2024

ERCOT MONTHLY

Issued January 2024

Introduction

Welcome to the first edition of **ERCOT Monthly**, a monthly report sharing a recap of key information from the previous month, notes on the upcoming month, and a snapshot of additional key items.

Our goal is to continue providing clear, consistent, transparent communications to our stakeholders, highlighting market and operations statistics, key ERCOT initiatives, and breaking down trending issues for a broader audience.

Pablo Vegas
President and CEO
Electric Reliability Council of Texas (ERCOT)

www.ercot.com

Winter Storm Heather
Recap

January 13-17, 2024

All information provided in this section is preliminary data and subject to change as settlements occur and are finalized.

Winter Storm Heather brought extreme winter conditions to all of Texas. When comparing winter storms over the last 15 years, only Winter Storm Uri lasted longer, and only Winter Storms Uri and Elliott had a lower load-weighted ERCOT temperature.

Event	Minimum ERCOT Load-Weighted Temperature (Degrees Fahrenheit)	Hours Below Freezing	Days with Load-Weighted Temperature Below Freezing
February 2011 Winter Storm	19.2°	70	2.92
January 2014 Polar Vortex	21.4°	14	0.58
December 2018 Winter Storm	16.9°	28	1.17
Winter Storm Uri	6.3°	219	9.13
Winter Storm Elliott	13.3°	53	2.21
Winter Storm Heather*	15.4° *	81*	3.38*

*Winter Storm Heather data is preliminary and subject to final verification

Peak Demand Records

- ERCOT set five new all-time winter peak demand records and six new January peak demand records, culminating with 78,138 MW in the 7-8 a.m. hour on January 16.
- The previous winter peak demand record of 74,525 MW was set December 23, 2022, in the 7-8 a.m. hour during Winter Storm Elliott.
- The previous January record of 65,915 MW was set January 17, 2018.
- In 2023, January peak demand was 65,632 MW in the 6-7 p.m. hour on January 31.
- The all-time peak demand record of 85,508 MW occurred August 10, 2023.
- View ERCOT's peak demand records.

Thermal Generation

- Thermal generation performed well. This is the first winter with the full weatherization rule in effect, including wind chill parameters. The performance of the thermal fleet provides a good demonstration of the benefits of weatherization. *More on weatherization can be found on page 6 of this report.*
- In terms of net load, which is load not served by wind or solar, ERCOT exceeded 68,000 MW on three different occasions-specifically, the morning of January 15 and the morning and evening periods on January 16. During these three peak intervals, the thermal fleet supplied ~87% of the energy for the demand.

- Outages were generally lower than the seasonal average for the thermal fleet. Approximately 3,000 MW of incremental forced outages and derates occurred during W.S. Heather. The overall level of forced outages for thermal resources was in the range of 7,000 MW, which includes ~4,000 MW in forced outages prior to W.S. Heather. This is in comparison to ~14,000 MW of forced outages for the thermal fleet during W.S. Elliott.
- In terms of issues relating to gas supply, ERCOT expected, and the system experienced, gas curtailments and restrictions in North Texas. These restrictions (outside of ERCOT's general control and authority) impacted the system with a net loss of ~1,700 MW.

Solar Generation

- In a first for the ERCOT grid, solar generation changed the dynamic of the operating grid during a winter storm by providing significant amounts of power during the middle of the day.
- A new all-time solar generation record was set with 14,837 MW January 16, serving ~23% of the load at that time.

Wind Generation

- Wind fluctuated from ~1,900 MW to 24,400 MW (in instantaneous load terms) over the course of W.S. Heather, with the peak output occurring late Monday at over 24,000 MW.
- Low wind output was most concerning during the Monday and Tuesday morning peaks.

Batteries

- Over the three biggest peaks during W.S. Heather, batteries provided roughly 1.5% of total energy needs (excluding Ancillary Services).

Pricing

Based on preliminary analysis of wholesale pricing, there was a correlation between wholesale prices and periods of highest net load (load not served by wind or solar).

Electricity Prices Peak Interval	Day-Ahead Price at Interval	System Lambda at Interval
January 15	$ ~1,100/MWh	$ ~400/MWh
January 16 (morning)	$ ~1,900/MWh	$ ~560/MWh
January 16 (evening)	$ ~300/MWh	$ ~1,134/MWh

ERCOT Issued Three TXANS Notifications

- Weather Watch, initially issued for January 15-17, then expanded to include January 14 as the winter storm system moved in faster.
- Conservation Appeal, January 15 from 6-10 a.m.
- Conservation Appeal, January 16 from 6-9 a.m.

From January 9-17, we gained more than 10K new subscribers to the TXANS notification system.

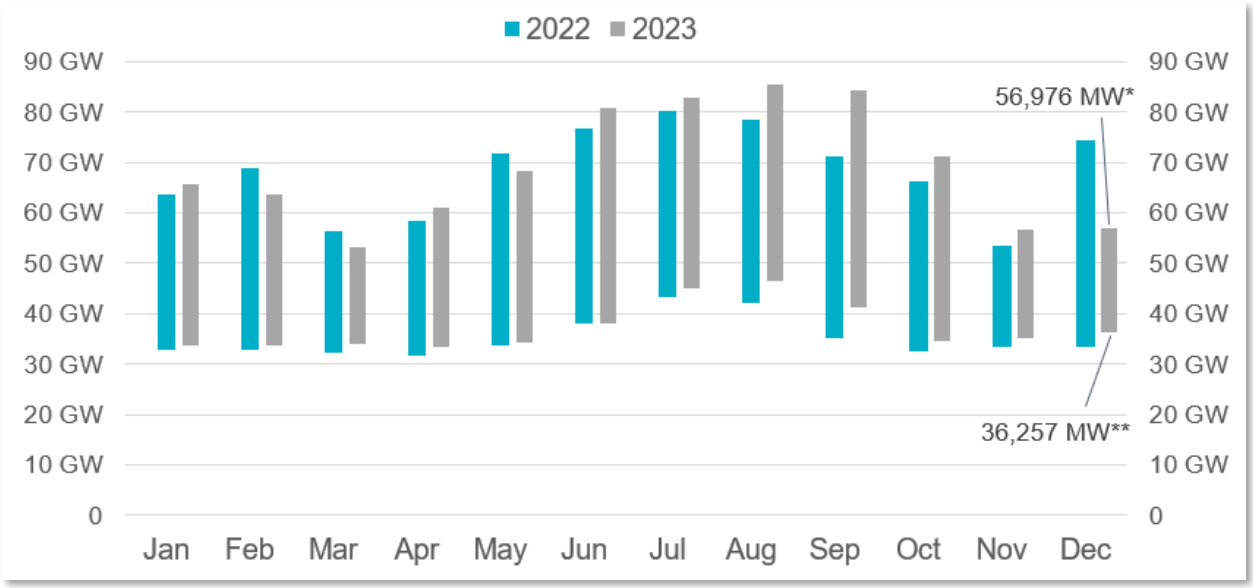
December 2023

Look Back

GRID OVERVIEW

Peak Demand

ERCOT saw a December peak demand of 56,976 MW December 11 in the 7-8 a.m. hour, which is 17,478 MW lower than the 2022 December peak demand record of 74,525 MW set in the 7-8 a.m. hour on December 23, 2022, during Winter Storm Elliott. (ERCOT had adequate supply to meet demand and did not enter emergency operations during W.S. Elliott.)



*Based on the maximum net system hourly value from the 2023 December Demand and Energy report.
**Based on the minimum net system 15-minute interval value from the 2023 December Demand and Energy report.
Data for latest two months is based on preliminary settlements.

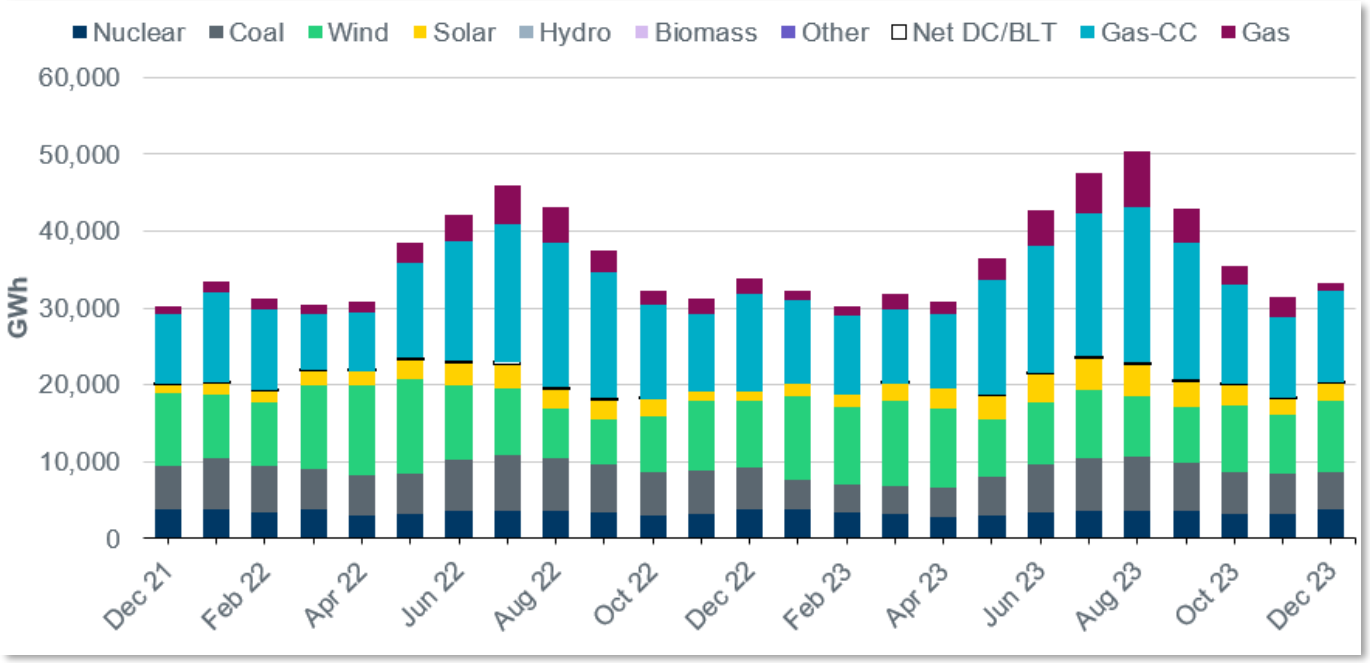
For Reference: Previous Recent December Peaks

- December 2022 peak demand: 74,545 MW (Winter Storm Elliott)
- December 2021 peak demand: 49,192 MW
- December 2020 peak demand: 55,916 MW

ERCOT peak demand records can be found on our website or by navigating to *About Us* > *Helpful Resources* > *Peak Demand*.

MONTHLY ENERGY GENERATION MIX

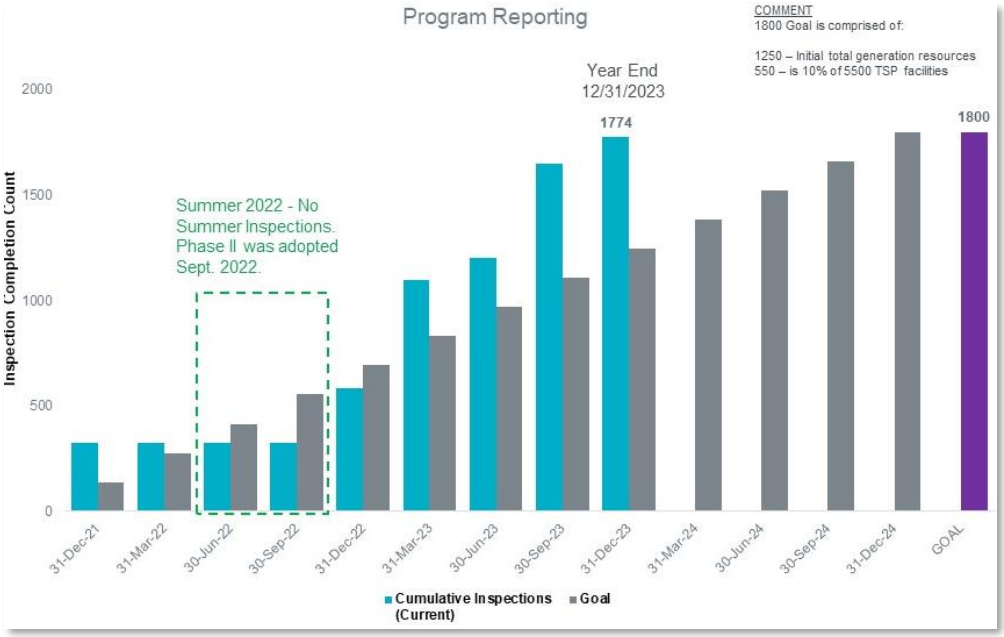
The monthly energy generation decreased by 1.5% year-over-year to 33,271 GWh in December 2023, compared to 33,786 GWh in December 2022. The chart below shows the generation type fueling the grid each month.



Data for the last two months is based on preliminary settlements.

WEATHERIZATION

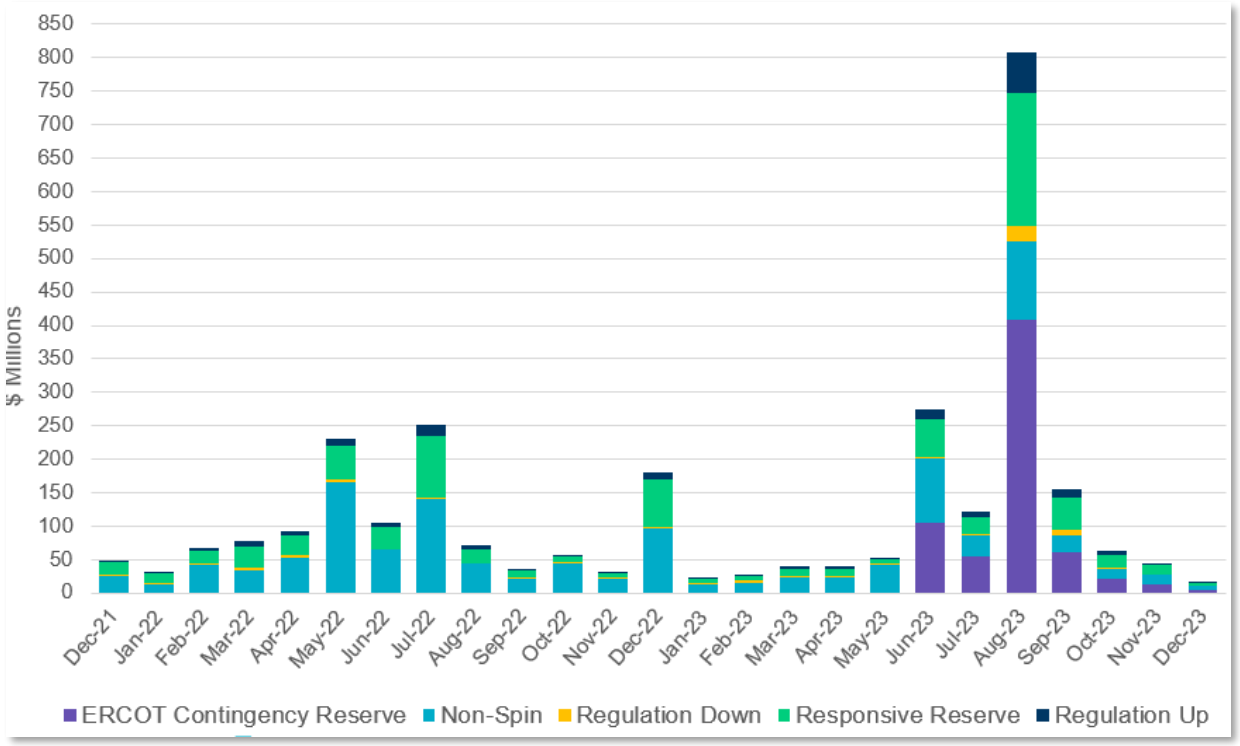
Since December 2021, ERCOT has conducted 1,774 weatherization inspections, including 1,264 for generation resources and 510 for Transmission Service Provider facilities. ERCOT is on track to complete the winter season inspection goal of 450 by the end of February 2024, and the overall program goal of 1,800 inspections by the end of November 2024. We completed 126 winter weatherization inspections in December.



ANCILLARY SERVICES

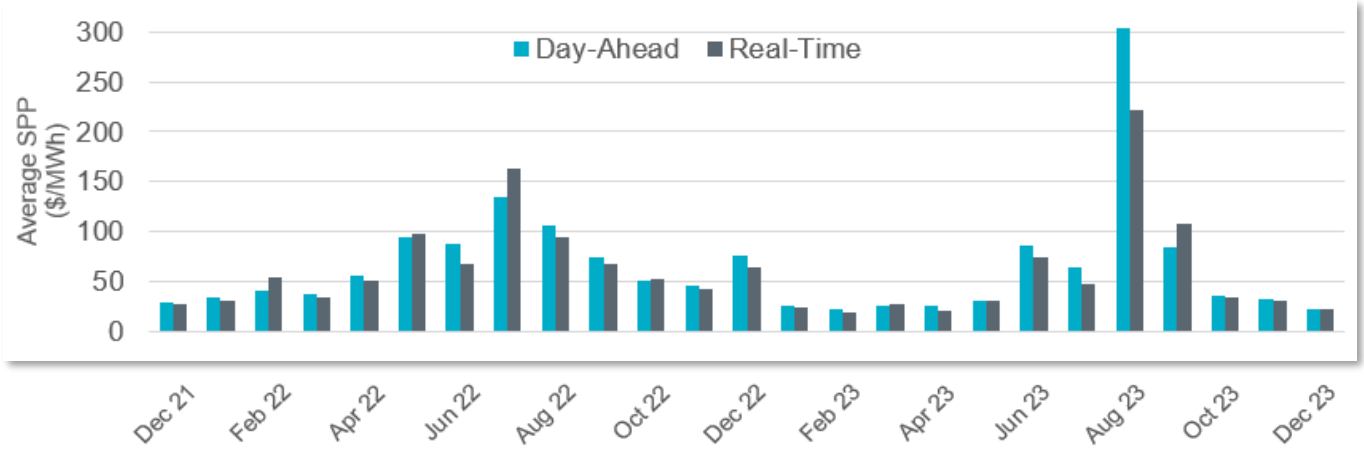
ERCOT uses Ancillary Services (AS) to balance the next day's supply and demand of electricity on the grid and mitigate real-time operational issues. Real-time AS deployment is viewable on our dashboards.

ERCOT procured $16.94 million in Ancillary Services (AS) for grid reliability in December.



WHOLESALE PRICES

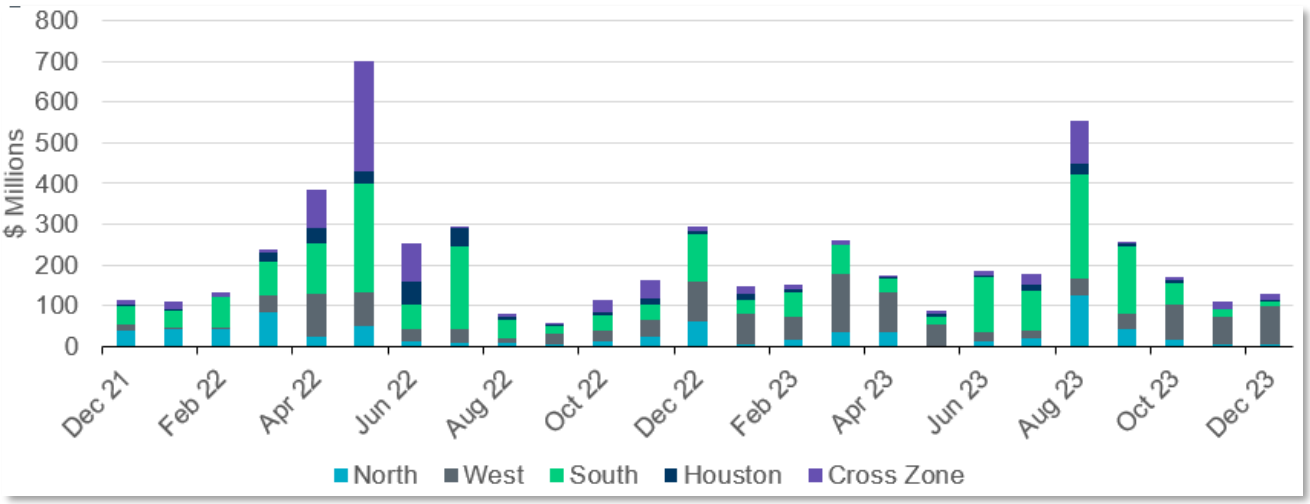
Relatively mild weather and demand for electricity led to lower average wholesale market prices in December, as compared to recent months and December of last year. These lower averages were observed in both the Day-Ahead and Real-Time Markets.



*Averages are weighted by Real-Time Market Load

TRANSMISSION CONGESTION COSTS

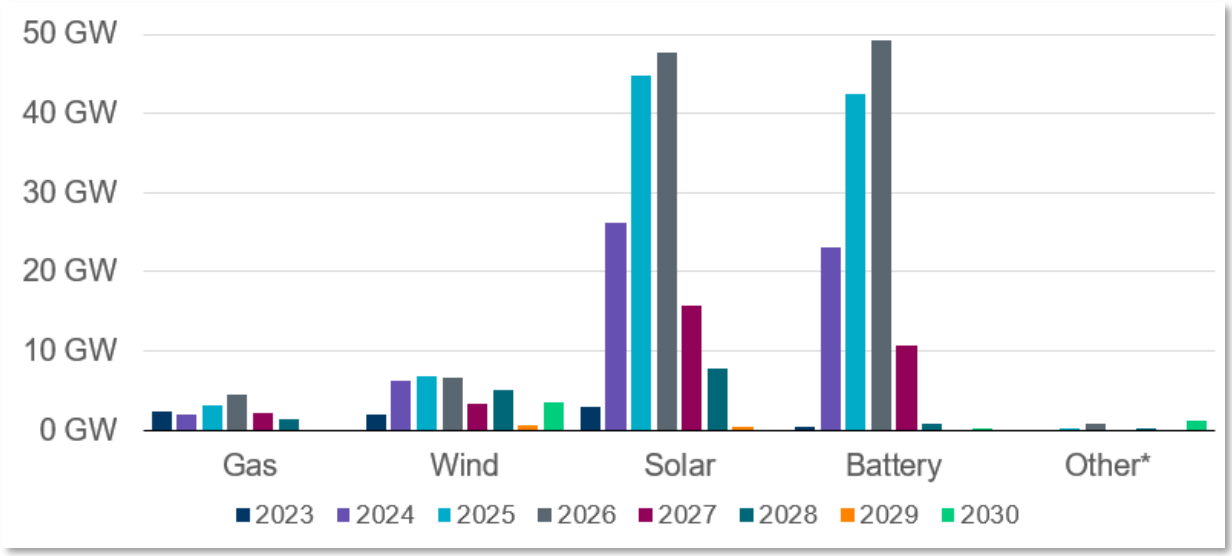
Congestion rent increased in the West and Houston Zones in December compared to November. The two zones with the highest congestion rent were the West and Cross Zones.



GENERATION INTERCONNECTION QUEUE BY FUEL TYPE

ERCOT's Generation Interconnection Queue has 1,671 active generation interconnection requests totaling 325,215 MW as of December 31, 2023. It's important to note that, historically, the vast majority of projects in the queue will not be built, but the queue does show a representation of where the interest lies at a given time. The current trend shows batteries and solar dominating the interconnection requests, but since April 2023, the MWs of potential gas projects have almost doubled.

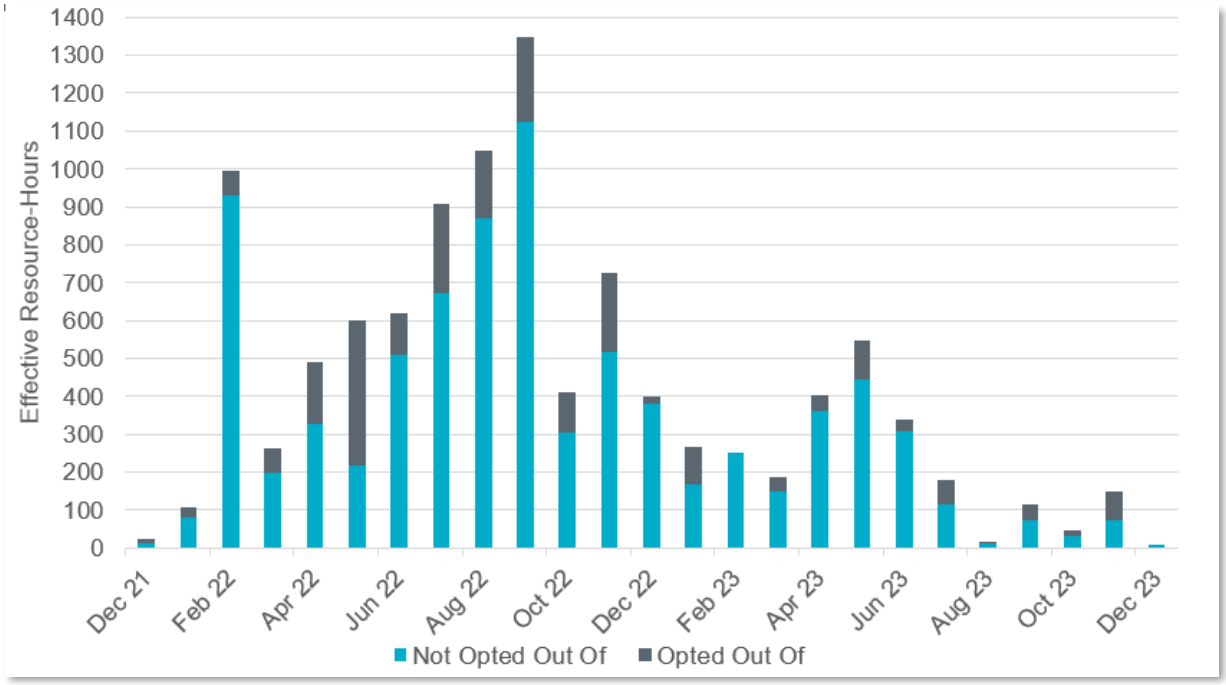
Gas 15 GW (4.8%) **Wind** 35 GW (10.6%) **Battery** 127 GW (39.1%) **Solar** 146 GW (44.8%)



(Excludes capacity associated with projects designated as Inactive per Planning Guide Section 5.7.6)
*Other includes petroleum coke (pet coke), hydroelectric, fuel oil, geothermal energy, other miscellaneous fuels reported by developers, and fuel cells that use fuels other than natural gas.

RELIABILITY UNIT COMMITMENT

Reliability Unit Commitment activity for December was very low with one unique Resource committed due to congestion.



"Effective Resource-Hours" excludes any period during a Reliability Unit Commitment hour when the RUC-committed Resource was starting up, shutting down, off-line, or otherwise not available for dispatch by SCED.

February
Look Forward

Monthly Outlook for Resource Adequacy (MORA) Scenarios

February MORA

Under typical grid conditions, the deterministic scenario indicates that there should be sufficient generating capacity available to serve the expected peak load which is 7-8 a.m. hour during winter. Scenario modeling results indicate an elevated risk of ERCOT having to declare an Energy Emergency Alert (EEA) during the 8 a.m. peak load hour (3.2%); the risk increases to 18.3% if weather conditions similar to Winter Storm Elliott occur.

The table below right represents a "severe winter storm event" scenario for which the peak February load (79,555 MW plus Large Flexible Loads) reflects the impact of weather conditions comparable to those experienced during December 2022's Winter Storm Elliott.

Please note the MORA is not an expected forecast.

	EMERGENCY LEVEL		
Hour Ending	Chance of Normal System Conditions Probability of CAFOR being above 3,000 MW	Chance of an Energy Emergency Alert Probability of CAFOR being less than 2,500 MW	Chance of Ordering Controlled Outages Probability of CAFOR being less than 1,500 MW
1 a.m.	99.27%	0.62%	0.55%
2 a.m.	99.31%	0.58%	0.51%
3 a.m.	99.45%	0.44%	0.39%
4 a.m.	99.38%	0.46%	0.42%
5 a.m.	99.00%	0.73%	0.69%
6 a.m.	98.80%	0.82%	0.74%
7 a.m.	97.06%	2.21%	1.92%
8 a.m.	95.30%	3.24%	2.81%
9 a.m.	97.45%	1.96%	1.68%
10 a.m.	98.92%	0.82%	0.68%
11 a.m.	99.24%	0.52%	0.48%
12 p.m.	99.59%	0.26%	0.16%
1 p.m.	99.79%	0.17%	0.13%
2 p.m.	99.91%	0.05%	0.04%
3 p.m.	99.94%	0.03%	0.03%
4 p.m.	99.91%	0.03%	0.02%
5 p.m.	99.89%	0.07%	0.06%
6 p.m.	99.63%	0.21%	0.18%
7 p.m.	98.40%	1.16%	0.99%
8 p.m.	98.12%	1.17%	1.02%
9 p.m.	98.67%	0.91%	0.74%
10 p.m.	99.08%	0.56%	0.45%
11 p.m.	99.44%	0.41%	0.35%
12 a.m.	99.63%	0.29%	0.25%

Note: Probabilities are not additive.

Scenario Assuming Winter Storm Elliott Weather Conditions

	EMERGENCY LEVEL		
Hour Ending	Chance of Normal System Conditions Probability of CAFOR being above 3,000 MW	Chance of an Energy Emergency Alert Probability of CAFOR being less than 2,500 MW	Chance of Ordering Controlled Outages Probability of CAFOR being less than 1,500 MW
1 a.m.	89.07%	3.56%	1.68%
2 a.m.	88.53%	3.39%	1.74%
3 a.m.	89.79%	2.88%	1.31%
4 a.m.	90.67%	2.50%	1.23%
5 a.m.	87.82%	4.69%	2.65%
6 a.m.	84.75%	6.90%	4.37%
7 a.m.	80.08%	11.35%	8.24%
8 a.m.	71.92%	18.27%	14.66%
9 a.m.	86.55%	6.12%	3.98%
10 a.m.	94.38%	2.25%	1.18%
11 a.m.	97.62%	0.65%	0.20%
12 p.m.	99.82%	0.02%	0.00%
1 p.m.	100.00%	0.00%	0.00%
2 p.m.	100.00%	0.00%	0.00%
3 p.m.	100.00%	0.00%	0.00%
4 p.m.	100.00%	0.00%	0.00%
5 p.m.	100.00%	0.00%	0.00%
6 p.m.	100.00%	0.00%	0.00%
7 p.m.	90.65%	1.69%	0.56%
8 p.m.	92.06%	1.66%	0.69%
9 p.m.	93.31%	1.39%	0.59%
10 p.m.	95.79%	0.64%	0.18%
11 p.m.	99.04%	0.04%	0.02%
12 a.m.	99.72%	0.00%	0.00%

Note: Probabilities are not additive.

Links to the February MORA:
MORA_February2024.pdf (ercot.com)
MORA_February2024.xlsx (live.com)

Additional
Items of Note

NEW EMERGENCY PRICE CAP

On December 20, 2023, the Public Utility Commission of Texas (PUCT) voted to implement a new Emergency Pricing Program (EPP) for the ERCOT region. The EPP, required by Senate Bill 3 of the 87th Texas Legislature, will limit consumer exposure to high wholesale electricity prices during power emergencies.

Current PUCT rules cap wholesale electricity offers at $5,000 per MWh. This offer cap, also known as the high system-wide offer cap (HCAP), is a cap on the price at which generators can offer wholesale electricity to retail electric providers that serve and bill individual customers. The new EPP will trigger if system-wide energy prices hit the $5,000 per MWh HCAP threshold for 12 hours within a rolling 24-hour period.

When the EPP is activated, a new emergency offer cap (ECAP) will take effect, reducing the cap on wholesale electricity offers to $2,000 per MWh and, ultimately, further protect consumers. The EPP and $2,000 per MWh emergency offer cap would remain in effect until 24 hours after the EPP is activated, or if ERCOT is in emergency operations while the EPP is active, 24 hours after ERCOT exits emergency operations. ERCOT will issue a notice to Market Participants both when the EPP is activated and when the EPP ends.

While the EPP is active, and to account for variability in fuel costs, generators are eligible to be reimbursed by ERCOT for any actual marginal costs they incur above the $2,000 per MWh emergency offer cap. To recover actual marginal costs above the HCAP ($5,000 per MWh), a generator must submit additional attestations and information to ERCOT justifying any exceedances. Within 10 working days of the end of an EPP event, ERCOT must report a summary of the event and analysis of the EPP's performance to the PUCT. Within 90 calendar days, ERCOT must report the number of generators that filed for cost recovery and the total amount reimbursed. Read more in the PUCT news release.

LUMINANT CASE

Oral argument before the Texas Supreme Court in *Public Utility Commission of Texas v. Luminant Energy Company, LLC* occurred on January 30, 2024. While ERCOT is not a party to the lawsuit, the validity of the PUCT's February 15 and 16, 2021, pricing orders during Winter Storm Uri is at issue, and the ERCOT market will be impacted by the final decision.

Previously, on March 17, 2023, the Austin Court of Appeals issued an opinion holding that by "[s]etting a single price at the rules-based maximum price" the PUCT's Orders violated the requirement in Texas Utilities Code Section 39.001(d) that the PUCT use competitive methods to the greatest extent feasible and impose the least impact on competition. That ruling was subsequently appealed by the PUCT to the Texas Supreme Court. Despite not being a party to the case, ERCOT filed an amicus curiae (friend of the court) brief in support of the PUCT's position.

A final decision in the case is expected in June 2024.

LUBBOCK JOINS ERCOT GRID

ERCOT recently completed Lubbock Power and Light's (LP&L) move to the ERCOT grid. This significant milestone is the culmination of over eight years of study and planning and opens the retail service area for customers to take advantage of competitive wholesale market and electric rates. Lubbock is the first major Texas city to integrate into the ERCOT market in nearly 25 years.

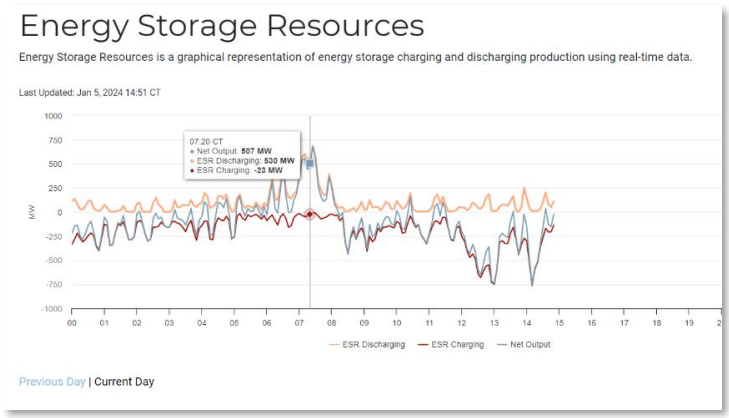
LP&L is scheduled to begin their planned switch to Retail Choice in March 2024. Customers who have moved into the ERCOT grid can visit the LP&L website for more information.

NEW DASHBOARDS

As part of ERCOT's continued efforts to create transparency into grid operations, we have added two new dashboards that showcase the grid in real-time.

Energy Storage Resource (ESR) Dashboard and Report

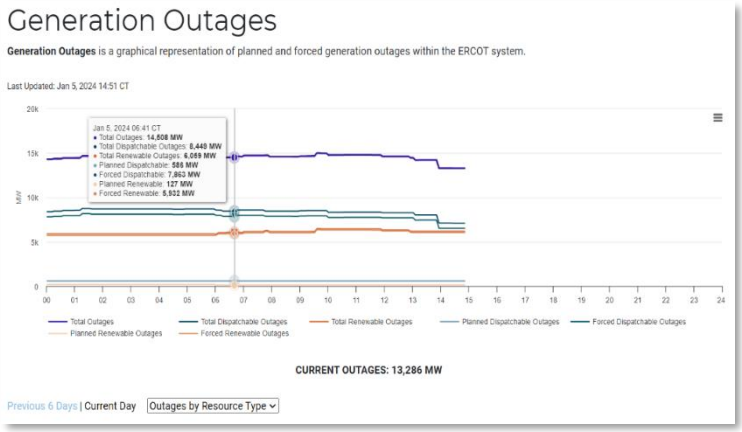
The ESR dashboard, accessible from the Grid and Market Conditions page, provides graphical representation of total discharging, total charging, and net output from ESRs using real-time telemetered data. The data is updated every five minutes. Users can access five-minute average values from the current and previous day.



The new daily ESR Integration Report includes aggregated installed capacity, percentage of contribution to total system load, and statistics on production during peak load for the ERCOT system. The ESR Integration Report is accessible from the Generation page.

Generation Outages Dashboard

The Generation Outages dashboard is a graphical representation of planned and forced generation outages within the ERCOT system. This dashboard, accessible from the Grid and Market Conditions page, provides MW values of planned and forced generation outages currently taking place as well as any that occurred during the previous six days. These quantities include full outages as well as partial reductions in generation capability that meet reporting requirements. The values in the dashboard reflect MW capability reductions relative to a generator's maximum seasonal capability.



Upcoming Activities

BOARD OF DIRECTORS MEETINGS*

ERCOT Board of Directors meetings are livestreamed from ercot.com, where you can also find links, additional information, agendas, and supporting documents.

February 27	June 18	October 10
April 23	August 20	December 3

RELIABILITY & MARKETS COMMITTEE MEETINGS*

ERCOT Reliability & Markets meetings are livestreamed from ercot.com, where you can also find links, additional information, agendas, and supporting documents.

February 26	June 17	October 9
April 22	August 19	December 2

TECHNICAL ADVISORY COMMITTEE (TAC) MEETINGS*

ERCOT TAC meetings are livestreamed from ercot.com, where you can also find links, additional information, agendas, and supporting documents.

January 24	May 22	September 25
February 14	June 24	October 30
March 27	July 31	November 20
April 15	August 28	

ERCOT has many additional working groups and committee meetings. Visit our Meeting Calendar for more on the various groups, committees, meeting dates, agendas, meeting materials, and more.

*Meetings dates are subject to change, so please check the meetings page for the latest information.