



Extreme Cold & Winter Weather | Update #2

REPORT TIME & DATE: 12:00 PM EST | Wednesday, February 17, 2021

REPORT DISTRIBUTION: Public

EXECUTIVE SUMMARY

An arctic air mass is impacting the Central United States, bringing snow, ice, and extreme cold temperatures from the Canadian border as far south as Texas, causing record winter power demand and impacting power generation. The Electric Reliability Council of Texas (ERCOT) has directed utilities to implement controlled power outages across Texas to manage load since early Monday. The Southwest Power Pool (SPP), and the Midcontinent Independent System Operator (MISO) also implemented controlled outages on Monday and Tuesday. The arctic air mass is expected to continue impacting the region through the remainder of the week, and additional winter weather is forecast in Texas on Wednesday.

Electricity Sector Summary

- As of 10:30 AM EST, February 17, the Energy Emergency Alert (EEA) Level 3 for ERCOT remains in place due to operating reserves falling below the required minimum as high demands related to ongoing severe winter weather event exceeded available generation capacity. Generation resources are strained due to cold weather tripping units, natural gas supply curtailments and some wind power generation outages. ERCOT has instructed utilities to shed firm load and implement controlled outages. Controlled (rotating) outages could continue throughout the day.
 - As of 9:30 AM EST, there were at least 3.4 million power outages across Texas and Louisiana, with 3.3 million outages in Texas. This is down from more than 4 million customers without power on the afternoon of February 16.
 - ERCOT directed member utilities to restore an additional 600,000 customers overnight, in addition to the 400,000 customers restored on the afternoon of February 16.
 - Although a substantial number of customers are out due to the controlled power outages, some of the customers are without power in Texas and Louisiana due to damaged infrastructure from the ongoing winter weather.
- SPP has restored its controlled outages and downgraded its status to EEA Level 2, and MISO has issued a Maximum Generation Alert through 11 PM EST, February 17.

Natural Gas Sector Summary

- Extreme cold temperatures have led to sharp increases in gas demands for home heating and electricity generation across much of the Central United States. At the same time, the cold has led to well freeze-offs and natural gas processing plant outages that have caused supply disruptions in several producing areas, especially in the U.S. South Central region (TX, OK, KS, LA, AR, MS, AL), which typically accounts for approximately 20-25% of total U.S. gas production.

Petroleum Sector Summary

- As of February 17, there is approximately 3.3 million barrels per day (b/d) of capacity, equal to about 18% of total U.S. refinery capacity. Reported impacts are primarily concentrated in the Texas Gulf Coast region.

DOE ACTIONS**DOE ENERGY RESPONSE ORGANIZATION (ERO): ACTIVATED: Enhanced Watch**

- DOE is coordinating with industry, interagency, and state partners to provide situational awareness and support restoration efforts.
- DOE is holding daily unity of effort calls with electricity and oil and natural gas partners and is in regular contact with the North American Electric Reliability Corporation.
- Following a formal petition from ERCOT on February 14, the Acting Secretary of Energy issued an emergency order pursuant to section 202(c) of the Federal Power Act to authorize the dispatch of additional generation units in the ERCOT region to help ensure reliability. This allows ERCOT to dispatch generation units they deem necessary to meet electricity demand from February 14 through February 19, 2021 even if they are in exceedance of limits for sulfur dioxide, nitrogen oxide, mercury, and carbon monoxide emissions, as well as wastewater release limits. A copy of the order and additional information can found at:

<https://www.energy.gov/oe/downloads/federal-power-act-section-202c-ercot-february-2021>.

ELECTRICITY SECTOR

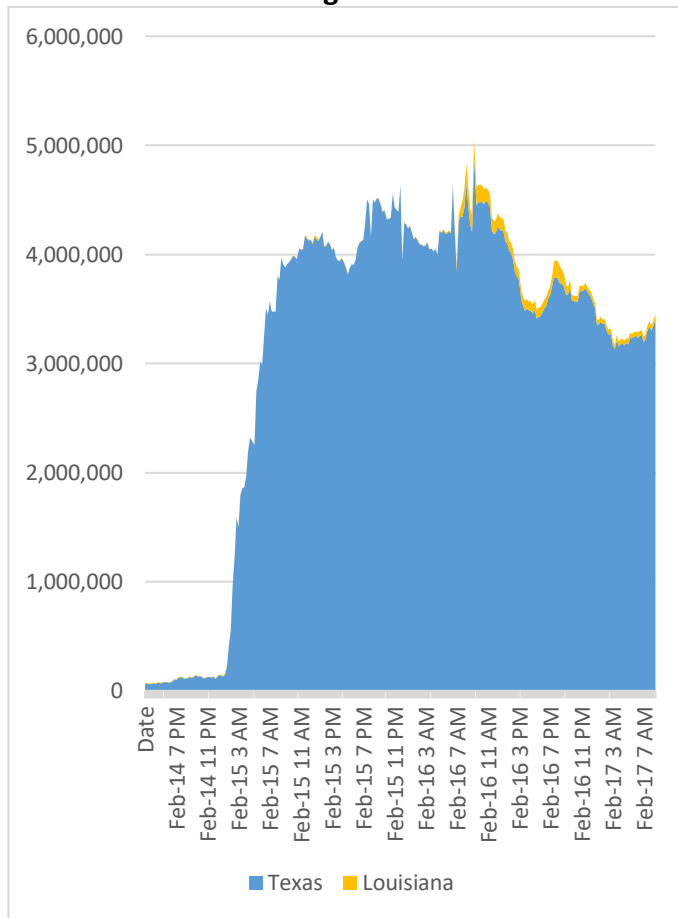
POWER OUTAGES

- As of 9:30 AM EST, there were at least 3.39 million power outages across Texas and Louisiana, including 3.34 million outages in Texas.
- In addition, there are 157,679 customers out in Oregon as of 9:30 AM EST due to a winter storm, which affected the region over the weekend.

Texas and Louisiana Customer Power Outages <i>as of 9:30 AM EST 02/17/2021</i>				
State	Current Outages	% of State Without Power	Peak Outages	% Restored from Peak
Texas*	3,341,984	28%	4,893,204	32%
Louisiana	45,706	2%	211,496	78%
Total	3,387,690	-	-	-

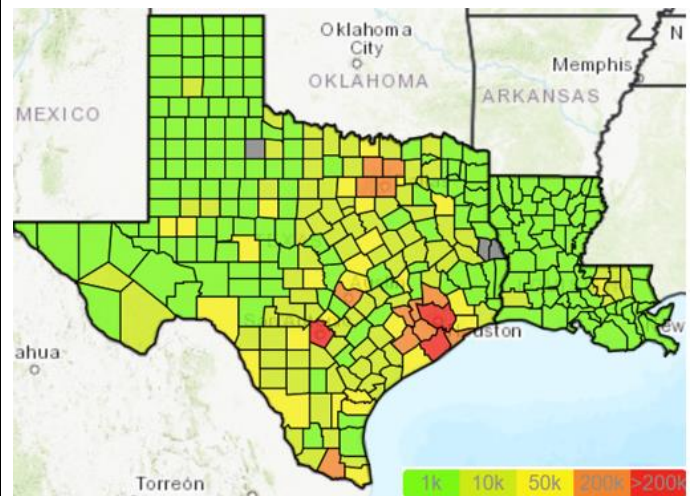
*Total outages, including both controlled outages and storm-related outages. Outage information for Pedernales Electric is unavailable as of 9:45 AM EST on February 17 and is not included in the Texas total.

Outage Chart



9:30 AM EST 02/17/21

Outage Map

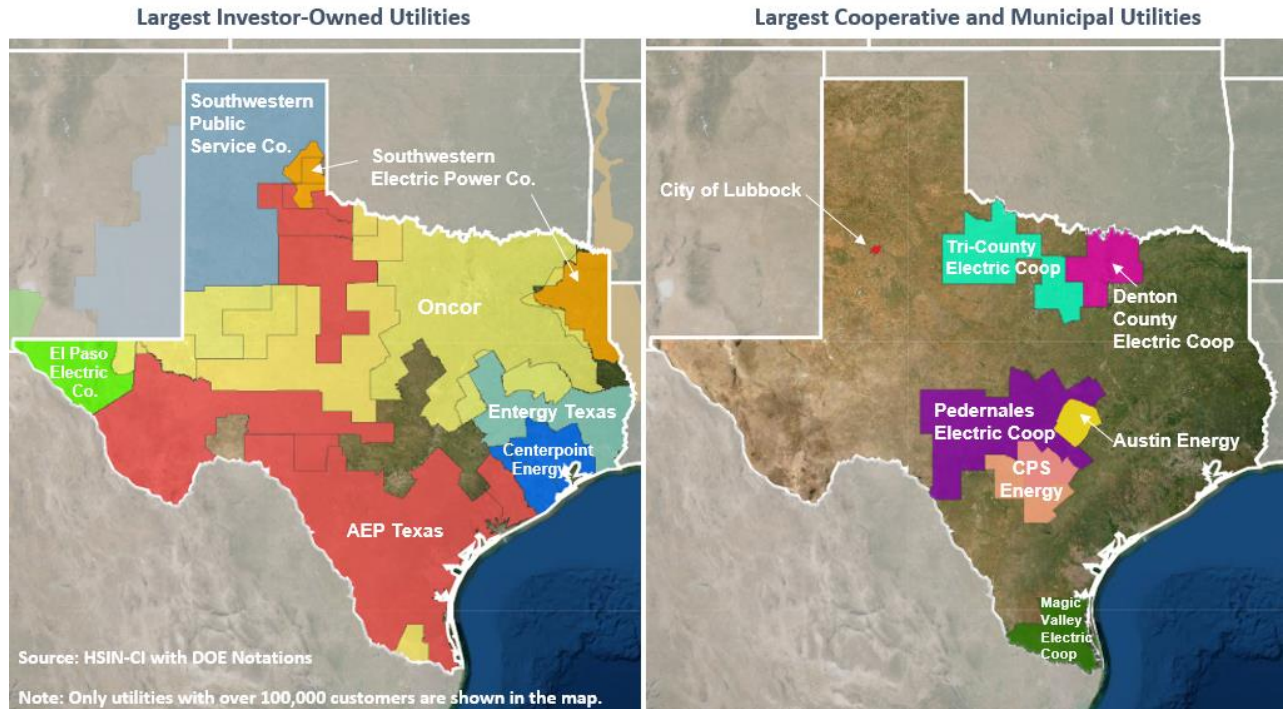


9:30 AM EST 02/17/21



ELECTRICITY OVERVIEW

- **ERCOT:** As of 9:30 AM EST on February 17, ERCOT remains in EEA Level 3.
- **SPP:** As of 6:30 PM EST on February 16, SPP declared an EEA Level 2, in which members companies are asked to issue public conservation appeals. The alert will remain in effect until further notice. SPP currently has enough online generating capacity to meet system-wide demand.
- **MISO:** As of 9:30 AM EST on February 17, MISO had terminated EEAs and issued a Maximum Generation Alert for its South Region through 11 PM EST.

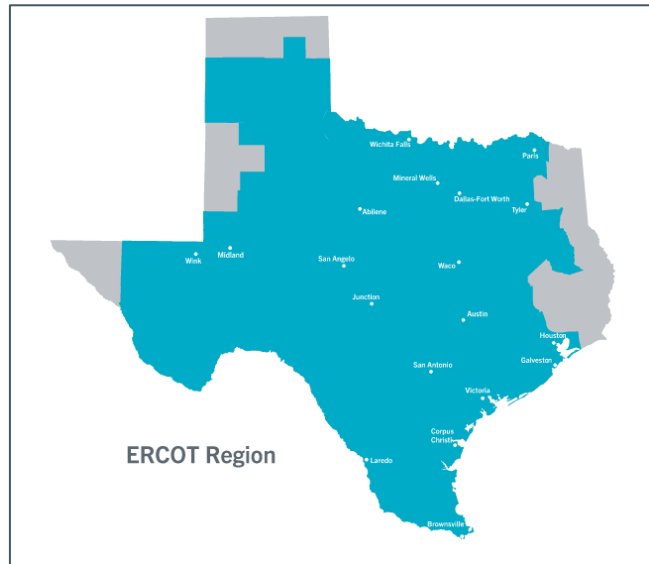


REGIONAL DETAILS

ERCOT

OVERVIEW

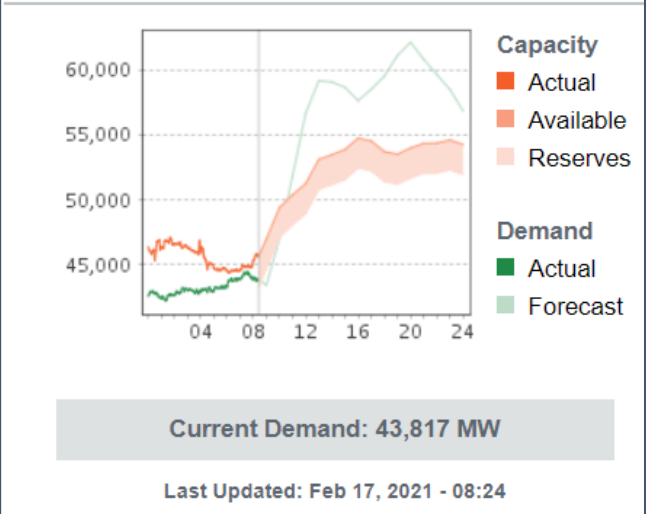
- ERCOT announced at 9:30 AM EST on February 17 that although some generation returned to service overnight, 14,000 MW of load shed is still needed, in part due to lost east DC-tie imports due to the conditions in the Midwest.
- ERCOT remains in EEA Level 3, which it first implemented at 2:25 AM EST on February 15. At that time, ERCOT instructed utilities within ERCOT’s service area in Texas to shed firm load and implement controlled outages due to generation inadequacy.
- ERCOT is the independent system operator for the state of Texas, serving about 26 million people and about 90% of the state’s electric load. ERCOT operates largely independently from the rest of country and is not subject to federal oversight.



GENERATION

- Curtailed supply of natural gas due to well freeze offs, and reduced wind generation due to icing on the turbines have constrained electricity supply.
- On the evening of February 14, the Acting Secretary of Energy issued an emergency order pursuant to section 202(c) of the Federal Power Act to authorize the dispatch of additional generation units in the ERCOT region to help ensure reliability. This allows ERCOT to dispatch generation units they deem necessary to meet electricity demand from February 14-19, 2021 even if exceed limits for sulfur dioxide, nitrogen oxide, mercury, and carbon monoxide emissions, as well as wastewater release limits.

TODAY'S OUTLOOK



MISO**OVERVIEW**

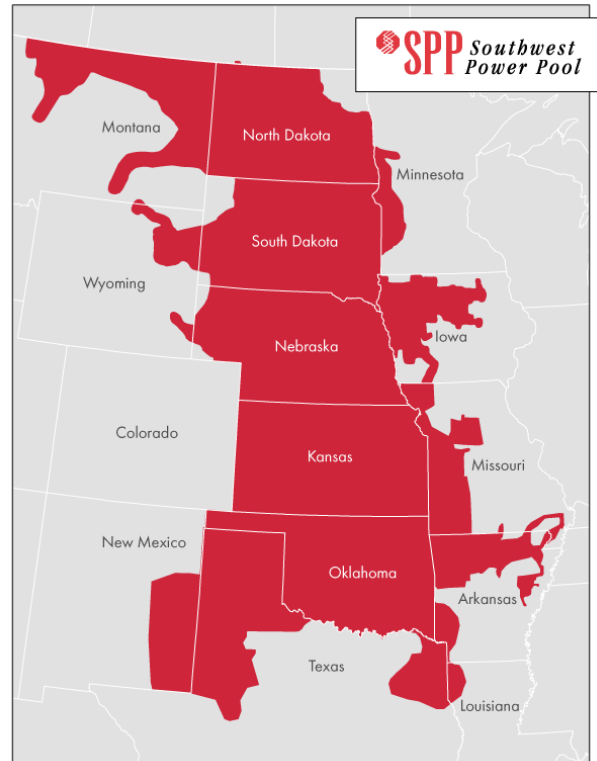
- Due to extreme winter weather and temperature, generation and transmission failures have occurred in the Western Load Pocket of MISO. To alleviate transmission overloads, MISO directed Entergy Texas to perform interruptible load shed on February 15 and additional load shed was required on February 16.
- MISO terminated directive for member utilities in the South Region to implement periodic power outages at 11 PM EST February 16.
- MISO issued a Maximum Generation Alert from February 17 at 2 AM EST until 11 PM EST for its South Region.
- MISO's Cold Weather Alert is in effect through February 17. Temperatures are expected to be near 0.
- MISO is the independent system operator and regional transmission organization for much of the Midwest, with 15 U.S. member states, including a small portion of Texas not covered by ERCOT.



SPP

OVERVIEW

- At 7:30 PM EST, February 16, SPP declared an EEA Level 2. An EEA Level 2 required SPP to direct its member companies to issue public conservation appeals. The alert will remain in effect until further notice.
- SPP’s forecasts anticipate that due to high load and persistent cold weather, it is likely its system will fluctuate between EEA levels over the next 48 hours.
- SPP previously declared the EEA Level 3 on February 16 for the entire balancing authority area and issued load-shed instruction for capacity deficiency.
- SPP has 14 member states in the central and western U.S. and performs contract reliability coordination services in three additional states.



NATURAL GAS SECTOR

NATURAL GAS SUMMARY

Extreme cold temperatures have led to sharp increases in gas demands for home heating and electricity generation across much of the Central United States. At the same time, the cold has led to well freeze-offs and natural gas processing plant outages that have caused supply disruptions in several producing areas, especially in the U.S. South Central region (TX, OK, KS, LA, AR, MS, AL), which typically accounts for approximately 20-25% of total U.S. gas production.

NATURAL GAS PRODUCTION

- Wellhead freeze-offs have caused producers to cut back natural gas production in the South Central United States, including in the Permian Basin in Texas and New Mexico, the Cana

Woodford in Oklahoma, and the Denver-Julesburg in Colorado. Over the past weekend the Permian Basin saw temperatures overnight as low as 0 degrees F.

- Although production losses due to freeze-offs are temporary, output takes time to return to normal levels, and the cumulative reduction over several days could be substantial.

NATURAL GAS PROCESSING PLANTS

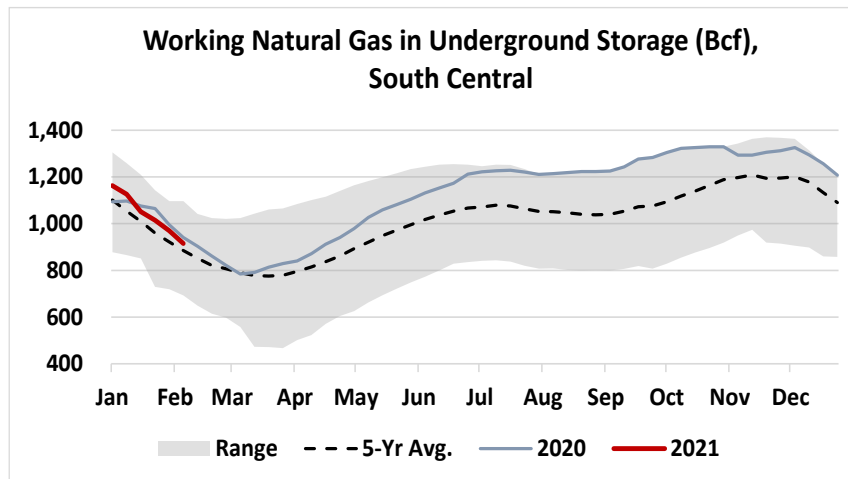
- Some natural gas processing plants and compressor stations across Texas have reportedly shut-in due to weather conditions.

NATURAL GAS STORAGE

- Suppliers are compensating for lost output and responding to the surge in gas demand and prices by withdrawing gas from storage facilities.
- This week ending February 19 is projected to have the largest withdrawal from storage in the history of the South Central Region.

NATURAL GAS STOCKS

- Natural gas stocks in the U.S. South Central region stood at 915 Bcf on February 5, 4.3% above the five-year average for this time of year.
- According to [EIA’s Form 191](#) data, Texas has 30 active natural gas storage facilities.



South Central includes Alabama, Arkansas, Kansas, Louisiana, Mississippi, Oklahoma, and Texas

NATURAL GAS PIPELINES

- Natural gas pipelines across the affected area have implemented severe/winter weather procedures and many lines have issued operational flow orders (OFO).

NATURAL GAS UTILITIES

- On February 12, the Texas Railroad Commission (TRC) [issued an emergency order](#) temporarily prioritizing natural gas deliveries to natural gas utilities for residences, hospitals, schools, churches, and other human needs customers.

LNG TERMINALS

- Texas Governor Greg Abbott has asked LNG export terminals to dial back operations.



PETROLEUM SECTOR

PETROLEUM SECTOR SUMMARY

Extreme cold temperatures and power outages have forced operators to shut down refineries in the U.S. Gulf Coast region. Additionally, extreme cold temperatures and well freeze-offs have led to production outages in producing areas.

REFINERIES

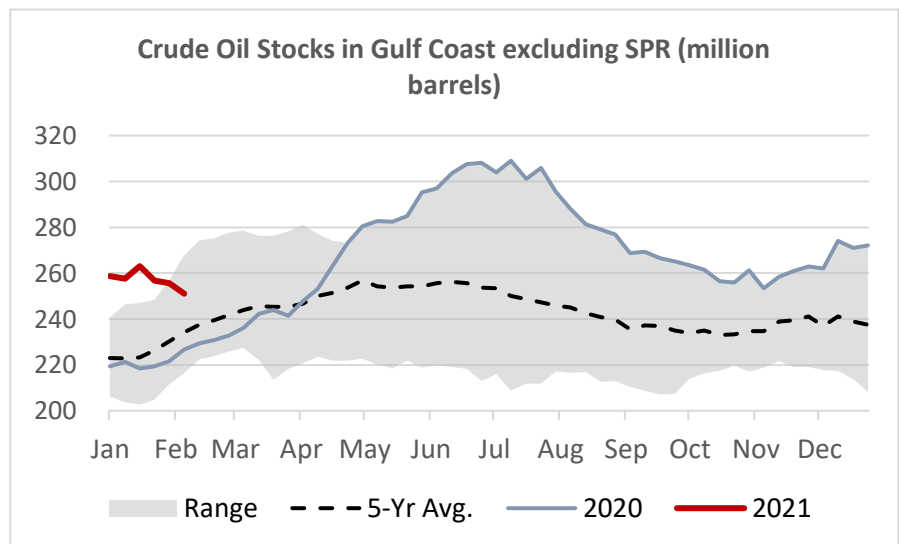
- As of February 17, refinery shutdowns, rate reductions, or process unit outages have been reported at refineries representing approximately 4.2 million barrels per day (b/d) of refinery capacity. The most severe impacts have been reported in the Texas Gulf Coast region.

PORTS

- Operations in the Houston Ship Channel have been reduced due to freeze offs impacting refineries and terminals. On February 16, there were 13 vessels waiting to depart the channel with 18 ships in queue to come into the waterway.

OIL STOCKS

- Crude oil stocks in the Gulf Coast (PADD 3) averaged 251 million barrels for the week ending February 5, 7.2% above the five-year average for this time of year.



EMERGENCY DECLARATIONS & WAIVERS

EMERGENCY DECLARATIONS

To provide vital supplies and transportation services to a disaster area in the United States, emergency declarations may be issued by the President, Governors of States, or Federal Motor Carrier Safety Administration (FMCSA). These declarations trigger the temporary suspension of certain Federal safety regulations, including Hours of Service, for motor carriers and drivers engaged in specific aspects of the emergency relief effort. See [49 CFR 390.23](#) for the actual emergency regulation.

Emergency Declarations and HOS Waivers <i>as of 3:30 PM EST 02/16/2021</i>				
State/Territory	Details	Effective Dates		Status
		Start	End	
Tennessee	Executive Order by the Governor- Energy Emergency	2/16	2/26	Active
Kentucky	Kentucky Transportation Cabinet Declaration of Emergency - Assistance for power restoration and delivery of gasoline, propane, and diesel fuels	2/11	2/21	Active
Mississippi	State of Emergency	2/14	2/21	Active
Alabama	State of Emergency	2/14	Continuing	Active
Louisiana	Emergency Order- Implementation of Emergency Gas Shortage Plan	2/15	2/20	Active
	State of Emergency	2/11	3/12	Active
Oklahoma	State of Emergency	2/12	Continuing	Active
Texas	Texas Department of Public Safety Emergency Notice – Assistance for delivery of Propane and Home Heating Oils	2/10	2/15	Active
	Federal Emergency Declaration	2/11	Continuing	Active
	State Disaster Declaration	2/12	Continuing	Active

Sources: State government, White House, and Federal Motor Carrier Safety Administration websites.