



Paul S. Barham

Chief Grid Optimization & Resiliency Officer (CGORO)

May 19, 2021

**Mr. Reed Williams - Chairman
City of San Antonio
Committee on Emergency Preparedness (CEP)**

RE: CoSA CEP RFI #1.B – Revised Utility Primer

Dear CEP Chairman Williams,

In response to your request for information regarding the **inclusion of the supply chain process from fuel source (solar, wind, gas, coal, etc.) to power generation for all fuel source types expected to be in use during the winter storm as requested in RFI 1.1 and a description of each of the ancillary services provided by ERCOT into the basic primer**, we have attached two updated documents.

1. **CPS Energy & the Texas Electric Market Revised** – This is an informative document we created and have shared on our website that outlines the flow of the electric market. It explains how the market functions, our participation in the market, and how the winter weather event impacted the market. This document has been updated to include information on CPS Energy's power generation fleet, renewable portfolio, fuel considerations and ancillary services.
2. **Glossary Revised** – This is a glossary of terms that are used in industry. This glossary was used in our recently published *Flexible PathSM* Resource Plan document. We have also updated this document for additional definitions needed.

Please let us know if you have any questions or require additional information.

Sincerely,

Paul

PSB:gtw

Copy City of San Antonio:

Chief Financial Officer & Supervisor of Public Utilities, B. Gorzell
City Attorney, A. Segovia

Copy CPS Energy:

Board Members
President & CEO, P. Gold-Williams
Senior Chiefs
Request for Information Coordinator, G. Williams
Board Relations
Citizens Advisory Committee

Attachments:

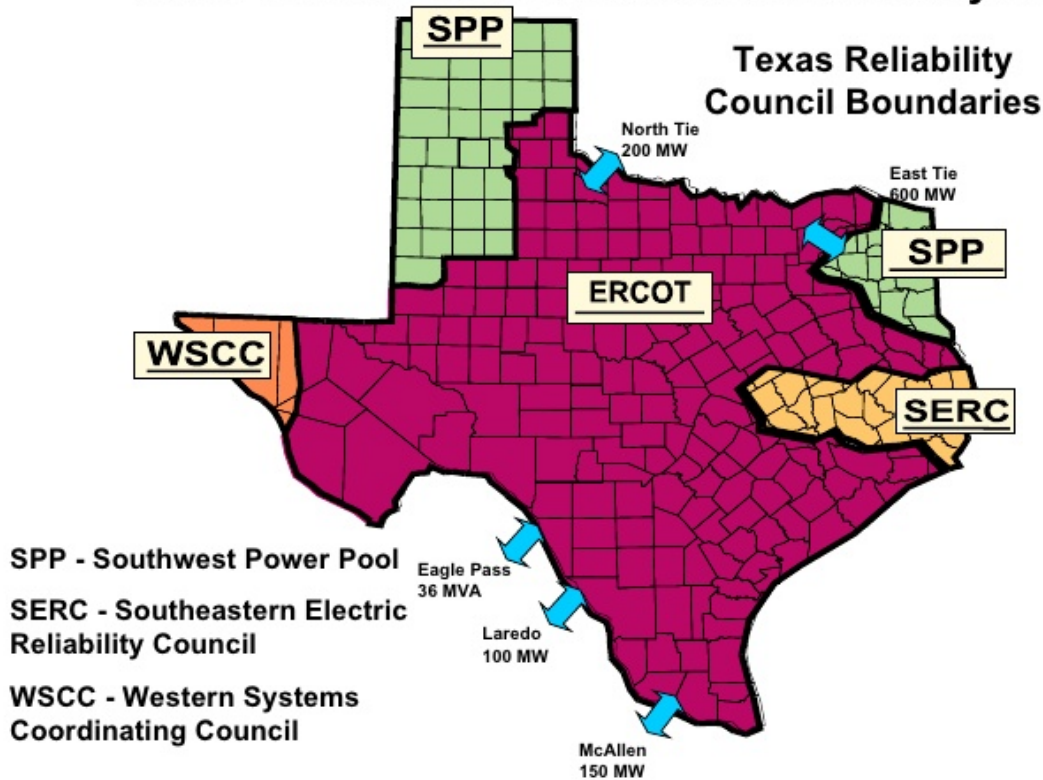
CPS Energy and the Texas Electric Market Revised
Glossary Revised



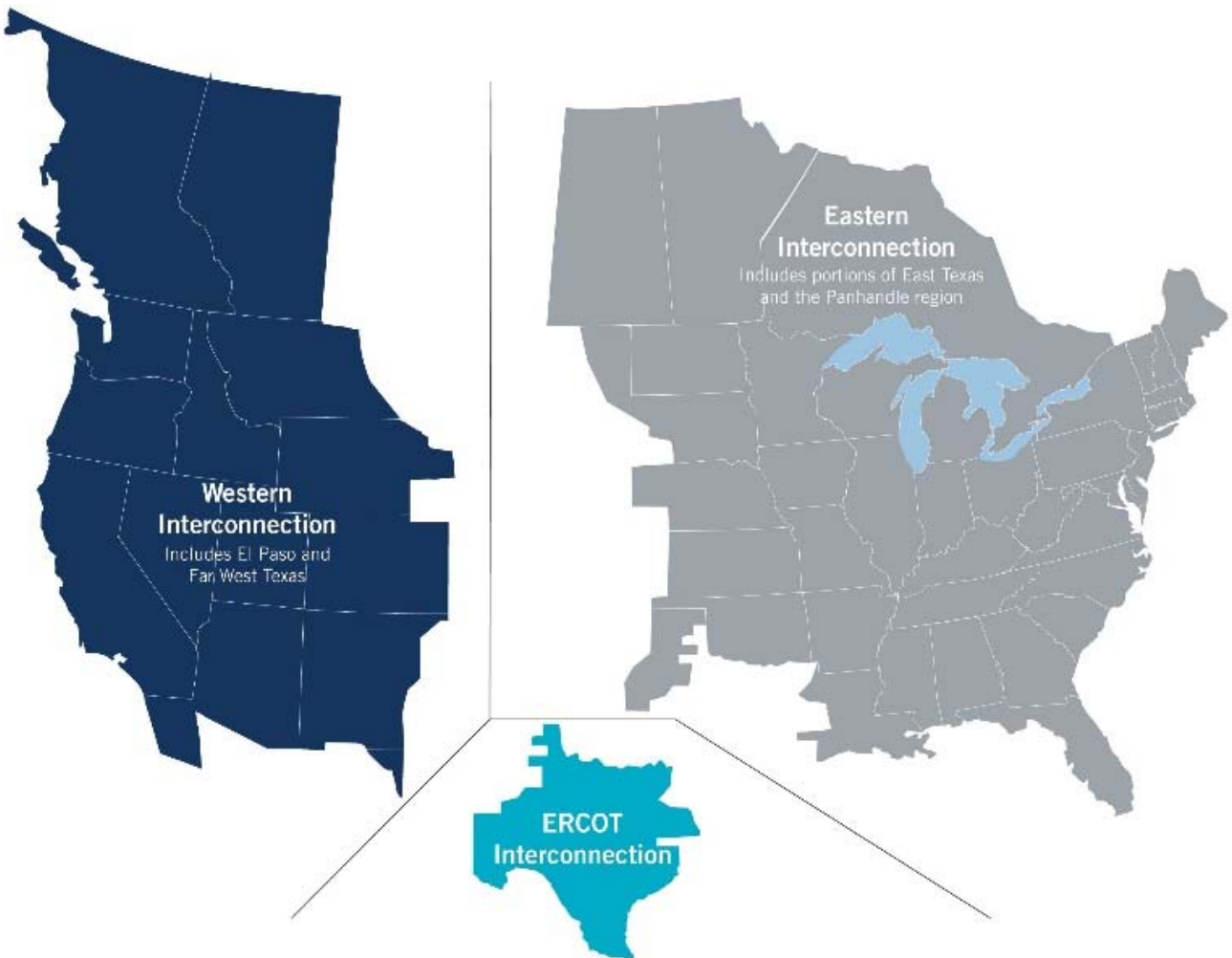
CPS ENERGY & THE TEXAS ELECTRIC MARKET

OVERVIEW: The flow of electric power for more than 26 million customers in Texas is managed by the Electric Reliability Council of Texas (ERCOT). This represents about 85% of the state's electric load, including San Antonio as shown below.

Within Texas, the ERCOT grid serves 85% of the electric load, and covers 75% of the land. ERCOT is connected to the Eastern Interconnect and Mexico by DC ties.



Nationally, ERCOT is one of several councils that manage the flow of electricity in the transmission systems. ERCOT is tied to other national and international grids but only for minimal amounts of power to be imported or exported.

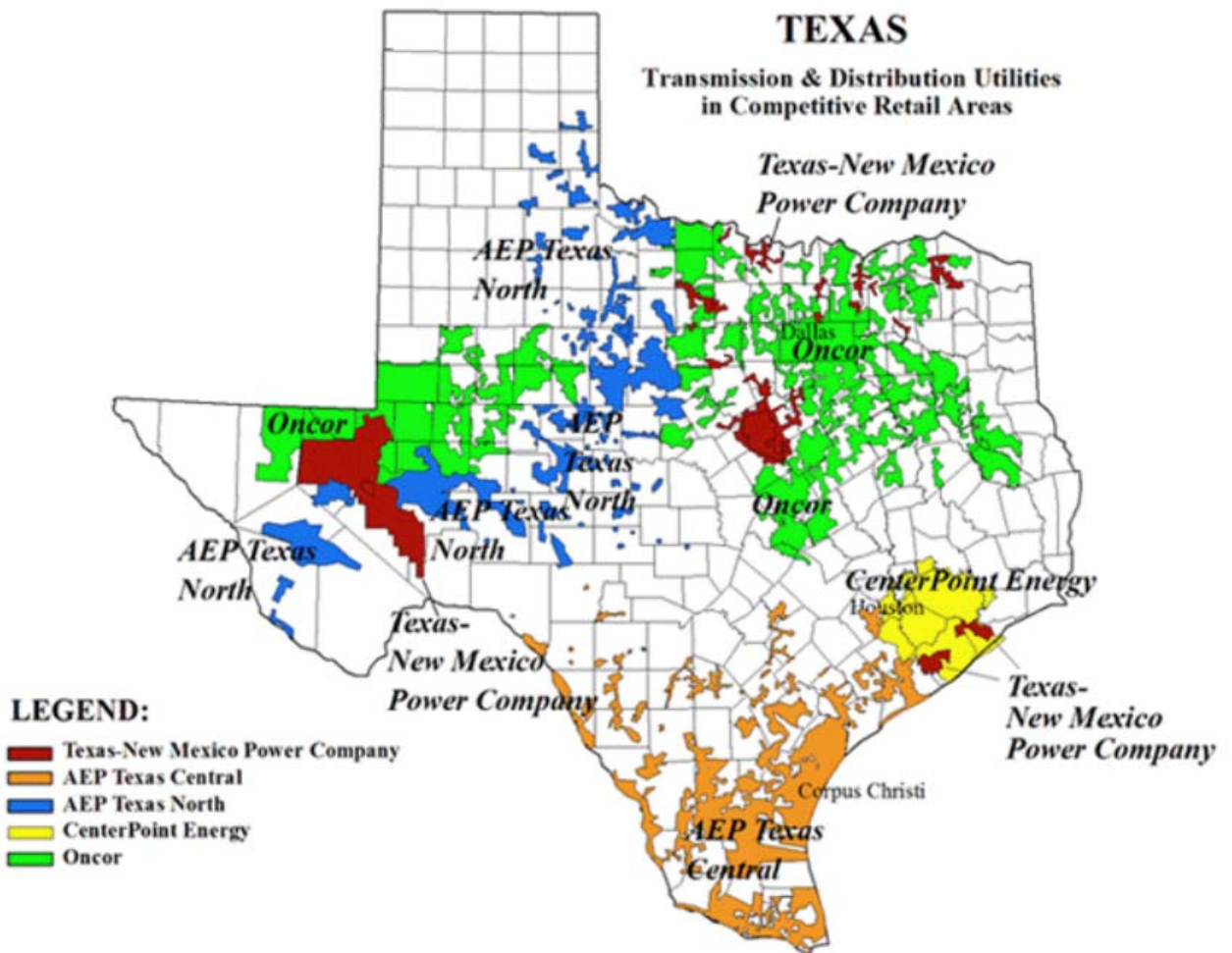




CPS ENERGY & THE TEXAS ELECTRIC MARKET

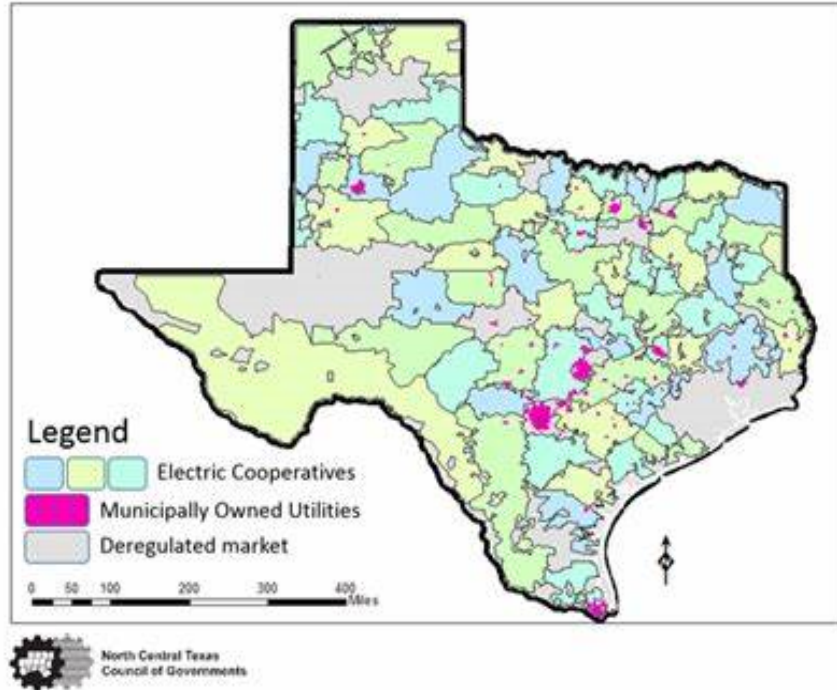
There are several types of entities that serve Texas's electrical needs such as not-for-profit municipally owned utilities (MOUs), not-for-profit electric cooperatives (Co-ops), and investor owned utilities (IOUs). CPS Energy is the largest MOU in Texas and has served the San Antonio area for 161 years. A breakdown of the largest deregulated areas shows most of the State is open to competition.

Transmission & Distribution Utilities in Competitive Retail Areas



Texas Electric Cooperatives & Municipally Owned Utilities

Texas Electric Cooperatives & Municipally Owned Utilities



Responsibilities: ERCOT, a non-profit corporation, is responsible for two things:

- (1) managing the flow of electric power over the transmission grid to customers; and
- (2) managing the sale of electricity under regulation by the Public Utility Commission of Texas (PUC) and the laws of the State of Texas.

Overview of the Electric System:



ERCOT Market Participants: Since 2001, when a competitive retail market design in Texas was created within ERCOT, electricity has been managed under laws adopted by the Legislature and PUC rules. There are several kinds of participants in the market:

- **Generators** that produce and sell electricity;
- **Transmission companies** that own and operate the high voltage lines over which the electricity moves across the state;
- **Distribution companies** that own low voltage lines that deliver electricity from the transmission system to our homes across neighborhood utility poles; and
- **Retail Electric Providers (REPs)** that buy electricity from generators and sell it to customers, which is delivered over the transmission and distribution lines owned by others.



CPS ENERGY & THE TEXAS ELECTRIC MARKET

MOUs & CO-OPs: MOUs, like CPS Energy, and Co-ops can participate in each market function if they have the capabilities and choose to do so. This is because in 2001, the law allowed Co-ops and cities that own MOUs to skip participation in the competitive electric market, unless they chose to opt-in.

How the market functions: Every day, ERCOT asks market participants who serve retail customers how much electricity they need to buy. They also ask Generators how much electricity they have to sell and at what price. In this day-ahead market, the transactions are made and the next day the power is delivered to customers. CPS Energy provides retail service to customers and is a generator of power. So, in the day-ahead ERCOT market, CPS Energy commits available generation to serve the amount of electricity needed by our customers, and if there is excess generation available, we sell that power into the ERCOT wholesale market to serve the needs of Texas, which our customers benefit from in terms of revenue.

In addition to the day-ahead market, there is also a real-time market. CPS Energy participates in both markets. In the real-time ERCOT market, if Generators have problems delivering the electricity they promised to sell, they must buy that electricity from ERCOT while ERCOT works with other Generators to identify where reserve electricity is available (ancillary services). In addition, for market participants who chose not to buy or sell electricity in the day-ahead market, those with retail customers will buy their electricity and generators will sell their electricity in the real-time market through coordinating the same kind of buy/sell transactions that were done as part of the day-ahead process.

All these daily transactions are settled (reconciled) and payments are made through ERCOT.

A simple way to think of how electricity flows on the grid is to imagine that electrons are like marbles and the grid is like a jar. All of the Generators put their marbles in the jar, and each utility takes out the marbles they will need for their customers on a daily basis. ERCOT is responsible for checking that there are enough marbles in the jar, and that those who take marbles pay for them, and those who put marbles in get paid.

Ancillary Services: Since ERCOT's primary responsibility is to ensure the day-to-day reliability of the ERCOT transmission grid, ERCOT must match generation output and system demand, and make sure that the transmission system is operating within its established limits. In addition to matching system demand with generation, ERCOT must also be able to respond quickly to ever-changing system conditions, including rapidly increasing or decreasing



demand or sudden loss of generation. To meet this grid reliability need, ERCOT procures and reserves additional capacity from certain generators that can respond quickly enough to meet changing system conditions. Capacity reserves procured for this purpose are called Ancillary Services.

ERCOT has four types of Ancillary Services: Regulation Down Service, Regulation Up Service, Responsive Reserve Service, and Non-Spinning Reserve. Each of these services has distinct performance requirements for response if ERCOT calls on the reserved capacity to be deployed as energy in response to system conditions as described in the table below.

| Ancillary Service Type | Definition |
|----------------------------|--|
| Regulation Down Service | An Ancillary Service that provides capacity that can respond to signals from ERCOT within five seconds to respond to changes in system frequency. |
| Regulation Up Service | An Ancillary Service that provides capacity that can respond to signals from ERCOT within five seconds to respond to changes in system frequency. |
| Responsive Reserve Service | An Ancillary Service that provides operating reserves that is intended to: (a) Arrest frequency decay within the first few seconds of a significant frequency deviation; (b) After the first few seconds of a significant frequency deviation, help restore frequency to its scheduled value to return the system to normal; (c) Provide energy or continued load interruption during the implementation of the Energy Emergency Alert (EEA); and (d) Provide backup regulation. |
| Non-Spinning Reserve | An Ancillary Service that can be synchronized and ramped to a specified output level within 30 minutes and that can operate at a specified output level for at least one hour. |

Ancillary Service capacity that is reserved for responding quickly to changing conditions is above and beyond what is required to meet the forecasted system demand. Market participants are allowed, but not required to self-provide ancillary services as part of their regular private transactions. This means that the market will rely on ERCOT to procure additional ancillary services to resolve grid problems. ERCOT procures ancillary services from generators and load resources, and retail electric providers are charged for the services on a load ratio share. Load ratio share is a percentage of the total ERCOT load.



CPS ENERGY & THE TEXAS ELECTRIC MARKET

How CPS Energy fits into the ERCOT market: CPS Energy, as a MOU, does not participate in the competitive market at the retail level, so we provide ALL the market services listed above to our retail customers. We generate electricity. We buy electricity under long term contracts for renewables. We transmit power over our transmission lines. To complete the process, we deliver it to customers over our distribution grid. We are the retail connection with our customers, providing information, sending bills, taking calls from customers, etc.

We do participate in the ERCOT wholesale market, which means we buy and sell power every day like the other market participants. As a generator of power and a retail provider to customers, what happens in the wholesale market impacts CPS Energy and ultimately our customers. This allows us to buy and sell power to provide the lowest cost possible and ensure we have sufficient power to meet projected customer needs. Most days, we generate enough power to serve our customers. When our plants are unavailable due to maintenance, we sometimes buy power from the ERCOT market to ensure reliable service for our customers.

CPS Energy's Power Generation Fleet: CPS Energy has a diverse fleet of electric power generating resources consisting of nuclear, gas, coal, wind, solar, landfill gas, and battery storage. This diverse portfolio helps us manage the risk associated with reliance on any single generation type. The diversity also balances the strengths and weaknesses that vary across the generating types regarding cost, variability in output, reliability, flexibility, and emissions. The high availability and controllability of CPS Energy's traditional fleet of nuclear, coal, and gas generation enables CPS Energy to integrate a large set of variable renewable resources into the portfolio.

CPS Energy's Renewable Portfolio: CPS Energy has over 1,600 MW of wind, solar, and landfill gas renewable capacity, totaling over 20% of our power generation fleet (see figure below). The renewable power is acquired through long-term contracts with third parties that own and operate the renewable plants. The majority of the renewable resources are located outside of the San Antonio area where the sun and wind provide the most economical output. These remotely located renewable resources deliver their electricity to the grid through a connection to the high voltage transmission system.



OUR RENEWABLE PORTFOLIO

Over 20% of our capacity is from renewable resources



Diversifying with renewables is beneficial, but comes with the challenges of:

- Intermittency
- Congestion
- Forecasting

Since renewable output is dependent on wind and sun patterns, CPS Energy uses any renewable output that is available at the time, while filling in any gaps with our traditional generating resources. On an annual average basis, solar will output about 25% to 30% of its maximum capability and wind will output about 35% to 40% of its maximum capability. During winter events, freezing rain and snow can greatly reduce wind and solar output until weather conditions improve.

Fuel Considerations: CPS Energy's traditional fleet of nuclear, coal, and gas generation rely on a diverse set of fuel types. Wind and solar do not require fuel as their output is dependent on wind and sun patterns. Each fuel type is summarized below.

Nuclear Fuel

South Texas Project Nuclear Operating Company (STPNOC) operates the South Texas Project nuclear plant on behalf of the owners, of which CPS Energy owns 40%. STPNOC manages all aspects of nuclear fuel procurement as part of their duties. Each load of nuclear fuel lasts about 18 months.



CPS ENERGY & THE TEXAS ELECTRIC MARKET

Coal

CPS Energy sources coal from mines in the southern Powder River Basin (PRB) in Wyoming. There are master enabling agreements in place with the four main PRB producers. Delivery of coal to San Antonio is by railroad. There are two railroads with access to CPS Energy facilities and the service is solicited for on a routine basis. CPS Energy maintains an onsite inventory of several weeks of coal burn.

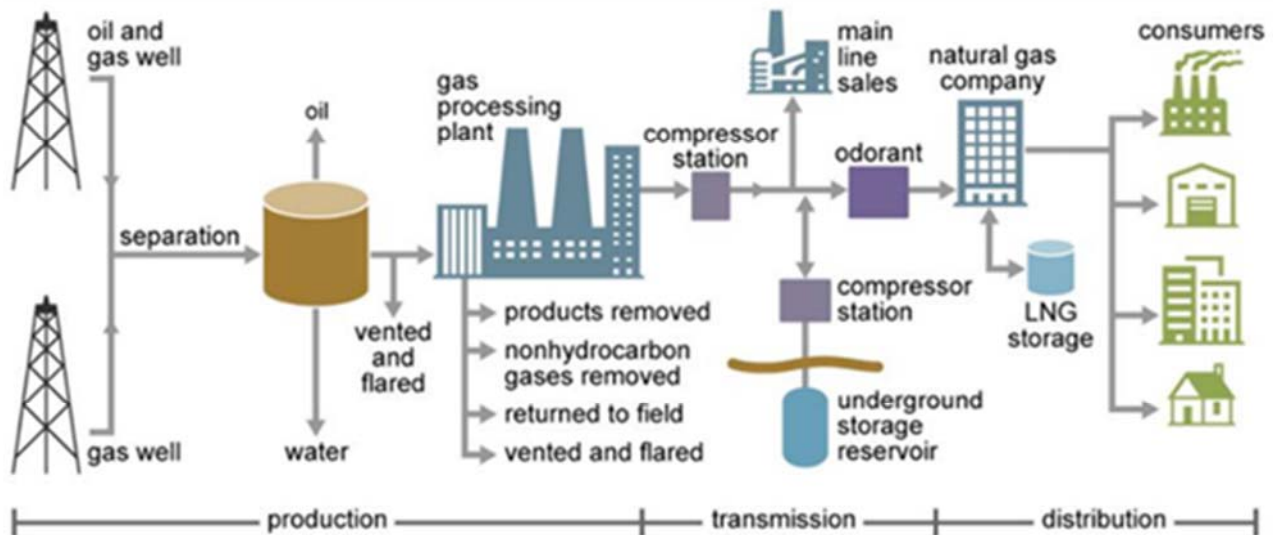
Fuel Oil

CPS Energy maintains an inventory of fuel oil to provide a backup fuel for its gas fired generating units that can burn fuel oil. Fuel oil is utilized in the event of limited natural gas supplies and for testing and training purposes. The oil utilized is ultra-low sulfur diesel, it is sourced from local San Antonio area terminals, and delivered by truck. CPS Energy maintains an onsite inventory of several days of fuel oil burn.

Natural gas

Natural gas is typically an abundant, affordably-priced fuel. CPS Energy purchases natural gas supply for our power plants and to serve our retail natural gas system from many suppliers through a competitive market place. Most natural gas is produced in locations outside of the San Antonio area. As shown in the figure below, and there are several steps required to produce, process, transport, and deliver natural gas to customers.

Natural gas production and delivery



Source: U.S. Energy Information Administration

While CPS Energy planned for natural gas supply for our power plants and to serve our retail natural gas system, it was necessary to purchase additional fuel during this event, which we used to generate power or be a direct source of energy. We have a lot of natural gas under contract all the time, but the projected demand for gas during the February weather event far exceeded what was anticipated across the entire State of Texas. When we purchased this gas, we found that the prices were much higher than the market had ever seen.

With the support of the San Antonio City Council and our Board, we remain committed to pay all reasonable and legitimate costs. We are working to determine how we can pay for this gas without imposing excessive, unlawful, and unconscionable charges to our customers. As a statewide issue, this is a difficult problem that a number of utilities across the state are dealing with, including CPS Energy.

Participation in the Wholesale Market – Winter Weather Event:

CPS Energy generated as much electricity as it could throughout the February



CPS ENERGY & THE TEXAS ELECTRIC MARKET

winter weather event. Some of our generation units had difficulty due to the extreme weather, creating a need to purchase some electricity from the market for some hours during the winter weather event. That is one reason being in ERCOT helps us – it gives us a source of electric power when we need it, not just a market into which we can sell excess power when we have it.

Every MOU & Co-op in Texas (most of which are not participants in the Texas competitive retail market, whether they own generation or buy power from other generation companies) is still impacted by wholesale market prices in Texas.

Load Shed Requirement: As cold weather descended upon the entire State of Texas in the early morning hours on Monday, February 15, generation forced off the system totaled over 30,000 MW due to equipment challenges caused by the severity of freezing temperatures.

When generation shortfalls happen, the grid must be protected to avoid catastrophic failure of the system. To stabilize the grid, when ordered by ERCOT, CPS Energy, along with other market participants, must take the necessary steps to alleviate the emergency situation and return the ERCOT grid to a more stable state. All market participants must cut power to some circuits, or shed load. The required amount of customer load is set by ERCOT and will create customer outages to try to reduce the length of customer interruptions to a minimum. The outages are intended as rolling in the beginning and ultimately end up controlled, as required.

During the February 2021 event, ERCOT required as much as **20,000 MW** of load shed across the State at one time, an event which lasted from Monday morning (2/15 at 1:07 am) through Wednesday evening (2/17 at 11:55 pm), a time period just under 72 hours. This was about 10 times the impact of load shed in 2011.

This was the highest amount of load shed experienced for the longest period of time in history and five times the largest load shed event previously experienced in ERCOT. This challenged utility systems across the state, including CPS Energy.

Previous Load Shed Events:

- Dec. 22, 1989, extreme cold during morning peak, ERCOT directed utilities to shed **500 MW** for 30 minutes



CPS ENERGY & THE TEXAS ELECTRIC MARKET

- April 17, 2006, extreme heat during afternoon peak, ERCOT directed utilities to shed **1,000 MW** for almost 2 hours
- February 2, 2011, after a major snow and ice storm, the unplanned loss of generation during a period of high demand forced ERCOT to direct utilities to shed **4,000 MW** of load for over 7 hours.

ERCOT Load Shed Table

| Transmission Operator | 2019 Total Transmission Operator Load (%MW) |
|--|---|
| AEP Texas Central Company | 8.67 |
| Brazos Electric Power Cooperative Inc. | 4.96 |
| Brownsville Public Utilities Board | 0.37 |
| Bryan Texas Utilities | 0.51 |
| CenterPoint Energy Houston Electric LLC | 24.85 |
| City of Austin DBA Austin Energy | 3.71 |
| City of College Station | 0.28 |
| City of Garland | 0.79 |
| CPS Energy (San Antonio) | 6.79 |
| Denton Municipal Electric | 0.48 |
| GEUS (Greenville) | 0.15 |
| LCRA Transmission Services Corporation | 5.97 |
| Oncor Electric Delivery Company LLC | 36.07 |
| Rayburn Country Electric Cooperative Inc. DBA Rayburn Electric | 1.3 |
| South Texas Electric Cooperative Inc. | 2.48 |
| Texas-New Mexico Power Company | 2.62 |
| ERCOT Total | 100.00 |

CPS Energy will continue to share helpful information and updates about our operations. We welcome any questions you have. Please send questions to feedback@cpsenergy.com.

Glossary

| Terms/Acronyms | Definition/Clarification |
|-------------------------------|--|
| Accelerated Depreciation | Accelerated Depreciation - a depreciation method whereby an asset loses book value at a faster rate than the traditional straight-line method. |
| ADSC | Adjusted Debt Service Coverage - measurement of available cash flow to pay current debt obligations. |
| Affordable Clean Energy (ACE) | Establishes emission guidelines for states to use when developing plans to limit carbon dioxide (CO ₂) at their coal-fired electric generating units (EGUs). |
| Ancillary Services | Products used by ERCOT to maintain reliability minute-by-minute, 365 days per year. There are four main ancillary service products: Regulation Service – Up, Regulation Service – Down, Responsive Reserve Service, and Non-spinning Reserve Service. |
| Baseload | Is the minimum level of demand on an electrical grid over a span of time. Baseload power plants are designed to meet this minimum level of demand. |
| Behind-the-meter | Reference point to what occurs on the energy user's side of the utility meter. |
| BESS | Battery Energy Storage System - are rechargeable battery systems that store energy from solar arrays or the electric grid and provide that energy to a home or business. |
| CAAP | Climate Action and Adaptation Plan - provides a roadmap to achieve equitable climate mitigation and resilience goals for San Antonio, Texas - one of the largest and fastest growing cities in the U.S. The City of San Antonio aims to be carbon neutral by 2050 and the CAAP identifies mitigation strategies intended to advance that goal, inclusive of adaptive ecosystem restoration and social equity strategies. |
| Cash on Hand | Funds available to a company that can be spent as necessary. |
| Calendar Year (CY) | January 1 to December 31 |
| Capacity Factor | The ratio of actual electric energy produced over the maximum possible electric energy that could be produced. |
| Carbon Intensity | The total amount of Carbon Dioxide (CO ₂) emitted by fossil fuel power generation units (coal & natural gas) in pounds (lbs) divided by the total power generation (mwhs) from all generation sources including coal, natural gas, nuclear, and renewables. |
| Clean Air Act (CAA) | The Clean Air Act of 1963 is a United States federal law designed to control air pollution on a national level. |
| CO ₂ | Carbon Dioxide, the most commonly produced greenhouse gas. |
| Combined-Cycle (CC) | A type of power plant (typically natural gas fueled) where power is generated using two thermal cycles, typically a CT (see definition) and a ST (see definition). |
| Congestion | There are limitations on the electrical grid that prevent the flow of power from one location to the next. These limitations create costs for moving power through limited transmission lines. |
| Credit Downgrade | Debt is classified by Credit Rating Agencies based on the risk of the borrower not being able to repay. The Credit Rating Agencies downgrade a credit when they think a borrower has more risks, not as credit worthy. |
| CT | Combustion Turbine - a machine in which air enters, becomes compressed, and is mixed with gas or oil before being ignited. Combustion turbine units are typically used to supplement power supply during peak demand periods when |

| Terms/Acronyms | Definition/Clarification |
|---------------------------------------|--|
| | electricity use is highest. |
| D/C | Debt to Capitalization - the total D/C ratio is a measure that shows the proportion of debt a company uses to finance its assets, relative to the amount of cash (equity) used for the same purpose. |
| Discount Rate | See WACC. |
| DCOH | Days Cash on Hand - represents the number of days a company can continue to pay its operating expenses with the current cash available. |
| DDP | Distribution Development Plan - a plan to manage distribution systems and ensure continuous, reliable, and affordable electricity service to customers through identification of infrastructure requirements. |
| Decay (Energy Efficiency) | Dec the estimated degradation of EE programs over time as products like LED lighting, solar and HVAC equipment reach the end of their engineered life span. |
| Demand Response (DR) | Demand Response is a change in the power consumption of electric customers to better match the demand for power with the supply. Customers may adjust power demand by reducing or shifting tasks that require large amounts of electric power. |
| Depreciation | An accounting reduction in the value of an asset with the passage of time, due in particular to wear and tear. |
| Econometric Regression Computer model | A multiple variable regression model that has application of statistical methods to economic data. |
| ELG | Effluent Limitation Guidelines - are national regulatory standards for wastewater discharged to surface waters and municipal sewage treatment plants. EPA issues these regulations for industrial categories, based on the performance of treatment and control technologies. |
| Energy Efficiency (EE) | Using technology or services that requires less energy to perform the same function. |
| EOY | End of Year |
| EPA | Environmental Protection Agency - an independent executive agency of the United States federal government tasked with protecting people and the environment from significant health risks, sponsoring and conducting research, and developing and enforcing environmental regulations. |
| ERCOT | Electric Reliability Council of Texas - operates the electric grid and manages the deregulated market for 75 percent of the state of Texas. |
| ESG | Environmental, Social and Corporate Governance - refers to the three central factors in measuring the sustainability and societal impact of an investment in a company or business. These criteria help to better determine the future financial performance of companies (return and risk). |
| Fiscal Year (FY) | For CPS Energy, February 1 to January 31. |
| Flexible Path SM | CPS Energy's strategic approach to thoughtfully discover, explore, and implement new power generation and demand-side solutions to transform the utility to lower and non-emitting energy resources over the next 20 years and beyond. |
| FlexPOWER Bundle SM | An initiative supporting the Flexible Path SM strategy; envisioning adding 900 Megawatts of generation capacity by adding solar, storage, and firming capacity to the utility's power generation mix. |
| FlexSTEP SM | A dynamic, flexible program for promoting energy efficiency, conservation, and new technology that builds on CPS Energy's Save for Tomorrow Energy Plan's (STEP) proven model for delivering energy savings and empowering customer choice. |

| Terms/Acronyms | Definition/Clarification |
|-------------------------------------|---|
| FOM | Fixed Operations and Maintenance - is the recurring annual cost that occurs regardless of the size or architecture of the power system. |
| Forecast of Retail Electric Sales | Predicted amount of electrical usage by CPS Energy Customers. |
| Front of the Meter | Reference point to what occurs on the grid side and is deemed to be in front of the utility meter. |
| Generation Production Cost Modeling | A model that is used to forecast the cost of producing electric power. |
| Greater San Antonio | See San Antonio Metropolitan Statistical Area definition. |
| ISO - Electricity | Independent System Operator – An organization formed to coordinate controls and monitors the operation of the electrical power system, in Texas this is ERCOT (See ERCOT above). |
| ISO - Standards | International Organization for Standardization - is an international standard-setting body composed of representatives from various national standards organizations. |
| Kilowatt-hour (kWh) | A standard unit to measure electricity. One kWh is 1,000 watts of electricity used for 1 hour. |
| LOLE | Loss of load expectation, a reliability metric representing how many hours the electricity supply will not meet demand. |
| LRT | Long Range Transmission - allows remote renewable energy resources to be used in populous cities. Hydro and wind sources cannot be moved closer to populous cities, and solar costs are lowest in remote areas where local power needs are minimal. |
| Megawatt (MW) | A measure of capacity to produce electric power. A megawatt equals 1,000 kilowatts or 1,000,000 watts. One megawatt can power about 200 homes on a hot day. |
| Megawatt-hour (MWh) | A unit to measure electricity one MWh is 1 MW used for 1 hour, or 1,000 kWh's. |
| Metropolitan Statistical Area (MSA) | A geographic region with a relatively high population density at its core and close economic ties throughout the area, typically centered on a single large city or multiple large cities that have significant influence over the region. |
| mmbtu | Million British Thermal Units – A measure of the energy content of fuel. |
| Mothballing | For power plants, putting the plant in a deactivated state but not decommissioning/deconstructing the plant. |
| NBV | Net Book Value - is based on the original cost of the asset less any depreciation, amortization or impairment costs made against the asset. |
| NCP | Non-Coincidental Peak, reducing energy consumption throughout the day. |
| NGCC | Natural-Gas Combined Cycle - is an advanced power generation technology which allows to improve the fuel efficiency of natural gas. |
| Non-Spinning Reserve | An Ancillary Service that can be synchronized and ramped to a specified output level within 30 minutes and that can operate at a specified output level for at least one hour. |
| Normalized Residential Use per Bill | An industry standard adopted method that will adjust the diverse weather conditions that exist from year to year to be of a common weather basis. This method is used so comparisons can be done from year to year without skewing due to differing weather conditions. |
| NO _x | Nitrogen oxides - may refer to a binary compound of oxygen and nitrogen, or |

| Terms/Acronyms | Definition/Clarification |
|---|--|
| | a mixture of such compounds. |
| NPV | Net Present Value - is the calculation used to find today's value of a future stream of payments. It accounts for the time value of money and can be used to compare investment alternatives that are similar. |
| O&M Expense | Operations and Maintenance Expense – are costs incurred to keep an item in good operating condition. |
| Particulate Matter (PM) | Solid particles and liquid droplets found in the air. |
| PPA | Power Purchase Agreement - a contract between two parties, one which generates electricity (the seller) and one which is looking to purchase electricity (the buyer). |
| PRB | Powder River Basin is a geologic structural basin in southeast Montana and northeast Wyoming, about 120 miles east to west and 200 miles north to south, known for its coal deposits. The region supplies about 40 percent of coal in the United States. |
| R&R | Repairs and Replacement Account – in accordance with CPS Energy's Bond Ordinances, a restricted cash account which may be used to fund construction costs. |
| Regulation Down Service | An Ancillary Service that provides capacity that can respond to signals from ERCOT within five seconds to respond to changes in system frequency. |
| Regulation Up Service | An Ancillary Service that provides capacity that can respond to signals from ERCOT within five seconds to respond to changes in system frequency. |
| Reliability | Reliability is the ability of a utility to provide power at any given time. Outages are disruptions of reliability. |
| Reserve Margin | Defined as (generation capacity minus peak load) divided by the peak load. Represents the ability of electric production to meet electric consumption. |
| Residential Use per Bill | The amount of energy usage a customer consumes in a home. Often used as an average across all residential customers per year |
| Resiliency | The ability to quickly recover from outages. |
| Responsive Reserve Service | An Ancillary Service that provides operating reserves that is intended to: (a) Arrest frequency decay within the first few seconds of a significant frequency deviation; (b) After the first few seconds of a significant frequency deviation, help restore frequency to its scheduled value to return the system to normal; (c) Provide energy or continued load interruption during the implementation of the Energy Emergency Alert (EEA); and (d) Provide backup regulation. |
| RICE | Reciprocating Internal Combustion Engine - are devices that convert the chemical energy contained in a hydrocarbon into mechanical energy (rotation of a shaft with a certain speed and torque) and into the thermal energy of the waste gases that escape into the atmosphere. |
| RIF | Reduction in Force - is when an employee is let go from a company due to budgetary reasons, workforce planning initiatives, position eliminations or other right-sizing events. |
| Rooftop Solar PV | Rooftop Solar Photovoltaic (PV) is a system that has electricity generating solar panels mounted on the rooftop of a residential or commercial building or structure |
| San Antonio Metropolitan Statistical Area | Area in Texas made up of eight counties: Atascosa, Bandera, Bexar, Comal, Guadalupe, Kendall, Medina, & Wilson. This area is also reerred as "Greater San Antonio". |

| Terms/Acronyms | Definition/Clarification |
|-------------------------|--|
| SCR | Selective Catalytic Reactor – An electric generating plant system that reduces nitrogen oxides emissions |
| SM | A service mark identifying services owned by CPS Energy. Similar to a Trademark, but legally distinct. |
| SO ₂ | Sulfur dioxide - a toxic gas responsible for the smell of burnt matches. It is released naturally by volcanic activity and is produced as a by-product of copper extraction and the burning of fossil fuels contaminated with sulfur compounds. |
| Spruce | J.K. Spruce Power Plant |
| ST | Steam Turbine – Equipment in an electric generating plant, driven by the pressure of steam, that rotates to drive an electric generator |
| STEP | CPS Energy's Save for Tomorrow Energy Plan - an innovative energy conservation program with the goal to save 771 Megawatts (MW) between 2009 and 2020. The cost of the program was initially estimated at \$849 million, with annual costs ranging from \$12 million to over \$77 million. We achieved the community's goal of reducing energy demand by 771 MW! In fact, the goal was achieved a year ahead of schedule and 15% under budget. |
| STP | South Texas Project - a nuclear power station southwest of Bay City, Texas, owned by NRG Energy, Inc., Austin Energy, and CPS Energy. |
| Stranded Asset | An asset that has suffered from unanticipated or premature write-downs, devaluations or conversion to liabilities. |
| Terawatt-hour (TWh) | 1 billion kilowatt-hours (kWh) |
| Utility Cost Test (UCT) | A way to measure the benefits of a program with respect to the cost of achieving those benefits. |
| VOM | Variable Operations and Maintenance |
| WACC | Weighted Average Cost of Capital - the rate that a company is expected to pay on average to all its security holders to finance its assets. |
| Wholesale | The sale of goods (specifically power) to retailers. Effectively power sold to other power companies. |
| Wholesale Market | See Wholesale Power Market |
| Wholesale Power Market | Market where electricity can be bought and sold by power producers and electricity retail companies. |
| WRnF | Wholesale Revenue Net Fuel – the revenues from market sales of incremental power produced less the cost of fuel to produce the power. |