



Extreme Cold & Winter Weather | Update #6 - FINAL

REPORT TIME & DATE: 12:00 PM EST | Sunday, February 21, 2021

REPORT DISTRIBUTION: Public

EXECUTIVE SUMMARY

An arctic air mass has receded after 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, natural gas and oil production, and refinery operations. The Electric Reliability Council of Texas (ERCOT) has returned to normal conditions after balancing generation and load to restore customers who were under controlled power outages across Texas since early Monday. The Southwest Power Pool (SPP) and the Midcontinent Independent System Operator (MISO) also implemented controlled outages on both Monday and Tuesday. Temperatures in Texas are expected to remain moderate throughout the week.

Electricity Sector Summary

- As of 9:30 AM EST, February 21, ERCOT remains in normal grid conditions, with operating reserve margins within the acceptable range. Enough generation capacity was returned to service in Texas to restore the customers that were impacted by the controlled outages.
 - As of 9:30 AM EST, there were about 33,000 power outages across Texas. This is down from more than 4 million customers without power on the afternoon of February 16.
 - Although there may be a small number of customers still out due to associated issues from the controlled power outages, most of the remaining customers are without power in Texas and Louisiana due to damaged infrastructure from the winter weather event.
- As of 9:30 AM EST, February 21, SPP has returned to normal conditions. The MISO system is also steady and stable with sufficient generation and transmission resources online.

Natural Gas Sector Summary

- Gas production in the U.S. South Central region (TX, OK, KS, LA, AR, MS, AL) is increasing following shut-ins caused by well freeze-offs, natural gas processing plant outages, and widespread power outages last week. Although production remains depressed, warmer temperatures have moderated gas demands for home heating and electricity generation in Texas, and prices have come down from highs last week.

Petroleum Sector Summary

- As of February 21, full or near-full refinery shutdowns have been reported at several refineries accounting for about 20% of total U.S. refinery capacity. The worst impacts are primarily concentrated in the Texas Gulf Coast region, but refinery issues extend across several states.

DOE ACTIONS**DOE ENERGY RESPONSE ORGANIZATION: ACTIVATED: Enhanced Watch**

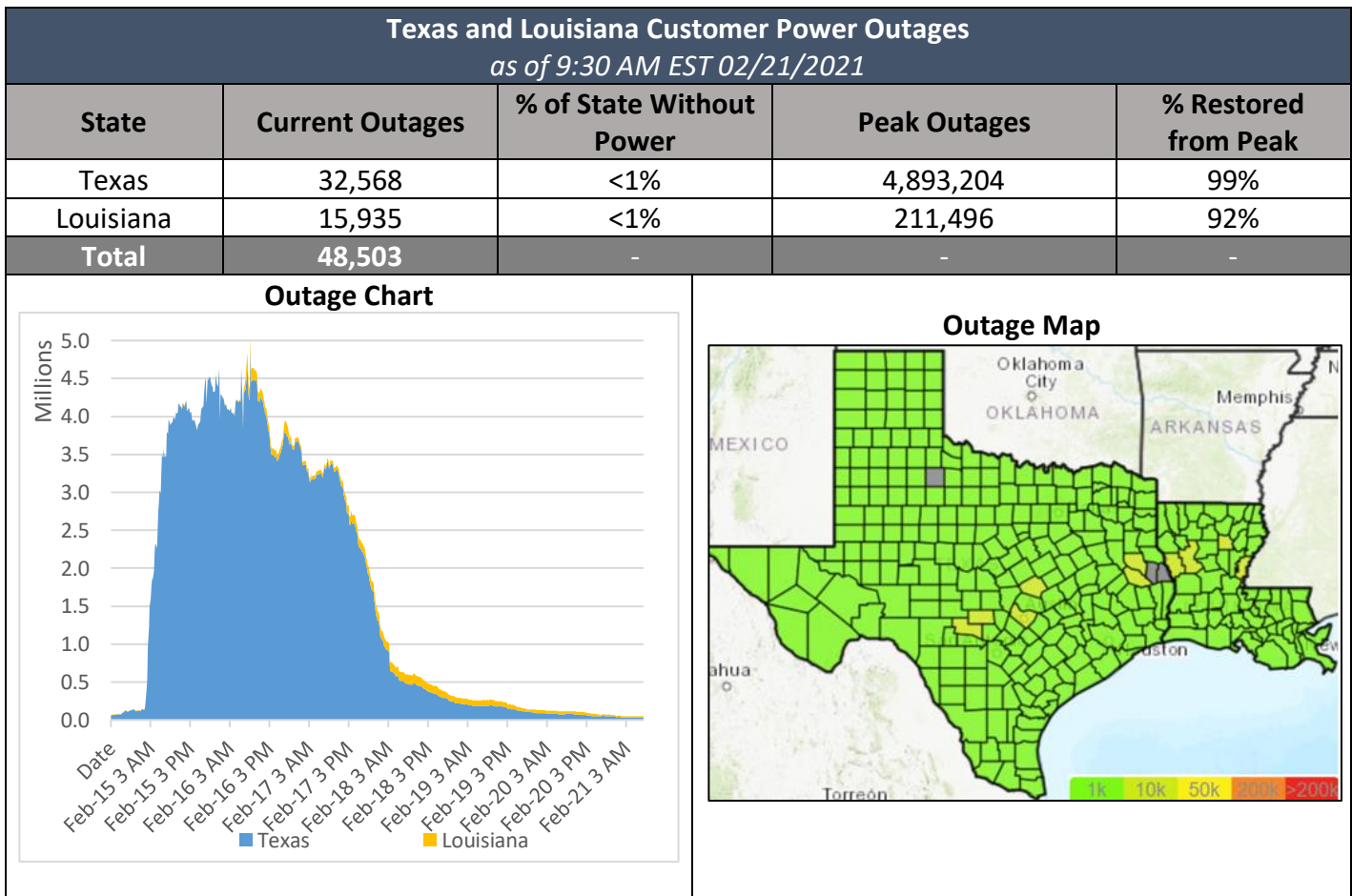
- DOE is coordinating with industry, interagency, and state partners to provide situational awareness and support restoration efforts.
- DOE is holding regular unity of effort calls with electricity and oil and natural gas partners and is in contact with the North American Electric Reliability Corporation.
- 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 approximately 49,000 power outages across Texas and Louisiana, including 33,000 outages in Texas. Although there may be a small number of customers remaining out of power due to associated issues from the controlled power outages, most of the remaining customers are without power in Texas and Louisiana due to damaged infrastructure from the winter weather event.



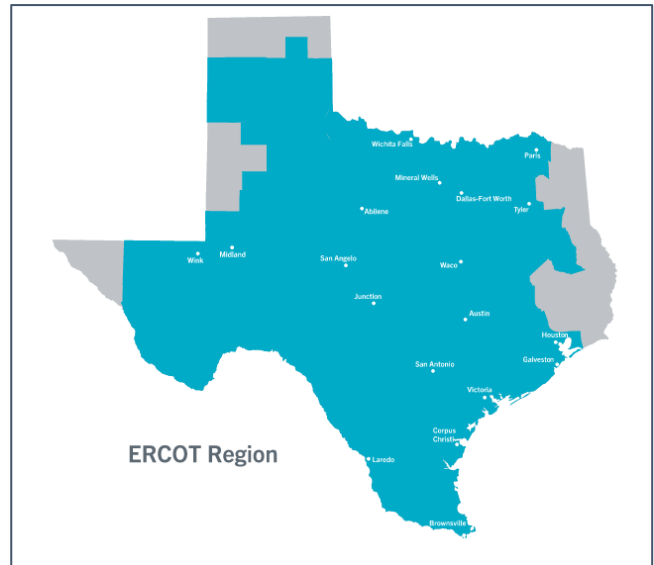
ELECTRICITY OVERVIEW

- ERCOT:** As of 9:30 AM EST, February 21, ERCOT remains under normal conditions.
- SPP:** SPP has ended conservative operations as of 11:00 PM EST on February 20 and has returned to normal operation.
- MISO:** As of 9:30 AM EST, February 20, the MISO system is steady and stable with sufficient generation and transmission resources online.

REGIONAL DETAILS

OVERVIEW

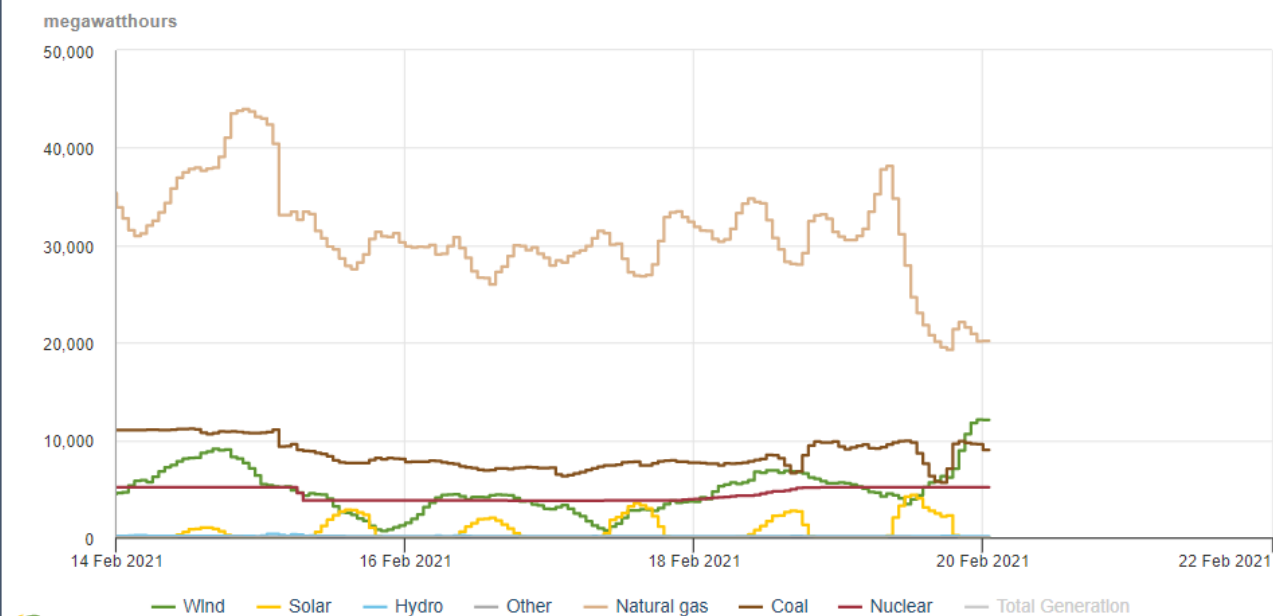
- As of 9:30 AM EST on February 21, ERCOT remains in normal conditions. ERCOT has cancelled all operating conditions notices associated with cold weather.
- ERCOT is working with large industrial customers to return facilities to service when they are ready to come back online. Some facilities have already returned to service, while others are expected to remain offline for a longer period of time.
- 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

- **February 2021 Generation:** The chart below shows electricity generation by source in ERCOT in the month through the prior day.

Electric Reliability Council of Texas, Inc. (ERCO) electricity generation by energy source 2/14/2021 – 2/21/2021, Eastern Time



Source: U.S. Energy Information Administration

Source: [EIA Hourly Electric Grid Monitor](#)

- **Actual generation in January 2021:** For context, from January 1-31, 2021, ERCOT's actual generation included:
 - Gas (combined cycle): 10,744 GWh, 35%
 - Wind: 7,702 GWh, 25%
 - Coal: 6,803 GWh, 22%
 - Nuclear: 3,801 GWh, 12%
 - Solar: 732 GWh, 2%
 - *Total combined thermal generation (Natural Gas, Gas, Coal, Nuclear) was about 72%*
 - *Total combined renewable generation (Wind, Solar) was about 27%*

Federal action: 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 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.

NATURAL GAS SECTOR

NATURAL GAS SUMMARY

Gas production in the U.S. South Central region (TX, OK, KS, LA, AR, MS, AL) is increasing following shut-ins caused by well freeze-offs, natural gas processing plant outages, and widespread power outages last week. Although production remains depressed, warmer temperatures have moderated gas demands for home heating and electricity generation in Texas, and prices have come down from highs last week.

NATURAL GAS PRODUCTION

- Wellhead freeze-offs due to below freezing temperatures 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.
- 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

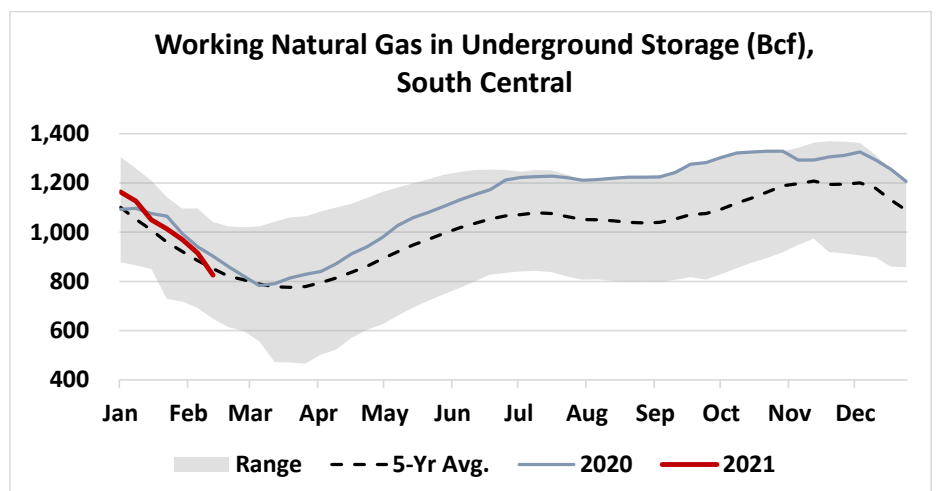
- Some natural gas processing plants and compressor stations across Texas were reportedly shut-in due to weather conditions.

NATURAL GAS STORAGE

- Suppliers compensated for lost output and surge in gas demand and prices by withdrawing gas from storage facilities.
- Withdrawals have come down significantly since February 19 with higher temperatures returning to the area.

NATURAL GAS STOCKS

- Natural gas stocks in the U.S. South Central region stood at 826 Bcf on February 12, 3.0% below the five-year average for this time of year. Natural gas stocks for the week ending February 19 are expected to be 15%-20% lower than this week for the South Central region, due to this week's significant draws.
- According to [EIA's Form 191](#) data, Texas has 30 active natural gas storage facilities.



Source: EIA

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

NATURAL GAS PIPELINES

- Natural gas pipelines across the affected area implemented severe/winter weather procedures and many lines issued operational flow orders (OFO). Operators have begun to lift OFOs as conditions improve.

NATURAL GAS UTILITIES

- On February 18, the Texas Railroad Commission (TRC) extended an emergency order temporarily prioritizing natural gas deliveries to natural gas utilities for residences, hospitals, schools, churches, and other human needs customers through February 23, 2021.

EXPORTS

- On February 17, Texas Governor Greg Abbott issued a letter to the TRC directing “all sourced natural gas be made available for sale to local power generation opportunities before leaving the State of Texas.” Following the letter from Governor Abbott, the TRC issued Notice to Operators.
- 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

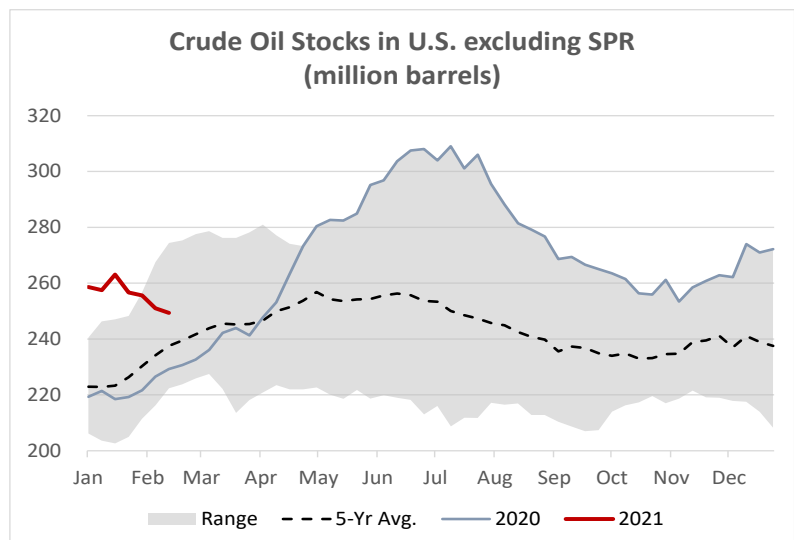
- As of February 21, refinery shutdowns, rate reductions, or process unit outages have been reported at refineries representing approximately 5.7 million barrels per day of refinery capacity. Full or near-full refinery shutdowns have been reported at several refineries, accounting for approximately 20% of total U.S. refinery capacity. The most severe impacts have been reported in the Texas Gulf Coast region and some refineries may need to repair equipment due to issues from the cold weather.

PORTS

- Operations in the Houston Ship Channel resumed at 10:30 AM EST on February 17.

OIL STOCKS

- Crude oil stocks in the Gulf Coast (PADD 3) averaged 249 million barrels for the week ending February 5, 2021, 5.0% 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 the 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 for TX, OK, LA as of 10:30 AM EST 02/21/2021				
State/Territory	Details	Effective Dates		Status
		Start	End	
Texas	Federal Major Disaster Declaration	2/20	Continuing	Active
	HHS Public Health Emergency	2/17	Continuing	Active
	Texas Department of Public Safety Emergency Notice – Assistance for delivery of Propane and Home Heating Oils	2/10	2/15	Expired
	Federal Emergency Declaration	2/11	Continuing	Active
	State Disaster Declaration	2/12	Continuing	Active
Louisiana	Federal Emergency Declaration	2/18	Continuing	Active
	Emergency Order- Implementation of Emergency Gas Shortage Plan	2/15	2/20	Expired
	State of Emergency	2/11	3/12	Active
Oklahoma	HOS Waiver	2/10	3/12	Active
	Federal Emergency Declaration	2/18	Continuing	Active
	State of Emergency	2/12	Continuing	Active

Emergency Declarations and HOS Waivers for All Other States as of 10:30 AM EST 02/21/2021				
State/Territory	Details	Effective Dates		Status
		Start	End	
Multi-State	Regional Emergency Declaration (AR, CT, DE, DC, IL, ID, IA, KS, KY, LA, MD, MA, MN, MO, MS, MT, NE, NJ, NY, NM, NC, ND, OH, OK, OR, PA, RI, SD, TN, TX, VA, WV, WI, WY)	2/17	3/4	Active
Montana	HOS Waiver	2/12	3/14	Active
North Dakota	HOS Waiver	2/12	3/14	Active
Connecticut	HOS Waiver	2/13	2/19	Expired
New Mexico	New Mexico Department of Public Safety- Declaration of Emergency Notice	2/15	2/20	Expired



West Virginia	State of Emergency - Affecting Eight Counties in Northern & North Central WV. State of Preparedness for the rest of the state.	2/16	3/18	Active
Virginia	State of Emergency	2/11	3/13	Active
Oregon	State of Emergency in the Willamette Valley	2/13	Continuing	Active
Maryland	Declaration of Transportation Emergency and Commercial Motor Vehicle Safety Regulation Waiver	2/19	2/23	Preliminary
Nebraska	Executive Order - Emergency Motor Carrier Relief Due to Extreme Cold Temperatures	2/15	2/19	Expired
New York	HOS Waiver	2/17	3/1	Active
Illinois	Illinois Department of Transportation- Declaration of Emergency.	2/16	2/20	Expired
Iowa	State of Disaster Emergency	2/15	3/17	Active
Pennsylvania	HOS Waiver	2/27	2/28	Active
Tennessee	HOS Waiver	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	HOS Waiver	2/14	2/21	Active
	State of Emergency	2/14	2/21	Active
Alabama	HOS Waiver	2/14	3/16	Active
	State of Emergency	2/14	Continuing	Active

Sources: State government, White House, and FMCSA websites.

- On February 15, the Texas Commission on Environmental Quality was granted approval to temporarily [suspend](#) certain emissions requirements to the extent that compliance with requirements prevent, hinder, or delay necessary action in coping with this disaster. This suspension provides relief of natural gas generation and distribution emissions requirements. The suspension is in effect until terminated by the Office of the Governor or until the Texas disaster declaration is lifted or expires.