

ERCOT MONTHLY

DECEMBER 2024

A RECAP OF KEY INFORMATION FROM THE PREVIOUS MONTH, A LOOK AT THE UPCOMING MONTH, AND A SNAPSHOT OF ADDITIONAL KEY ITEMS

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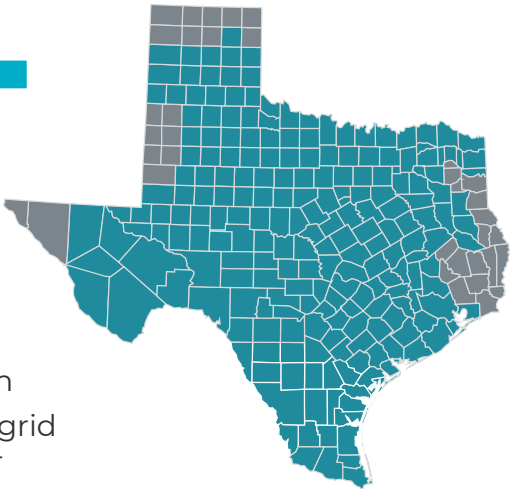


November 2024 Look Back

60,170* MW

November 2024
peak demand

ERCOT procured
\$15.29 million in
Ancillary Services for grid
reliability in November
2024



56,355 MW

November 2023 for
comparison

Wholesale pricing was
slightly **lower** than this
time last year

*unofficial until final settlements



20,304 MW
max November solar
generation
November 20

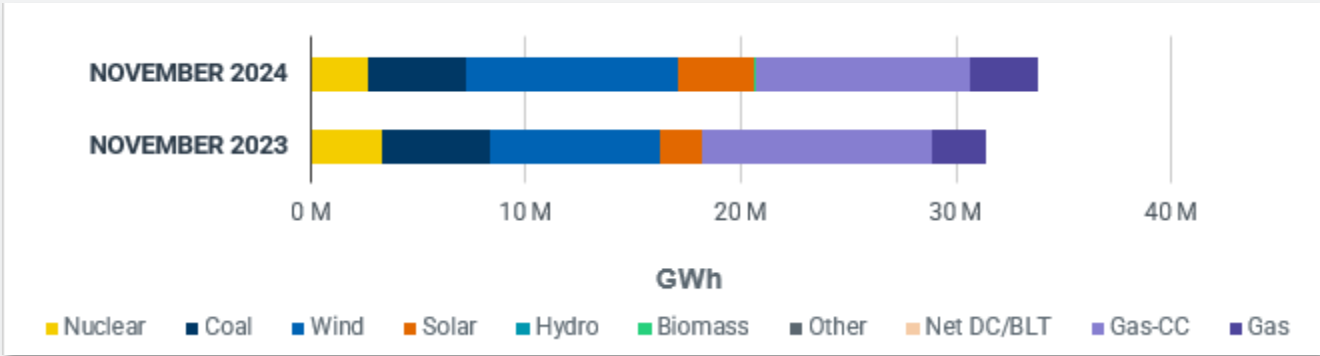


26,652 MW
max November wind
generation
November 24



4,364 MW
new Battery generation
record
November 10 at 5:51 p.m.

November Energy Generation Comparison 2023 vs. 2024



January Outlook

January Monthly Outlook for Resource Adequacy

For the [January](#) Monthly Outlook for Resource Adequacy (MORA) report, probabilistic modeling results indicate a low risk of having to declare an Energy Emergency Alert (EEA). Hourly probabilities peak at 8.51% for 7-8 a.m. CST, which is the forecasted peak load hour for January. Another increase in hourly load, with an accompanying increase in EEA risk, occurs for 5-10 p.m.

The ramping down of solar production contributes to the higher EEA risk during the early evening hours. There is some EEA risk throughout the nighttime and early morning hours. This risk pattern is influenced by recent and forecasted additions of large loads, such as data centers, that are expected to operate on a continuous "24x7 hour" basis, and, thereby, flatten the hourly load pattern from what is seen historically for the winter months. The full report can be found on the [Resource Adequacy](#) page.

Jan	Chance of Normal System Conditions	EMERGENCY LEVEL	
		Chance of an Energy Emergency Alert	Chance of Ordering Controlled Outages
Hour Ending (CST)	Probability of CAFOR being above 3,000 MW	Probability of CAFOR being less than 2,500 MW	Probability of CAFOR being less than 1,500 MW
1 a.m.	98.21%	1.45%	1.31%
2 a.m.	98.70%	0.87%	0.76%
3 a.m.	98.65%	0.93%	0.80%
4 a.m.	98.69%	0.89%	0.75%
5 a.m.	98.41%	1.11%	0.99%
6 a.m.	98.10%	1.49%	1.38%
7 a.m.	95.93%	2.81%	2.46%
8 a.m.	87.56%	8.51%	7.12%
9 a.m.	94.36%	3.69%	3.13%
10 a.m.	97.93%	1.35%	1.16%
11 a.m.	99.48%	0.27%	0.22%
12 p.m.	99.62%	0.20%	0.16%
1 p.m.	99.82%	0.11%	0.09%
2 p.m.	99.94%	0.02%	0.01%
3 p.m.	99.95%	0.01%	0.00%
4 p.m.	99.90%	0.02%	0.02%
5 p.m.	99.83%	0.06%	0.05%
6 p.m.	97.97%	0.98%	0.63%
7 p.m.	93.93%	2.82%	2.08%
8 p.m.	93.02%	3.65%	2.78%
9 p.m.	96.29%	1.95%	1.65%
10 p.m.	96.12%	2.14%	1.67%
11 p.m.	98.79%	0.54%	0.41%
12 a.m.	99.64%	0.19%	0.14%

Note: Probabilities are not additive.

Additional Items of Note

Gas-Electric Coordination

Since 2021, ERCOT has focused on enhancing gas-electric coordination efforts and establishing formal working relationships with natural gas entities, including fuel suppliers for generation resources. Enhanced coordination efforts help ERCOT gather operations and delivery information to increase reliability and stability of the electricity supply chain.

Natural gas facilities are critical to the resiliency of the ERCOT grid and make up more than 45% of the power produced in the ERCOT market. Situational awareness regarding the natural gas system and the ERCOT generation resources that rely on it, is vital to support grid reliability.

ERCOT's goal is to establish ongoing, collaborative, information-sharing relationships with the natural gas industry and support industry standards and Protocols to ensure the reliable operation of the bulk power system.

The Gas-Electric Working Group meets twice a year and held its meeting to discuss winter preparations in November. With representatives from both the electric and gas industries present, the group discussed winter weatherization requirements and compliance, providing notice to pipelines that serve a Black Start resource, and improving communication. Learn more about our [gas-electric coordination efforts](#).

Legislative Recap

On December 3, the Joint Senate and House Grid Reliability Legislative Oversight Committee convened to assess Texas' ongoing efforts to ensure the reliability and resiliency of the state's electric grid. The hearing opened with an acknowledgment of legislative progress made since Winter Storm Uri, including the passage of Senate Bill 3 to improve winter preparedness, HB 1500, and Senate Bill 2627 to encourage new dispatchable generation.

ERCOT Sr. Vice President and Chief Operating Officer Woody Rickerson provided invited testimony detailing ERCOT's updated forecasting efforts, projecting that peak load demand could reach 150 GW by 2030 and is expected to grow as ERCOT obtains new data from the TSPs for 2031. Discussion highlighted that load growth is largely driven by industrial expansions, including data centers and other large energy-intensive facilities, and also outlined potential upgrades to the state's transmission system, including a transition to 765-kV lines, which could handle higher load growth more efficiently.

ERCOT continues to implement the various legislative provisions from previous legislative sessions. A full listing of the legislative provisions currently undergoing the implementation process can be found in the most recent edition of the [ERCOT Legislative Status Report](#).

ERCOT's Government Relations team can be reached at GovernmentRelations@ercot.com.

Highlights from the December 3 Board of Directors Meeting

- The Board of Directors approved eight revisions to the ERCOT Nodal Protocols along with two revisions to the Nodal Operating Guide, two revisions to the Planning Guide, and revisions to the Other Binding Documents. These revision requests were all recommended for approval by the Technical Advisory Committee (TAC).

The Board heard extended discussion on one non-unanimous revision request, [NPRR 1247](#), *Incorporation of Congestion Cost Savings Test in Economic Evaluation of Transmission Projects*, which addresses recent amendments by the Public Utility Commission (PUCT) to 16 Texas Administrative Code (TAC) § 25.101, which implemented Senate Bill 1281 (87R). The Board unanimously voted to approve NPRR 1247. ERCOT will address concerns through a subsequent revision request with a more holistic review of the planning process in 2025.

The revisions are now pending final approval at the PUCT for consideration at the January 16, 2025, Open Meeting. Information regarding recently approved rules and the revision request process is available on the [Market Rules](#) section of the ERCOT website.

The Board also remanded [NPRR 1246](#), *Energy Storage Resource Terminology Alignment for the Single-Model Era*, and related revisions to the Planning Guide, Nodal Operating Guide, and other binding documents back to TAC for further consideration. TAC is expected to incorporate baseline clean-ups to the revisions to account for Protocol changes recently approved through NPRR 1188 that became effective at the beginning of the month.

- The Board heard updates on the implementation of the Real-Time Co-optimization plus Batteries (RTC+B) project as ERCOT looks ahead to the expected December 5, 2025, go-live. The [presentation](#) at the Technology and Security Committee meeting focused on

the execution phase of the project with an overview of timelines, program structure, and system changes. All current milestones have been met and the projects are all on schedule.

- At the Reliability and Markets Committee, the [presentation](#) focused on market activities as we move towards market trials and readiness. The final outstanding policy considerations will be addressed in the next few months as the RTC+B Task Force looks to confirm the final few technical parameters through an NPRR and move the values into the Protocols. The Task Force will also look at potential changes to the Ancillary Services Demand Curves (ASDCs) and determine if there is consensus on changes or if the policy discussions should continue in the stakeholder process for implementation after the go-live date.
- The ERCOT Board voted to approve two Tier 1 transmission projects.

The Oncor Electric Delivery Company LLC (Oncor) Delaware Basin Stages 3 and 4 Regional Planning Group (RPG) Project is a \$202 million project with an expected Summer 2027 in-service date. The project will support reliability requirements for the ERCOT System and address voltage violations in the Culberson, Loving, Reeves, and Ward Counties in the Far West Weather Zone through the construction of over 22 miles of 345-kV and 40 miles of new 138-kV transmission lines along with improvements to existing facilities.

The American Electric Power Service Corporation (AEPSC) Brownsville Area Improvements Transmission Regional Planning Group (RPG) Project is a \$423 million project with an expected May 2029 in-service date. The project, located in Cameron County in the South Weather Zone, will address thermal overloads and voltage violations in the Brownsville area upon addition of new large load. Over 24 miles of 345-kV and 46 miles of 138-kV transmission lines will be constructed or rebuilt along with upgrades to existing substations.

Both projects will require PUCT approval of a Certificate of Convenience and Necessity (CCN) before construction can commence.

- ERCOT staff presented to the Board its analysis of the Reliability Must-Run (RMR) for CPS Energy's Braunig Unit 3. ERCOT staff explained how its analysis revealed performance deficiencies that would impact transmission facilities and cause potentially mandated load shed to preserve system reliability. In its required evaluation of Must-Run Alternatives, ERCOT received only one response to its Request for Proposals, which did not meet the stated criteria. The Board noted that the cost of entering into the RMR agreement at \$34 million was significantly less than the estimated risk and the cost of load shed at \$107 million, making the RMR agreement a cost-effective alternative. The Board approved ERCOT's recommendation to enter into the RMR agreement for CPS Energy's Braunig Unit 3, which is anticipated to be due back in service by Summer 2025, dependent on the assessed repair needs and managing any supply chain logistics. The Board will defer any decision on the Reliability Must-Run assessment for the CPS Energy Braunig Units 1 and 2 until the February 2025 Board meeting.

- The Board's Technology and Security Committee received an overview on advancements in nuclear generation technologies from a pair of invited speakers. The presentations continued a series of emerging technology speakers at the committee.

Joe Miller, President of BWXT Advanced Technologies LLC, gave a [presentation](#) on "Nuclear Technologies Today & Tomorrow." The discussion highlighted emerging nuclear reactor technologies along with commercialization and regulatory challenges for adoption of Small Modular Reactors (SMRs). Nuclear technology is the highest capacity factor and lowest carbon emission generation source.

PUCT Commissioner Jimmy Glotfelty presented on the work of the Texas Advanced Nuclear Reactor Working Group, which was established in August 2023 at the direction of Governor Greg Abbott. Commissioner Glotfelty discussed the Working Group's legislative recommendations and future considerations for advancing nuclear in the state. Information regarding the Working Group and its final report, "Deploying a World-Renowned Advanced Nuclear Industry in Texas" is available on the PUCT's [website](#).

Nodal Operating Guide Revision Request (NOGRR) 245 Update

In September, the PUCT approved Nodal Operating Guide Revision Request [NOGRR245](#) (NOGRR) 245, which replaced the previous voltage ride-through requirements for Intermittent Renewable Resources (IRRs) with voltage ride-through requirements for Inverter-Based Resources (IBRs) and Type 1 and Type 2 Wind-powered Generation Resources (WGRs). It also provides new frequency ride-through requirements for IBRs and Type 1 and 2 WGRs consistent with or beyond requirements identified in the new 2800-2022 - Institute of Electrical and Electronics Engineers (IEEE) Standard for Interconnection and Interoperability of Inverter-Based Resources (IBRs) Interconnecting with Associated Transmission Electric Power Systems ("IEEE 2800-2022 standard").

Pursuant to NOGRR245, by December 31, 2025, Resource Entities (REs) must take steps to maximize the ride-through capability of their facilities to get as close to meeting the new requirements as equipment allows. If they cannot fully meet the new requirements, REs must, by April 1, 2025, file a "notice of intent to request an exemption" from the new requirements along with a detailed report.

The second step of the bifurcated process involves establishing a subsequent NOGRR containing exemption criteria and a process to analyze and respond to exemption requests. However, after approving NOGRR245, the PUCT expressed an interest in developing the exemption criteria and process through a rulemaking. Accordingly, the Commission recently published two Proposals for Publication in [Project No. 57374](#). Commission Staff anticipates that the new rules will be finalized in the coming months.

Separately, ERCOT has established an internal team to identify work groups to review submitted data, evaluate exemption requests based on approved criteria, and develop internal policies and procedures. That work is ongoing. Because of the growth of IBRs on the ERCOT System and their increasing impact on grid reliability, the requirements in NOGRR245 make meaningful impacts to fostering a more reliable ERCOT System.

Second Request for Proposals (RFP) for Must-Run Alternatives Issued to Compete Against CPS Energy Units 1 and 2 and Mobile Generation Solution

ERCOT has begun discussions with CenterPoint, CPS Energy, and Life Cycle Power to explore the idea of temporarily using 15 Life Cycle mobile generators that CenterPoint is currently leasing from Life Cycle as an alternative to committing Braunig Units 1 and 2 through an RMR agreement. These 15 units range from 27.5 to 32.6 MW winter capacity each.

Subject to negotiation of definitive agreements, CenterPoint has expressed to ERCOT that, to support the needs of the state, it will forgo its right to use the Life Cycle mobile generators through the earlier of the completion of the Tier 1 San Antonio South Reliability Project or the implementation of an appropriate exit solution and allow ERCOT to contract with Life Cycle for the use of the mobile generators during this period without providing CenterPoint any compensation for such use. Both ERCOT and CenterPoint currently expect that this period will be no longer than approximately two years.

ERCOT is currently engaged in discussions with Life Cycle regarding a contract under which Life Cycle would move its mobile generators to the San Antonio area and make them available for ERCOT's dispatch when necessary to address an actual or anticipated Emergency Condition. In exchange for that commitment, Life Cycle would recover its costs of moving, installing, and operating the assets, in addition to receiving an appropriate incentive for undertaking this arrangement. The costs recovered under the contract would also include costs incurred by CPS Energy, such as costs of interconnecting the units and providing QSE services. ERCOT would not pay CenterPoint anything and there is anticipated to be no agreement with CenterPoint.

This potential solution is still being developed, but in the interest of time, ERCOT has issued a [Request for Proposals \(RFP\)](#) seeking one or more Must-Run Alternatives (MRAs) that may be more cost-effective than contracting for the use of the Life Cycle mobile generators or committing Braunig Units 1 and 2 through an RMR Agreement.

The costs, benefits, and risks of any eligible MRA proposal will be evaluated and compared to the costs, benefits, and risks of other proposals, the Life Cycle mobile generation solution, and committing Units 1 and 2 through an RMR agreement. ERCOT anticipates presenting the results of its analysis of these options at the February 2025 ERCOT Board meeting.

Performance Credit Mechanism (PCM) Tabled

The PUCT agreed that work on evaluating the Performance Credit Mechanism (PCM) had been extensive and thorough, but that, given the limited additional revenues under the guardrails in the statute, it was not practicable to move forward with PCM at this time, consistent with [Chairman Gleeson's memorandum](#). ERCOT appreciates the work that has been done to develop and evaluate PCM. While PCM, as currently designed, did not provide enough benefits to move forward, ERCOT continues to work with stakeholders on market solutions to enhance the reliability of the Texas power grid. ERCOT is currently working to implement RTC+B by December 2025 and will continue to work on new market services, such as Dispatchable Reliability Reserve Service (DRRS), to enhance the reliability of the grid.

Ancillary Services Study

The PUCT approved the [Ancillary Services Study and its findings as proposed by Commission staff](#), making one change to determine that the framework for DRRS development should include flexibility to recognize DRRS both as an intraday operational tool as well as a potential resource adequacy tool. The Commission reminded stakeholders to work through issues quickly so that DRRS implementation is not delayed.

ERCOT December Planning Reports

ERCOT issues a number of planning reports each December. Below are some of the key reports released in December 2024. These reports can be found on ERCOT.com by visiting [Planning](#) on the Grid Information dropdown or by using the links below.

2024 Regional Transmission Plan (RTP): The [2024 RTP](#) addresses region-wide reliability and economic transmission needs and includes the recommendation of specific planned improvements to meet those needs for the upcoming six years. It is an annual report and the result of a coordinated planning process performed by ERCOT Grid Planning with extensive review and input by NERC-registered Transmission Planners (TPs), Transmission Owners (TOs), and other stakeholders. The 2024 RTP addresses ERCOT System transmission needs for years 2026 through 2030. This report documents the results of the assessment, in part, to comply with the requirements of NERC Reliability Standards, ERCOT Protocols, and the ERCOT Planning Guide.

This year's study included two different transmission plans. One plan limited the highest voltage to 345-kV, while the other incorporated some 765-kV elements, given that extra high voltage (EHV) facilities are generally known to provide benefits such as reducing losses for long-distance power transportation, increasing short circuit strength, and improving voltage stability. ERCOT performs a load review process each year to determine the load forecast to be used. The load forecast used in the 2024 RTP reflected the unprecedented load growth and the new requirement from HB5066, which resulted in more than 150 GW forecasted load for Summer 2030.

An evolving generation mix has resulted in increased distance between generation sites and demand centers. With the current capacity of the transmission system and the increase in large loads projected to move to Texas, the preliminary 2024 Regional Transmission Plan (RTP) study results indicated a need for substantial new transmission infrastructure to serve the forecasted load growth.

Grid Reliability and Resiliency Assessment (GRR): The [2024 GRR](#) is the inaugural biennial report that addresses ERCOT System transmission needs under extreme weather conditions and uses the resiliency criteria proposed by PGRR117. The time horizon for the GRR report was not defined in any Legislature requirement. ERCOT adopted year five as the study year. The GRR is performed pursuant to the requirements established in 16 Texas Administrative Code (TAC) § 25.101(b)(3)(E). The PUCT adopted this rule in December 2022 to implement the requirements from Senate Bill (SB) 1281 (87th Legislature). Due to implementation timeline, the 2024 GRR used the final reliability case from the 2023 RTP, which did not incorporate the additional load driven by the unprecedented load growth and the new requirement from HB5066. The GRR process adjusts the load forecast based on the outcome of the extreme scenarios studied.

2024 Existing and Potential Electric System Constraints and Needs Report: The annual [2024 Report on Existing and Potential Electric System Constraints and Needs](#) identifies and analyzes existing and potential constraints in the transmission system that pose reliability concerns or may increase costs to the electric power market and, ultimately, to Texas consumers. It includes key findings from ERCOT's transmission assessments, key challenges in the ERCOT region, and key initiatives in the ERCOT region and in the industry.

Long-Term System Assessment (LTSA): ERCOT also conducts the [2024 LTSA](#), completed in even-numbered years. The role of the LTSA is to guide near-term planning decisions by providing a longer-term view of system reliability and economic needs. LTSA provides an evaluation of the potential needs of ERCOT transmission system in the 10- to 15-year planning horizon and addresses the transmission needs for 345-kV only through economic analysis. The LTSA contains both a capacity expansion study and a transmission expansion study. It is used to address Section 39.9112 of the Public Utility Regulatory Act (PURA) that requires that the Public Utility Commission of Texas (PUCT) and ERCOT study the need for increased transmission and generation capacity. The 2024 LTSA used the 2023 ERCOT Long-Term Load Forecast and did not incorporate the additional load driven by the unprecedented load growth and the new requirement from HB5066, given the timing of the report development and the implementation of HB5066. The peak load for the Current Trends scenario in 2039 is 115,734 MW.