demand automation and management technologies, and facilitate aggregation of loads and behind-the-meter generation and storage to provide DR. This would signal the need for DR to residential customers who otherwise might not have pursued DR technologies in their homes or businesses.

To achieve these outcomes, the Commission should create a competitive and robust market for generation, storage, and DERs that reflects the need for additional grid services and enables their participation. This

may necessitate the establishment of a new ancillary services market, which should be technology agnostic and permit many buyers and sellers to easily enter and exit.

3. Minimize the severity and disproportionate impacts of power outages on the most vulnerable customers;

To avoid a repeat of sustained power outages and to enable the grid to quickly recover from outages, we request that the Commission work to ensure that outages do not disproportionately impact certain types of customers. To accomplish this, the Commission could require that TDUs modify their current distribution circuit designs using sectionalization for more granular outage management and modernize distribution segmentation strategies to proactively address future weather or other extreme crises.^[14] TDUs could divide circuits into small sections, with critical facilities on their own or with few customers. This would also enable them to rotate what power they have more evenly amongst customers. To ensure that health and associated impacts of outages are minimized and equitable across all circuits, the Commission should encourage TDUs to work more closely with customers, especially local governments, in disaster planning and response efforts.

Local governments are critical actors in emergency prevention, response, and management. They have emergency management plans for crises and are the first line of support to communities in a disaster. As such, the undersigned are well positioned to be thought partners in TDU disaster planning and response. They can help make TDU planning processes more comprehensive, efficient, and collaborative with existing local government efforts. Further, the Commission could require stakeholder engagement in TDU planning processes or otherwise encourage and guide customer-TDU collaboration.^[15]

The Commission could also mandate or otherwise help incentivize TDUs to develop and implement energy storage programs for all critical facilities, so that customers have equal access to emergency care in crisis. For example, the Commission could require that TDUs co-develop critical facility backup planning with local governments to ensure that all community needs—especially those in low-income areas, are considered. This could be a prerequisite for receiving Commission approval on resource or other investment plans. Financial support for these programs could be pursued through assistance funds or rebate programs, and could also have specific targets for reaching LMI customers.

4. Consider expanding Texans’ access to reliable electricity by connecting with adjacent grids

While we recognize Texas’s electricity market has historically been able to effectively serve its residents on its own, we understand that there may be opportunity to strategically utilize energy resources from adjacent markets.^[16] A study conducted by Americans for a Clean Energy Grid in the wake of Winter Storm Uri found that each additional gigawatt (GW) of transmission ties between ERCOT and the Southeastern U.S. could have saved nearly \$1 billion, while keeping the heat on for hundreds of thousands of Texans.^[17] Expanding Texas’ traditional approach by directly connecting with other regional grids or implementing other infrastructure changes to allow transfer of electricity to ERCOT expands the available resources, potentially reducing costs, and ultimately allowing for more opportunity to effectively serve our communities. Interconnecting to other markets can help make the ERCOT grid more reliable and improve both Texas’s and regional actors’ emergency management capabilities during grid outage events.

5. Ensure there is a robust and inclusive market redesign stakeholder engagement process

Local governments are large electricity consumers and also represent millions of energy customers across Texas, so these entities have unique voices that are essential to wholesale electric market redesign decisions

and future proceedings. Local governments seek to prioritize the interests of Texas communities. As such, they should be actively engaged to shape these efforts alongside the Commission and other key stakeholders to ensure that electricity is affordable for all customers, that our communities are safe and resilient, and that local governments can achieve their energy goals.

We urge the Commission to consider a few pathways to improve opportunities for local governments to fully participate. First, the Commission should provide education on each engagement opportunity and how stakeholders can be involved. Second, Commission-led stakeholder engagement processes should actively seek out local governments' perspectives, as they are essential to making well-informed state-wide energy decisions. This could be through working groups, advisory groups, task forces, or in-person meetings with local governments across the state. Third, the Commission should provide comprehensive and clear communication around their plans for stakeholder engagement in regulatory proceedings and ample and timely notice of changes. Fourth, timelines for comment submission should consider the resource and capacity constraints of local governments that could limit their ability to participate in proceedings. For example, providing only one week for review and comment on substantive issues will likely prevent local governments from participating because they would be unable to receive internal review and sign-off on such a short timeline. Providing at least four weeks to respond to comments is more tenable for local governments' internal timelines. Local governments should not face undue burden or unnecessary hardship to stay informed and participate in Commission efforts—especially on issues that impact both their operations and their constituency of Texas residents and businesses.

Conclusion

We appreciate your consideration of these comments. Alongside other stakeholders, we are looking for opportunities to actively participate in or contribute to ensuring Texas's grid remains safe, reliable, resilient, affordable, clean, and equitable. We look forward to working with the Commission and other interested parties through a fair, robust, and collaborative process.

[Signatures]

^[1]S.B. 241, 85th Tex. Leg., §1.29.c (2017)

^[2]“Social equity is the active commitment to fairness, justice, and equality in the formulation of public policy, distribution of public services, implementation of public policy, and management of all institutions serving the public directly or by contract, regardless of race, gender, national origin, or income level.” Svara, James H., and James R. Brunet. “Social Equity Is a Pillar of Public Administration.” *Journal of Public Affairs Education* 11, no. 3 (2005): 253–58. <http://www.jstor.org/stable/40215707>.

^[3] Public Utility Regulatory Act, Tex. Util. Code Ann. § 11.002 (PURA).

^[4] Review of Wholesale Electric Market Design: Comments of American Council for an Energy-Efficient Economy. Washington, D.C.: American Council for an Energy-Efficient Economy, 2021. https://interchange.puc.texas.gov/Documents/52373_104_1152424.PDF.

^[5] “ACEEE finds that a set of seven residential energy efficiency and demand response retrofit measures, deployed under statewide direction over five years (2022 start-up, 2023–2027 deployment) could serve about 9 million Texas households and offset about 7,650 MW of summer peak load and 11,400 MW of winter peak load—approximately equaling the capability of the proposed new gas combined-cycle generators—at a 5-year total programmatic cost of about \$4.9 billion. Once installed, these efficiency measures would continue delivering around-the-clock comfort, energy and energy bill savings, and peak load reduction for 10- to 20-year measure lives.” From Nadel, Steven, Christine Gerbode, and Jennifer Amann. 2021. Energy Efficiency and Demand Response: Tools to Address Texas's Reliability Challenges. Washington, D.C.: American Council for an Energy-Efficient Economy. https://www.aceee.org/sites/default/files/pdfs/energy_efficiency_and_demand_response_for_texas_10-13-21_final_0.pdf.

^[6] Ibid, 19.

^[7] The undersigned suggest that the Commission raise the Energy Efficiency Resource Standard (EERS) to at least 1% energy saving by the end of 2025.

^[8] “Energy efficiency—the kilowatt-hours we avoid by eliminating waste—is, on average, our nation’s least-cost resource. Efficiency also delivers a host of other benefits. It improves electric [grid reliability and resilience](#), can target savings where and when needed the most, creates jobs, spurs other economic development, reduces customer utility bills, makes homes and buildings more comfortable, and reduces harmful pollution.” From Maggie Molina, “Renewables Are Getting Cheaper but Energy Efficiency, on Average, Still Costs Utilities Less,” ACEEE, December 18, 2018, <https://www.aceee.org/blog/2018/12/renewables-are-getting-cheaper-energy>.

^[9] Enabling proactive residential customers to use DR in the wholesale market is challenging due to the diversity in power consumption patterns. We propose that an aggregator (which could be an established load-serving entity or other player) should bid aggregated residential DR resources—or DR resources from a group of residential customers—in a wholesale market. The aggregator executes load curtailment contracts with the DR resources to ensure their availability and incentivizes customers to participate at pre-contracted prices.

^[10] TDUs would need to equip customers with smart meters to benefit from this type of program design.

^[11] Drehobl, Ariel, Lauren Ross, and Roxana Ayala. 2020. How High Are Household Energy Burdens? Washington, D.C.: American Council for an Energy-Efficient Economy. <https://www.aceee.org/research-report/u2006>.

^[12] See footnote 5

^[13] In addition to allowing all resources to participate in markets, the Public Utility Commission of Texas (PUC) should establish better rules for individual customer and DER participation in the Energy Reliability Council of Texas (ERCOT) and Texas’ grid outside of ERCOT.

^[14] “The PUC should order utilities to modify their distribution systems using sectionalization devices wherever feasible to cut up each circuit into smaller sections, starting on those circuits hosting critical facilities so that a single hospital doesn’t lock in service for a giant chunk of a city and leave others literally out in the cold. Sectionalization around critical facilities and industrial customers will enable more granular outage management and outage rotation among customers.” From Wood, P., Gee, R., Walsh, J., Perlman, B., Klein, B., Silverstein, A. 2021. Never Again: How To Prevent Another Major Texas Electricity Failure. PUC of Texas Commissioners Report.

^[15] We recognize that disaster planning may be directly influenced by Texas legislation, and we will continue to work alongside the Commission and our partner TDUs to ensure that legislation enables and drives truly equitable and resilient outage management solutions.

^[16] If ERCOT connects to and is subsequently able to use resources across more geographic area, it will lessen the impacts of resiliency and reliability issues Texas, because Texas will be able to transport electricity from a much broader area than just the state of Texas. Additionally, in terms of peak demand, the hottest time of the day in Texas is potentially a less hot part of the day for more northern or western states, so other regions could support Texas peak demand during those times.

^[17] Goggin, Michael. 2021. Transmission Makes the Power System Resilient to Extreme Weather. Washington, D.C.: Americans for a Clean Energy Grid. <https://cleanenergygrid.org/transmission-makes-the-power-system-resilient-to-extreme-weather/>.