



CEO'S REPORT

FEB. 2021 EXTREME WEATHER EVENT

REGULAR BOARD MEETING

PRESENTED BY:

Paula Gold-Williams

President & Chief Executive Officer (CEO)

February 22, 2021

Informational Update

OBJECTIVES & TAKEAWAYS



- REVIEW OUR *GUIDING VALUE PILLARS*
- REVIEW THE IMPORTANCE OF *RELIABILITY & AFFORDABILITY*
- REVIEW OUR DIVERSE GENERATION PORTFOLIO
- REVIEW OUTAGE-INSTRUCTION VELOCITY
- TAKE STOCK OF BENEFITS & CHALLENGES WITH ALL ENERGY TECHNOLOGIES
- PREVIEW FUTURE PRIORITIES

- ***OUR GUIDING VALUE PILLARS***
- ***RELIABILITY & AFFORDABILITY***
- **GENERATION PORTFOLIO**
- **OUTAGE-VELOCITY**
- **TECHNOLOGY PERFORMANCE REVIEW**
- **NEXT STEPS**

DISCLAIMER



We continue to work through the unprecedented global, national, state, and local implications of COVID-19. Additionally, energy generation technologies and electric market policies continue to evolve, and the economic implications of these changes remain uncertain. Our current projections were prepared in-light of these factors for preliminary informational discussion purposes only. Due to the changing COVID-19 pandemic, technology, and policy environments, these projections are preliminary and subject to change at any time in the future. Please be assured that we worked hard to thoughtfully think through our analyses. This said, since there is tremendous uncertainty across the current economic, financial, regulatory, and legislative landscapes, the actual results over the long-term could vary significantly from what we are projecting at this time.

We will continue to perform economic analyses of various generation portfolio compositions. These current analyses are preliminary and based on internal, as well as external data, and will continue to evolve as more information becomes available.

Please also note that much of the data is subject to change, thereby impacting projected outcomes. This document has therefore been prepared for informational discussion purposes only and data presented is as of the date of this document. The CPS Energy management team looks forward to community conversations that will focus on this information. CPS Energy's contributions to those discussions will be constructive, respectful, open, and helpful.

OUR *GUIDING PILLARS* & FOUNDATION



Reliability



*Customer
Affordability*



Security



Safety



*Environmental
Responsibility*



Resiliency



● *Financially Responsible* ●

All business decisions are based on our commitment
to being one of the best-managed & most
Financially Responsible utilities in the nation!

PRIORITIZED PILLARS AS SURVEYED



HISTORICAL KNOWLEDGE:
Customers have consistently told us that
their first priorities are:

Reliability



We work to prevent
ROLLING BLACKOUTS!

Customer Affordability



We work to prevent
BILL SHOCK!

OUR AFFORDABILITY PILLAR

BILLS – MINIMAL HISTORICAL INCREASES

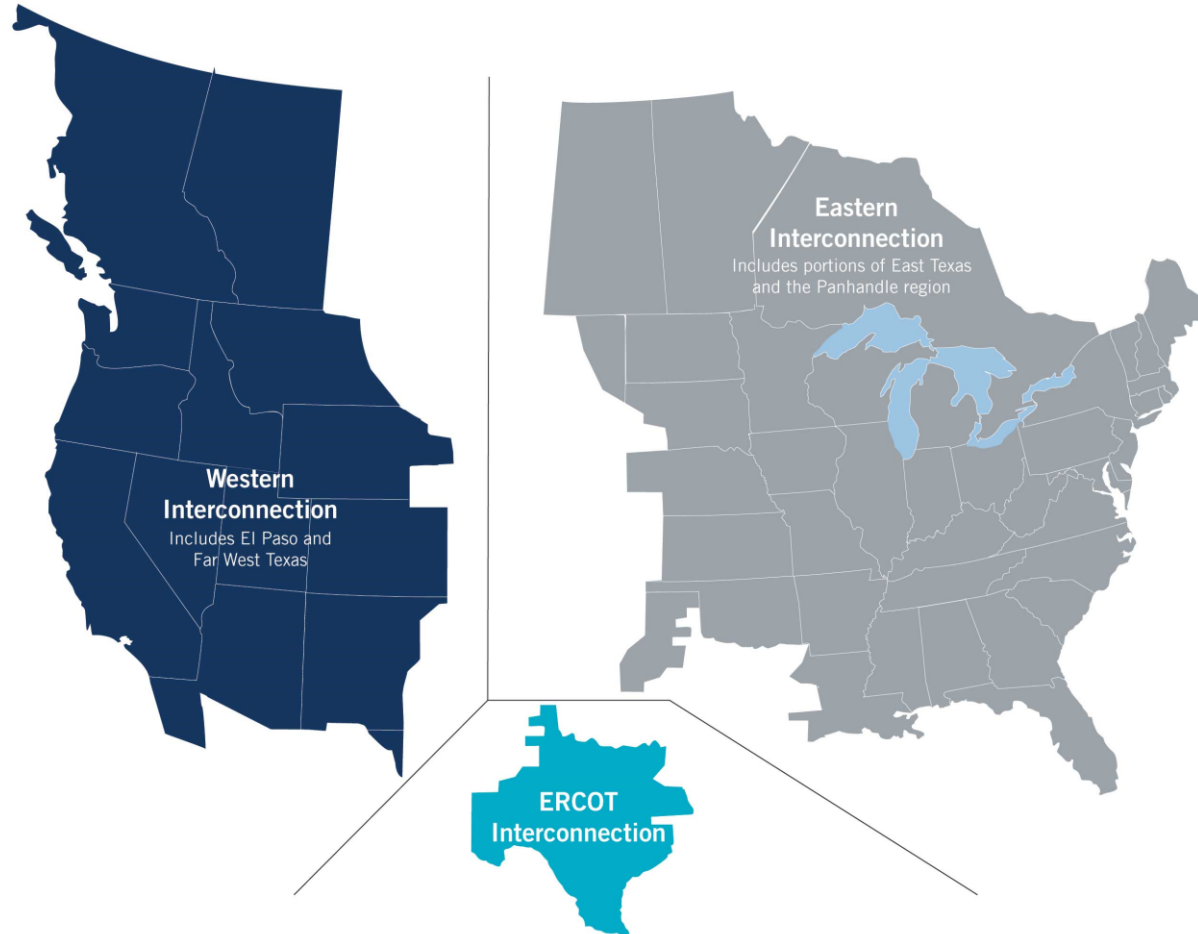


CONTROLLING COSTS, KEEPING BILLS LOW:

CUSTOMER AFFORDABILITY:

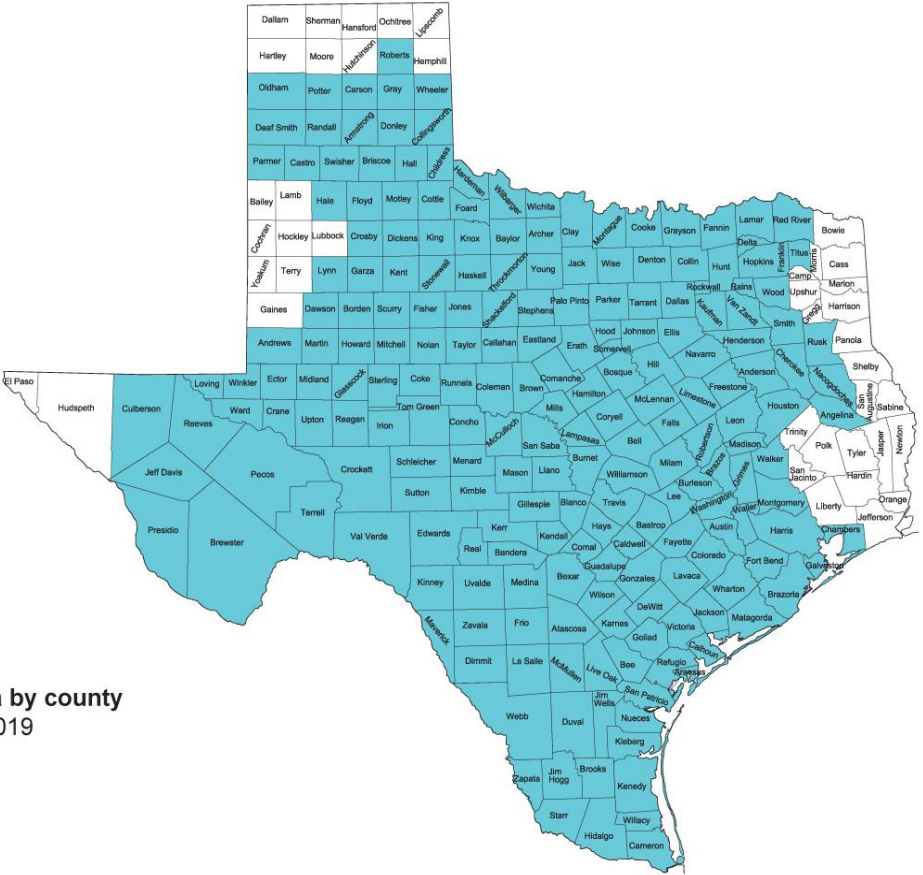
- We have had **ONLY 1 Rate Increase** in almost **11 years**.
- That **1 Rate Increase** was **7 years ago**.
- Our generation portfolio has protected S.A. from energy market **PRICE SPIKES**.

NATIONAL GRIDS



**These are the
Electric Reliability
Council Of Texas
(ERCOT) & the
North American
Electric Reliability
Corporation
(NERC) regions.**

ERCOT BY COUNTY



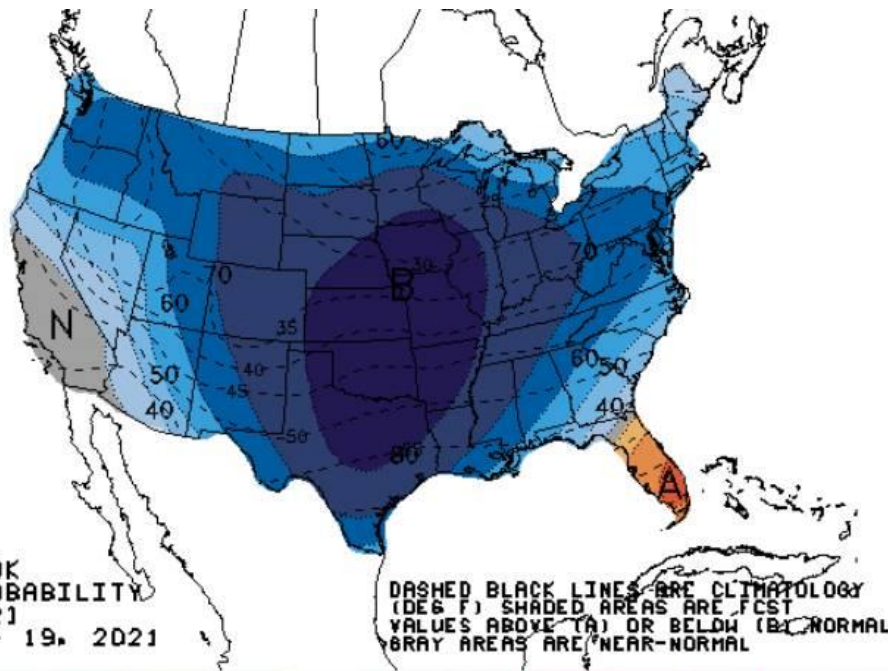
ERCOT area by county
as of June 2019

**Normally
because Texas is
such a large
state, large
weather systems
do not cover the
entire state.**

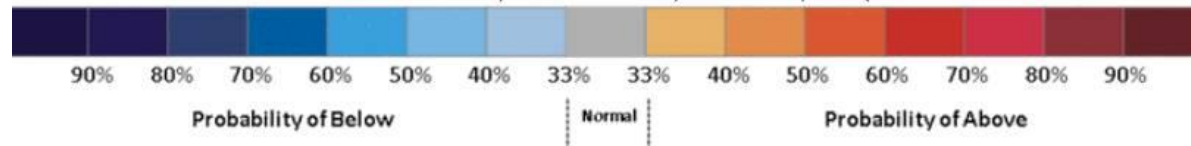
FEB. 2021 COLD WEATHER EVENT



6-10 DAY OUTLOOK
TEMPERATURE PROBABILITY
MADE 9 FEB 2021
VALID FEB 15 - 19, 2021



DASHED BLACK LINES ARE CLIMATOLOGY
(DEG F) SHADED AREAS ARE FCST
VALUES ABOVE (A) OR BELOW (B) NORMAL
GRAY AREAS ARE NEAR-NORMAL



**Sustained
temperatures
below freezing
for 5 days in
San Antonio
broke the
previous record
that was set in
1959.**

Extreme cold weather across the U.S. & into South Texas drove strikingly high demand for energy & natural gas.

HEADLINES



February 15, 2021

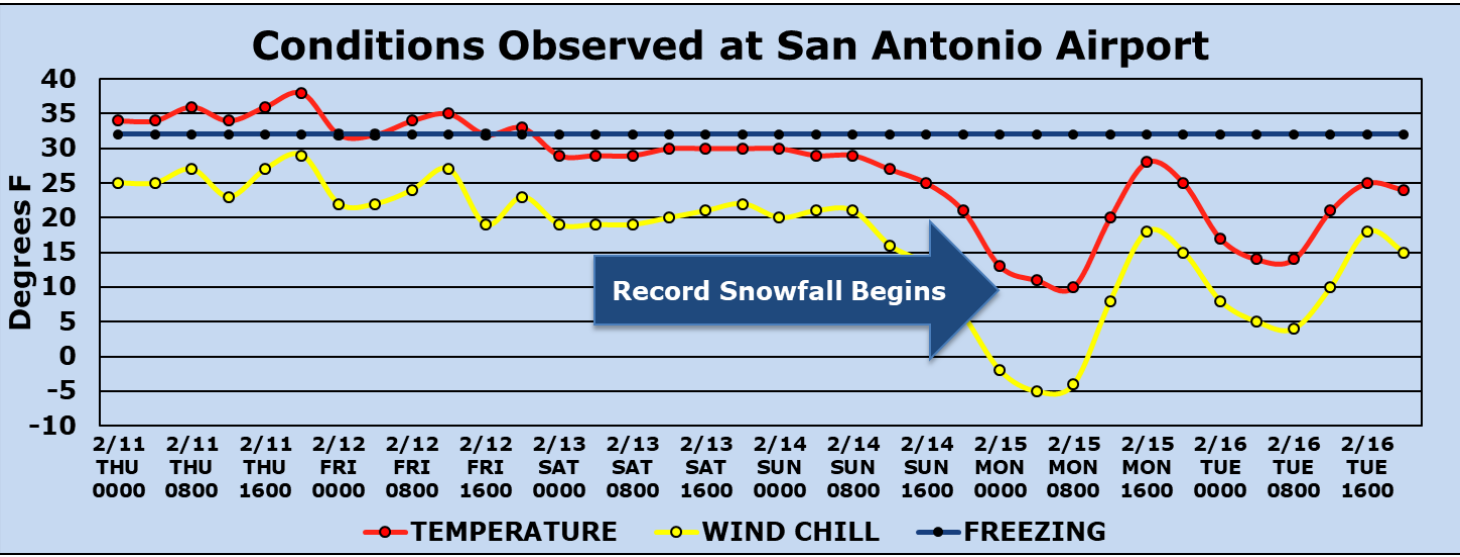
ERCOT calls for rotating outages as extreme winter weather forces generating units offline

“There is now over 30,000 MW of generation forced off the system.”



BARRON'S

Natural-Gas Prices Are Soaring Because of a Brutal U.S. Storm



Frozen wind turbines hamper Texas power output, state's electric grid operator says

statesman.com

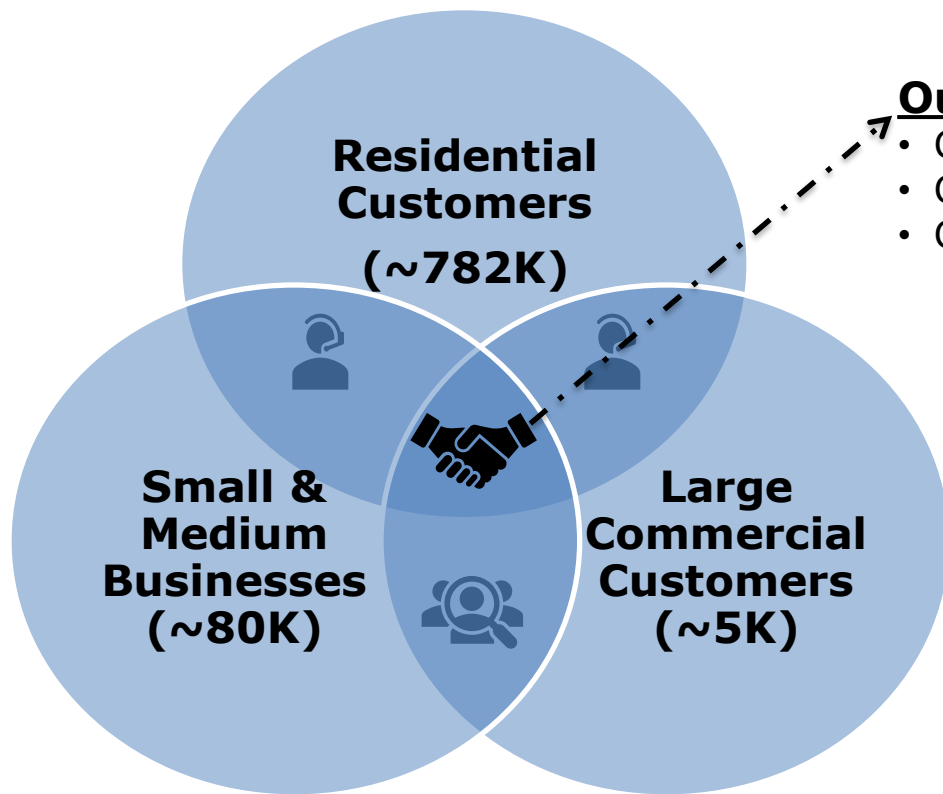
COMMUNICATIONS



RECAP OF EVENTS DURING THE FEB. 2021 EXTREME WEATHER EVENT

- **News Releases – 6**
- **Interviews – 33**
- **Media Briefings – 5**
- **Social Media Posts – 37**
- **Voice Mails to Customers – 2**
- **Next-door Posts – 11**
- **Facebook Live – 76,100 views**

AVAILABLE FOR CUSTOMERS



Our Teams Were Here to Serve:

- Community Programs – 19 employees
- Customer Service – 166 employees
- Customer Value Optimization – 12 employees

We received over 625,000 calls & leveraged resources to help manage updates when possible. Our team members stepped up, talking to ~20,000 customers to share the best information that we had at the time.

KEY FOCUS AREAS



COMMUNICATION!

CONSERVATION!

**THESE ARE ALSO
MAJOR FOCAL POINTS FOR US
IN THE FUTURE.**

GENERATION BASELOAD RESOURCES

GENERATING UNITS: EXISTING, RETIREMENTS & PROJECTED CLOSURES

Unit	Type	Summer Capacity (MW)	Year On Line	Technical End of Life (End of CY)	Potential End of Life (End of CY)
RETIRED:					
J. T. Deely 1	Coal Steam	420	1977	2033	Retired in 2018
J. T. Deely 2	Turbine	420	1978	2034	Retired in 2018
RETIRING BEFORE 2030:					
V. H. Braunig 1	Gas Steam Turbine	217	1966	2024	2024
V. H. Braunig 2		230	1968	2024	2024
V. H. Braunig 3		412	1970	2024	2024
O. W. Sommers 1		420	1972	2026	2026
O. W. Sommers 2		410	1974	2028	2028
TECHNICAL LIFE EXTENDS BEYOND 2030:					
Arthur Von Rosenberg	Gas Combined Cycle	518	2000	2045	TBD
Rio Nogales		779	2002	2047	
MBL CT1-4	Gas Simple Cycle	182	2004	2039	
MBL CT 5-8		191	2010	2045	
STP1	Nuclear	516	1988	2047	
STP2		512	1989	2048	
SWRI/Battery System	Solar PV/Battery System	5/10	2019	TBD●	
COAL:					
J K Spruce 1	Coal Steam Turbine	560	1992	2047	2028/2029 ●●
J K Spruce 2		785	2010	2065	Convert to Gas 2027 ●● Retire TBD ●●

CLOSED

OLDEST

CY – Calendar Year

- Being a new system, the technical life is currently difficult to estimate, particularly relative to the batteries. The actual operational demands of this technology may result in a replacement schedule that is more frequent than the manufacturer's initial estimates.

**NEW
OPTIONS
BEING
ASSESSED**

- This potential date has not been finalized or approved by the Board of Trustees. For discussion purposes, this scenario was modeled and assumes the unit would possibly be off-line or converted before 2030.

GENERATION RESOURCES

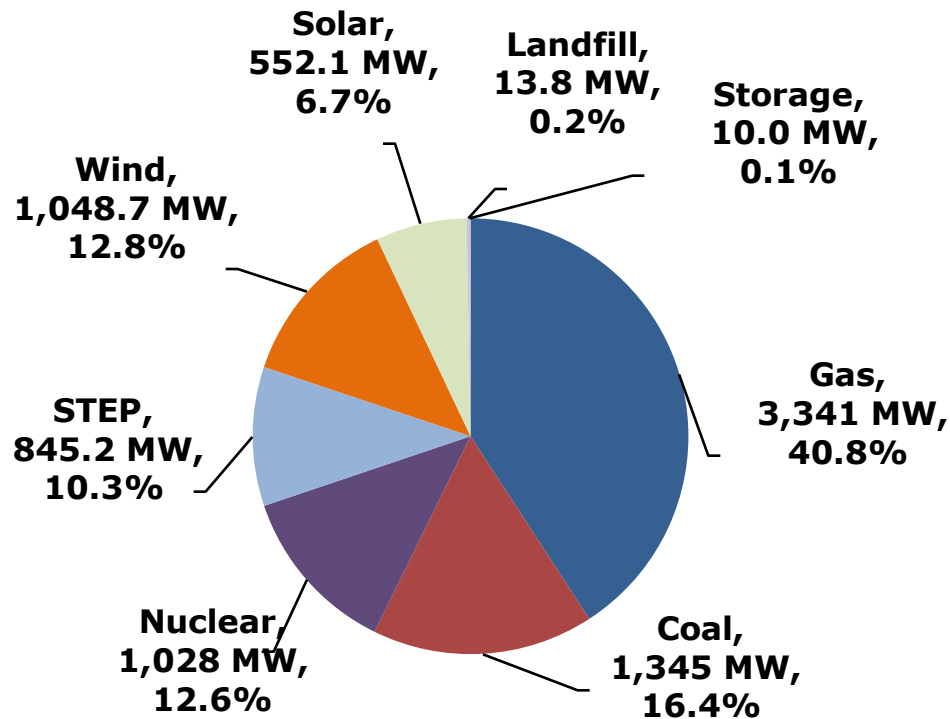
STRONG DIVERSIFICATION



S.A. is well-served by a wide variety of owned assets, Purchased Power Agreements (PPAs), & energy efficiency & conservation solutions¹.

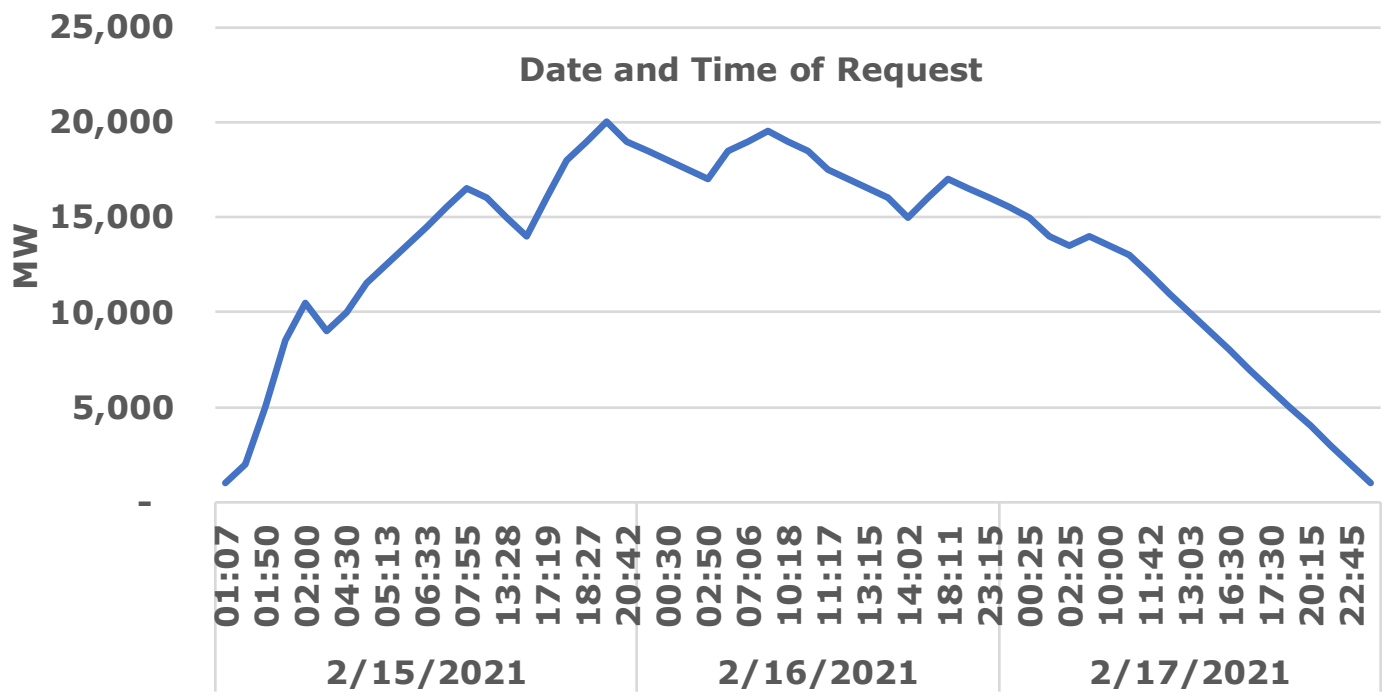
¹ Save for Tomorrow Energy Plan (STEP)

MAXIMUM CAPACITY AS OF 12/31/2020



REQUEST FROM ERCOT

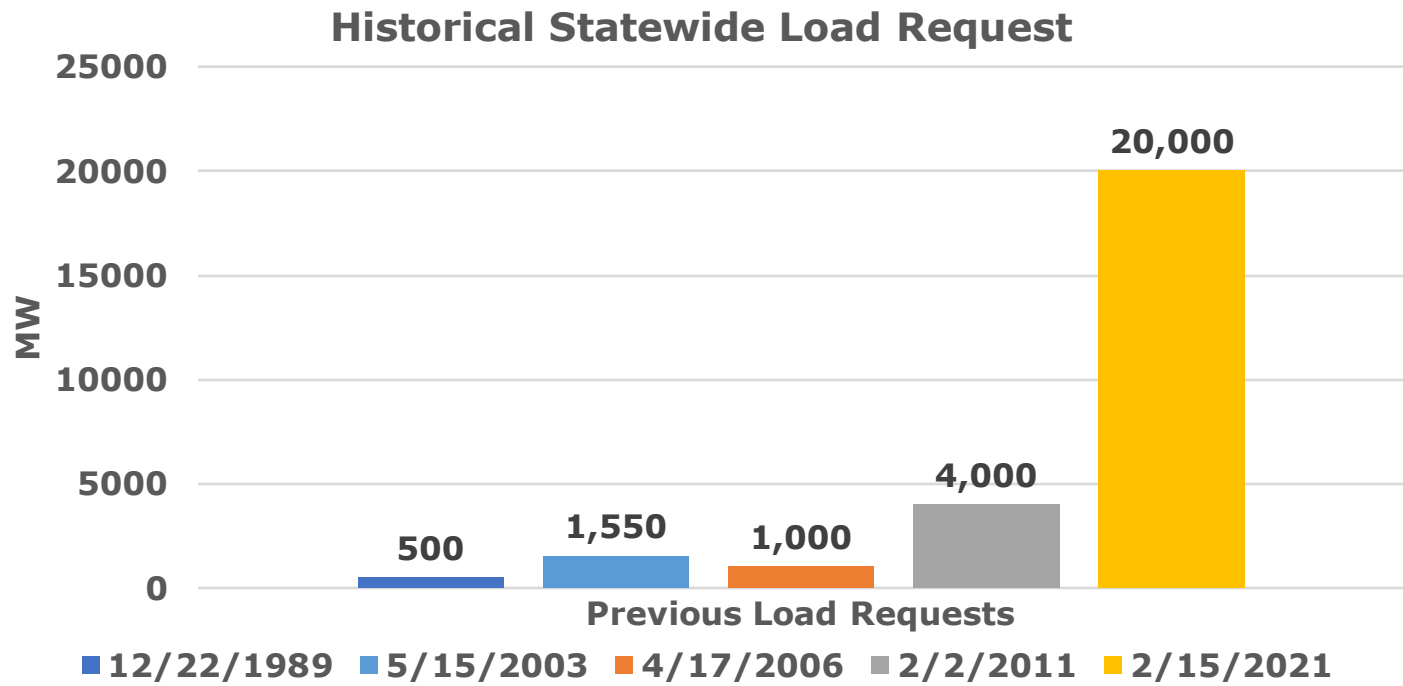
HOURLY STATEWIDE



ERCOT requested a total system-wide load shed ranging from 1,000MW to a high of 20,000MW. This request was 5X higher than the previous maximum request & we had to shed our portion.

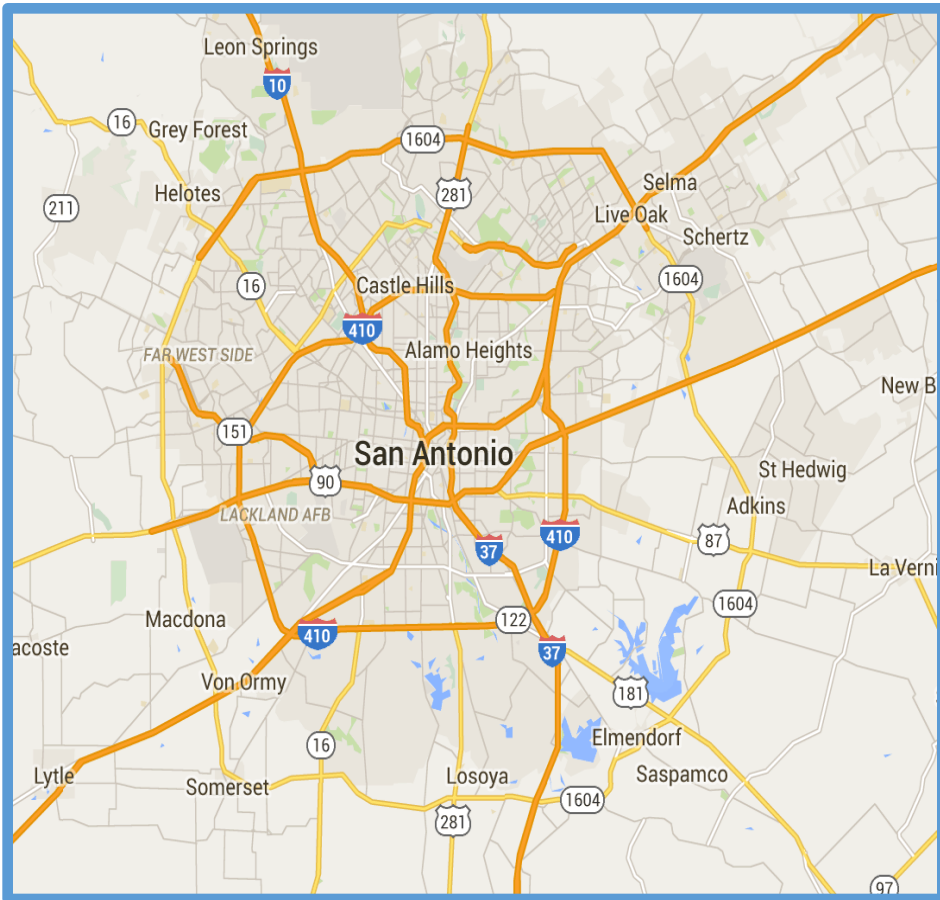
REQUEST FROM ERCOT

HISTORICAL REQUEST



We have received requests from ERCOT in the past, but nothing compared to the requests during last week's Extreme Winter Event.

SA's GRID



CIRCUITS:

- TOTAL - LESS

- ☐ CRITICAL

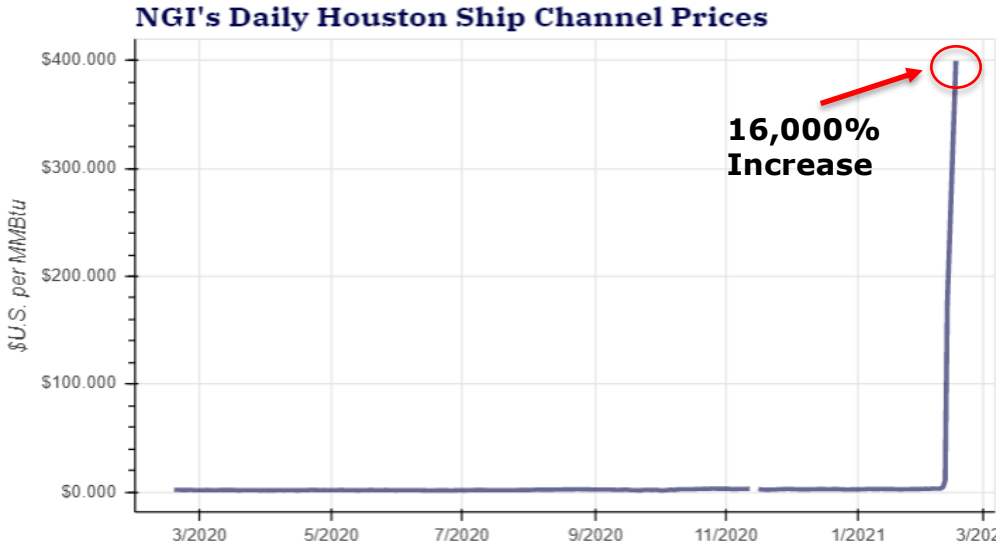
- ☐ HIGH-FREQUENCY /
STABILIZATION

**GOAL: PREVENT
FULL & EXTENDED
BLACK OUT ACROSS
THE CITY & STATE!**

NATURAL GAS PRICES



Houston Ship Channel Daily Natural Gas Price Snapshot



DAILY GPI
MARKETS | NATURAL GAS PRICES | NGI ALL NEWS ACCESS

Spot Natural Gas Prices Surge to \$600 as Deep Freeze Cuts Production, Fuels Record Demand

ELECTRIC POWER | NATURAL GAS — 05 Feb 2021 | 23:21 UTC — New York

Polar vortex spikes US spot gas prices across the country



Gas at One U.S. Hub Is Trading at \$999. Last Week It Was at \$4
A polar blast in the central U.S. has pushed natural gas prices at one trading hub up 24,000% from a week ago.
[bloomberg.com](https://www.bloomberg.com)

BARRON'S

Natural-Gas Prices Are Soaring Because of a Brutal U.S. Storm

Natural gas prices experienced staggering spikes across the state.

ACTIVATED LESSONS LEARNED FROM THE 2011 EVENTS:

- PREVENTIVE MEASURES:

- **Focus on the smaller / narrower pipes**
- **Check Insulation**
- **Wrap Around-the-clock output (called baseload)**
- **Visual inspections**

This was Extremely Challenging because of cold temperatures for multiple days.

GAS COMBINED CYCLE



**Our 518 MW Arthur
von Rosenberg Plant**



**759 MW
Rio Nogales Plant**



- **RESOURCE FEATURES:**

- Around-the-clock output (called baseload)
- Very efficient
- Low emissions
- Gas fuel supply usually low-priced

- **RECENT WEATHER EVENT:**

- Gas fuel price increased significantly
- Challenges to gas fuel supply
- Big 8" width & 50' length water line froze
- De-rated units due to fuel supply

GAS STEAM



830 MW Sommers Plant



859 MW Braunig Plant



- **RESOURCE FEATURES:**

- Mature / Proven technology
- Generally used for summer peaking needs
- Units are aging & present reliability risk
- Gas fuel supply usually low-priced

- **RECENT WEATHER EVENT:**

- 1 Unit in planned maintenance
- Gas fuel-price increased significantly
- Equipment failure - air fan inlet vane froze
- De-rated unit because of supply issues

- **RESOURCE FEATURES:**

- Around-the-clock output (called baseload)
- Coal-fuel is stored on-site with 1-2 months of supply
- Coal-fuel price is affordable & stable in price
- Emissions are higher than natural gas resources
- Future regulatory requirements may be expensive

1350 MW Spruce Plant



- **RECENT WEATHER EVENT:**

- Provided affordable & stable fuel cost during event
- 1 unit had environmental equipment failure / de-rated / temporary alternate fuel source

NUCLEAR RESOURCES



- **RESOURCE FEATURES:**

- No emissions
- Around-the-clock output (called baseload)
- High availability
- Uranium fuel is affordable & stable in price
- Slower ramp power ups & downs

- **RECENT WEATHER EVENT:**

- Provided affordable & stable fuel-cost during event
- Feedwater pump sensing line 3/8" width & 5" length froze

2700 MW (CPS Energy owns 40%)



BATTERY STORAGE



- **RESOURCE FEATURES:**

- Fast responding
- No discharge emissions
- This an evolving technology / reliability risk
- Longer durations are needed for enhanced reliability
- Longer duration now more costly

- **RECENT WEATHER EVENT:**

- Charging not allowed during grid emergency
- Batteries used early were unable to contribute again during the event

10 MW – 1-Hour Battery System at Southwest Research Institute



STEP RESOURCES

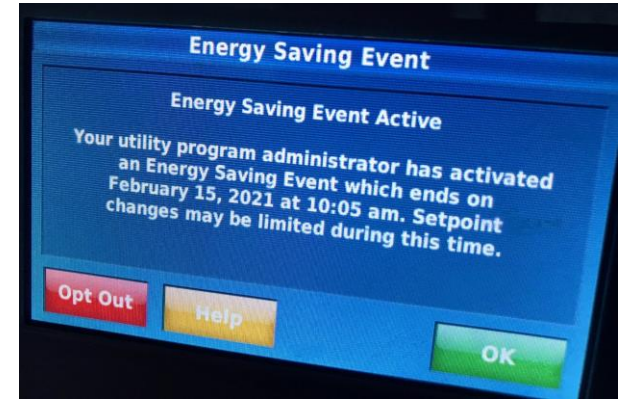


- **RESOURCE FEATURES:**

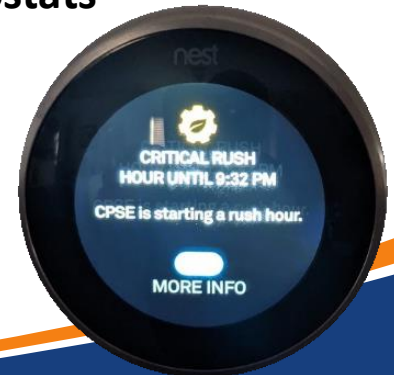
- Voluntary customer participation
- No emissions
- Approximately 245MW of customer usage reduction from conservation programs is a valuable resource

- **RECENT WEATHER EVENT:**

- Additional small amount of usage reduction due to extremely cold temperatures



Notifications to customers via thermostats



SOLAR RESOURCES



- **RESOURCE FEATURES:**

- No emissions
- Geographically diverse
- Output is only available during daylight hours
- Output reduced by cloud cover & ice

- **RECENT WEATHER EVENT:**

- Very little solar output at peak winter usage hours (early morning & early evening)
- Output also reduced by snow

William Sinkin Solar Plant located at the SAWS Dos Rios Waste Water Treatment Site in South S.A.



WIND RESOURCES



- **RESOURCE FEATURES:**

- No emissions
- Geographically diverse
- Output varies depending on weather conditions
- Must be shut down during winter icing events

- **RECENT WEATHER EVENT:**

- ERCOT-wide, some outages due to icing
- CPS Energy, outages due to icing

**Papalote Creek Wind Farm
Near Corpus Christi**



WHERE ARE WE?



- **CONTINUALLY MANAGING THE SYSTEM:**
 - **Same System Across Texas**
 - **Managed Through: Zonal → Nodal / Energy vs. Capacity**
 - **Highly Transactional – Low-cost energy prices all year long**
 - **Worked with other market participants to prevent system failure!**
 - **Used every tool in our toolbox!**
 - **Same issues across Texas**

WHERE ARE WE?



- **CURRENT NEXT STEPS:**

- **Looking for more improvements – Design changes & more investment in infrastructure, *Resilience* & *Reliability***
- **Remain mindful of *Customer Affordability* – Working to protect customers from exorbitant bills**
- **Since last Saturday – Holding bills / suspending auto-pay program**



Thank You